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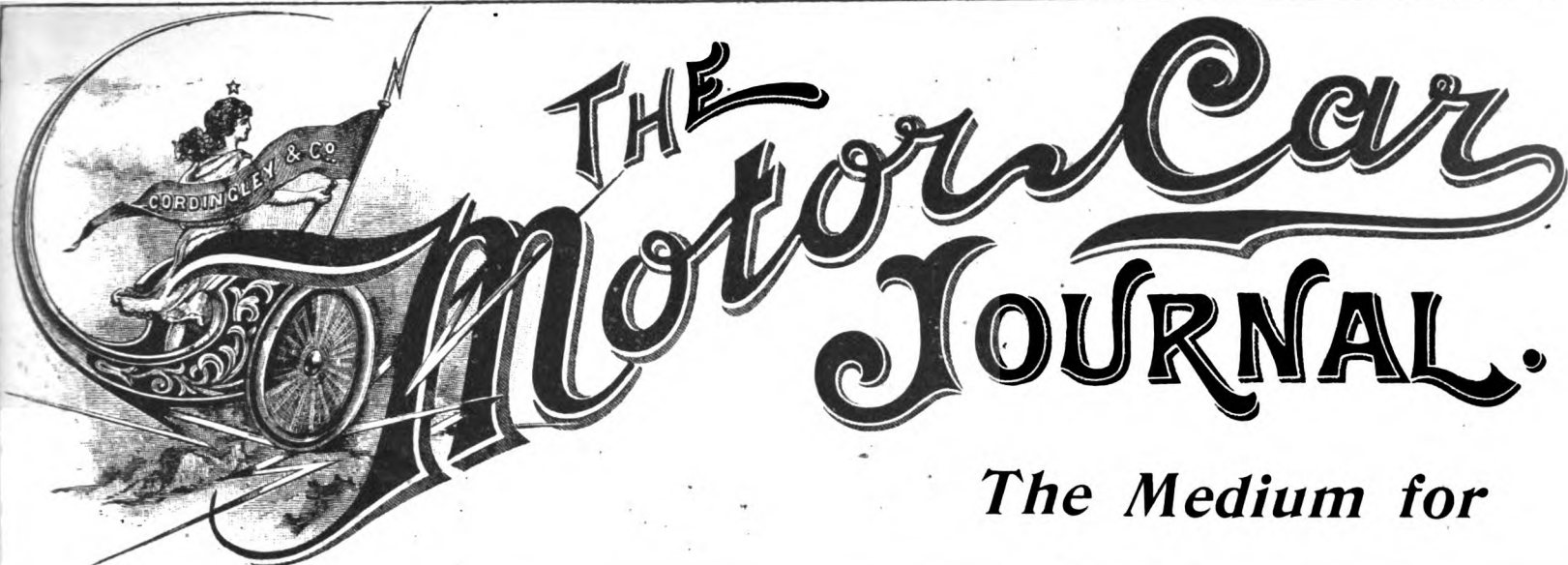
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COMMENTS.



WITH the present issue the *Motor-Car Journal* commences its second volume. Established a year ago its success has never been in doubt. The first number was received with favour by all interested in automobilism, and that early welcome has increased in cordiality as the months have passed by until, to-day, its position in the journalistic circles concerned with automobilism is assured and acknow-

ledged. Such a result has been extremely gratifying as evidencing widespread interest in motor-car matters, and we are all the more pleased because it has been won without any lessened friendliness from other journals previously associated with the industry. We have sought not only to assist the growing number of motor-carists by early information of improvements, and by the interchange of ideas on practical points, but we have (in a serious effort to interest all classes of people in automobilism) done something to help forward the popularisation of the new means of locomotion on common roads.

The Motor-Car Journal.

REGARDING the function of a paper catering for a new industry as being of a twofold character, we have endeavoured to act up to that ideal; first by devoting space to technical matters of interest to the practical motorist; second, by en-

deavouring to attract Society and commercial people to the ranks of automobilists by regular publication of its progress and frequent demonstrations of its service. With what success this has been done the subscription list of the *Motor-Car Journal* is ample testimony. For within the space of one year practically every automobilist in Great Britain and Ireland has shown his or her favour, while in the United States, several of our colonies, France, Belgium, Italy, Switzerland, Germany, Austria, Hungary, Russia, Roumania, and other countries we have subscribers who follow the doings of the motor-car world with interest and keen concern. Not only is this a matter of personal satisfaction, but it must prove encouraging to all our readers who will accept the extending influence of this journal as further proof of the growing importance of the automobile.

A Glance Back.

A GLANCE at the index to Volume I. (which is shortly to be published) will afford some idea of the variety of matters which have been dealt with during the past year. Our view has not been wholly insular, although we

have taken particular care to chronicle everything of interest with regard to the doings of British manufacturers. We have watched developments on the Continent and in the United States, and whenever improvements have seemed of value have given them space in our columns—criticising with freedom and with fairness points of construction and matters of moment.

Events of social importance and business concern have been chronicled with impartiality, and, altogether, the first year's history of the *Journal* can be reviewed with a very pleasant feeling. We would take this opportunity of thanking our regular staff of correspondents for their efficient and prompt services, and also express our obligations to the many thoughtful readers who by early communication of tours, experiences, and similar incidents have enabled us to render our pages of general usefulness and interest. With such help equally well rendered in the future the *Motor-Car Journal* looks forward with hopeful anticipations of the progress of the industry and sport with which it is intimately associated.

In the Future.

WITH regard to the future every effort will be made not only to retain but also to extend the prestige already possessed. The full record we shall give of the Automobile Club's Exhibition will be of permanent interest, the chronicle of the great tour of 1,000 miles will demonstrate the reliability of the automobile, and the arrangements in progress for recording runs and tours will add to the interest of our columns during the summer months. In this work we bespeak the help of our readers, who, by supplying notes of pleasant trips, with practical information as to tolls, hotels, etc., can materially add to the enjoyment of other motorists. That is a department of never-ending attractiveness, and it is a department in which the *Motor-Car Journal* will not lag behind. And here this personal note must stop; the fact that this is our journalistic birthday—so far as automobilism is concerned—must be accepted as an extenuating circumstance.

The 1,000-Mile Automobile Trial.

As the date of the Automobile Club's 1,000-mile trial comes nearer interest in the event appears not only to be maintained, but to be increasing, and during the past week or so quite a number of additional entries have been received. In Section I. (manufacturers) the list now numbers fifty different vehicles, the recent additions comprising a victoria by the International Motor Company, a car by the S.S. Motor Company, two vehicles by the Southern Motor Car Company, a voiturette by Messrs. Humber and Co., and a car and a Renault tricycle by Messrs. Marshall and Co. Turning to Section II. (privately-owned motor-vehicles), the list now shows twenty-five entries, the latest accessions being a 12-h.p. Daimler by Mr. J. A. Holder, a car by Mr. R. E. Phillips, and a 6-h.p. Daimler Parisian car by Mr. W. Exe. It will thus be seen that altogether no less than seventy-five vehicles have already been entered, and it is expected that ere the list is closed this number will be increased to fully a hundred. We have this week received an advanced copy of the official programme of the trial; this is a most elaborate production, and practically forms a book of instructions for all who will take part in the test. Each day's journey is mapped out in clear type, with instructions as to speed, stopping, etc., set out in the margin. Useful lists of hotels and petrol stores in the different towns passed through are included in the programme, while four pages are devoted to a list of the vehicles entered, with blank

columns in which to insert the average speed attained on each day's run, thus enabling a record to be kept of the performances of each and every car. In connection with the tour special road maps are being published which, enclosed in neat cases, can be fixed on the cars and so give the driver a view of his route for several succeeding miles.

Some Additional Rules.

At a meeting of the Standing Committee of the Automobile Club a few days ago, further matters in connection with the trial were dealt with, and the following additions to the rules were recommended:—(a) "Sprocket wheels shall not be changed during the course of a running day." (b) "Any alteration, temporary or otherwise, in the load or the number of passengers during a hill-climbing trial shall be declared by the driver to the next timekeeper." The intention of the first of these new rules is to prevent the changing of sprockets; say, for instance, at Kendal on the afternoon of the April 30th, as the record made with a large sprocket over the fairly flat country between Manchester and Kendal, and the record made with a small sprocket on the ascent of Shap Fell, would not properly represent the powers of the car unless the change of sprockets were recorded.

The Late Herr Daimler.

ELSEWHERE we record the main incidents in the life of the late Herr Daimler, whose untiring work in connection with automobilism worthily placed him at the head of the modern automobile movement—a fact we recognised by publishing his biography and portrait in the very first number of the *Motor-Car Journal*. It is a sad coincidence that in the first number of our second volume we reproduce that photograph, that our readers may see the features of the deceased gentleman. His work is not likely to be forgotten wherever automobilism has adherents, and we understand the question of the erection of a statue at Cannstatt, where birth was given to the Daimler motor, will shortly be raised, while an appeal will probably be made by Mr. F. R. Simms for the purpose of having a bas relief of the illustrious inventor placed on the walls of the Automobile Club of Great Britain.

M. Rene de Knyff's Wonderful Speed.

IN our last issue we drew attention to the wonderful average speed of 43½ miles per hour for nearly five hours in the recent "Circuit du Sud-Ouest" race. M. Knyff was driving his so-called 16 h.p. Panhard on which he won the "Tour de France" last summer. *La France Automobile* of the 1st March states that the engine has been altered, and that the electric and tube ignition are both used at the same time and that the low speed is 17 kilomètres (10·5 miles) and the high speed 65 kilomètres (40·3 miles) at 720 revolutions to the minute. M. de Knyff is reported to have covered the first 55 kilomètres in the incredibly short time of 33½ minutes (2 over 60 miles per hour). The weight of the vehicle is about 2,024 lbs. The wheels are 35·4 inches and 43·3 inches diameter and fitted with pneumatic tires 3·5 inches and 4·7 inches.

The Relief of Ladysmith.

NOT the least important and observed of those who participated in celebrating the relief of Ladysmith on Thursday last week in London was a young gentleman who, seated upon a Decauville motor-car, gaily bedecked with bunting, headed a huge procession which passed through the crowded thoroughfares of the West End. At various positions *en route*, notably in Trafalgar Square, the driver came to a standstill, and, standing up in his car, with an immense crowd around him, led, with powerful voice, the cheering for Buller, for Roberts, and indeed for everybody else of whom at the moment he could think. Then the procession reformed, and headed by the ubiquitous motor-car and the enterprising young Briton, it finally arrived at the War

Office, where again he called forth cheers for everybody concerned in the relief of Ladysmith and the Empire. It really seemed as if the throng would stand there all the night yelling and cheering with lungs of iron. But of a sudden an inspector performed his reluctant duty, and the autocarist had to "git."

Circulating the Good News.

THE good news of the Relief of Ladysmith was circulated rapidly in the Warwickshire district by means of the automobile, Mr. George Iden, the manager of the Motor Manufacturing Company, Limited, placing a couple of cars at the disposal of a Coventry daily for use in the prompt distribution of a special addition along the countryside. One of the cars covered the distance between Coventry and Bulkington, running down the Old Roman fosseway to Bretford, Wolvey, Brandon, and so home, whilst the other traversed many miles in the Meriden and Berkswell districts. Everywhere the good news and the cars—one a Princess voiturette and the other a dog cart with Daimler motor—were met with enthusiasm, and the papers eagerly purchased.

Glasgow Exhibition, 1901.

REFERENCE was made in our last issue to the exhibition to be held at Glasgow in 1901, and the invitation that was officially extended to automobilists to participate therein. Before the committee which was appointed to consider the matter, Mr. S. F. Edge restated the view that met with acceptance at the meeting of manufacturers, and it was unanimously resolved that "it be recommended that as a matter of economy manufacturers and agents should agree that the exhibit of each firm shall be confined to not more than one vehicle of each type." This seems the only reasonable conclusion that can be come to, seeing that the exhibition is not for a week or even a month, but for half the year. The exhibition will gain from the decision, for a very comprehensive show of vehicles should be made in which variety of designs will be the characteristic feature rather than the monotony that would be felt by the amusement-seeking public if they were only shown long rows of cars all very much alike.

A Carnival Week.

THE committee has also resolved that no vehicle shall be removed during the course of the exhibition unless another vehicle is there to replace it. But any exhibitor may temporarily remove a vehicle for road trials with customers. This, of course, may appear somewhat arbitrary to the exhibition authorities, but if they will realise the position of the industry and the value that will accrue to its development by allowing vehicles to be thus taken from the exhibition for a few hours now and again, there should be no difficulty in granting that small concession. Certainly it will not detract from the interest in the display, and even if that were so the suggestion made by the committee for an Automobile Carnival week should amply compensate. The exhibition council will be asked to arrange one special week, say in August, during which there shall be a carnival, demonstrations, races, etc., with possibly a tour from London to Glasgow in connection with the event. That should prove a really valuable suggestion and if the proposal is accepted the exhibition would benefit financially, while a great impetus should be given to automobilism in Scotland.

A Transport Service.

It is announced from Bordeaux that the Société des Diligences, Courriers et Messageries Automobiles has recently promoted a new company under the title of La Société Bordelaise de Transports Automobiles, for the purpose of establishing a rapid and efficient service for the transport of merchandise between the towns of Bordeaux and Mazarnet. It is proposed to employ five self-propelled lighters and an equal number of

automobiles, the plan of operations being as follows:—The lighters will receive at Bordeaux cargoes of rough sheep skins, which are regularly delivered at the port by American and Australian vessels, and so laden will pass up the Garonne, the lateral canal, and the canal of Midi to the Pont-Rouge, a total distance of 357 kilomètres, or 223 miles. At that point they will transfer their cargoes to the automobile drays waiting to receive them, and these latter will convey the skins to Mazarnet, a distance of 41 kilomètres (25½ miles). On the return journey the products of Mazarnet, such as wool, leather, etc., will be transported to Bordeaux for expulsion. This service, placing them as it does in direct communication with a seaport, should be of immense advantage to the manufacturers of Mazarnet, and in the case of its proving successful will certainly lead to the inauguration of similar transport services in other parts of France. The result of the experiment will be awaited with very considerable interest.

The Speed of Motor-Cars.

IN our correspondence column there appears a letter from Mr. T. S. Gowland, of Eastbourne, on the subject of the speed of motor-cars, occasioned apparently by the wonderful achievements of the competitors in the recent Circuit du Sud-Ouest race, chronicled in our last issue. Our correspondent would seem to have overlooked the fact that the high speed referred to was indulged in, not on English highways, but on the roads in France, where road-races are not only permitted, but are even encouraged by local authorities. He would also appear to be under the impression that we are advocates of these high speeds. That such is not the case need hardly be said—a glance over the pages of our last volume will prove that we have no sympathy with road scorers, whose performances do more harm than good to the automobile movement.

Motorists on the Defensive.

THE inevitable has happened, and the isolated motorists who have hitherto encountered rebuffs all alone in country police-courts will shortly be organised in their mutual self-defence. Given a motorist, a policeman, and a member of the Great Unpaid, and it will easily be realised that the first-named will be contradicted by the second, and convicted by the third. A policeman who rarely meets anything but cows, sheep, hay-carts, and thrashing machines in his country walks is naturally inclined to exaggerate the speed of the more progressive automobile, and when his evidence is told to a very horsified bench the motorist appears a very terrible person. Hitherto there has been no helpfulness among the devotees of the motor-car, and each has had to fight his battle single-handed. In cases like that of the Hon. C. S. Rolls and his drive on an electric car, expert evidence has completely shattered the sworn oaths of police constables, and if motor-car cases were generally conducted on such lines very different results would be recorded.

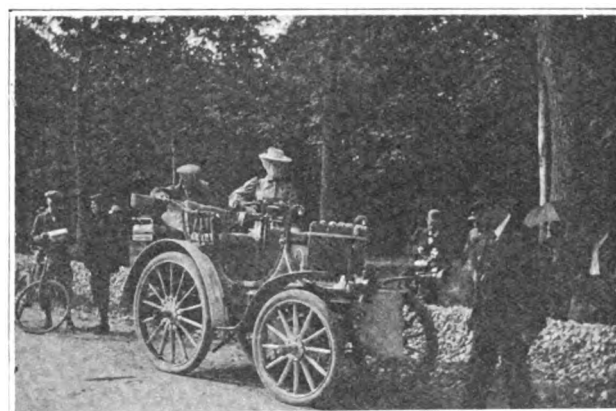
The New Association.

WE are led to these reflections because of the formation of the Motor Vehicle Users' Defence Association, which has been established for the assistance of automobilists, and for their protection against civil and criminal actions arising from accidents, etc., in which motor-cars are concerned, alleged furious driving, and the dozen or more prosecutions for various offences, or imagined offences, for which motor-carists are liable. The need of such an organisation is undenied, and the mere fact that it has been instituted should have a good effect in steadying the enthusiasm with which the police authorities are inclined, in some places, to pursue a campaign against automobilists. As will be seen from the report on another page a very representative committee of management has been formed, which will have a wide discretionary power to defend or commence individual cases, the effect of which action may be beneficial to motorists in general. We are glad to know that already several provincial motorists have joined the associa-

tion, and that the support of most of the metropolitan users is assured. Therefore we have every confidence in advising our readers to become associated with this well-directed effort to secure automobilists from wanton annoyance and irritating convictions. This advice should be particularly emphasized in the case of motorists in country districts who, by means of this association, will be placed in touch with the best legal advice, as well as with the practical knowledge that will be comprehended within the membership.

"Automobility."

IN a paragraph calling attention to the Automobile Club the *Daily Chronicle*, after referring to the fact that the membership includes Sir Richard Webster, Sir William Preece, Sir David Salomons, Professor Vernon Boys, and Major Holden, goes on to say, "But the expense of the material will for some time prevent automobilism—or should it be automobility?—from becoming a really popular amusement." Our contemporary has evidently got hold of the idea that motoring is simply a pastime, and that its main service will be in the direction of amusement. In France that has been its primary use, but the solidness of the



SNAPSHOT OF AMÉDÉE-BOLLÉE CAR NEAR PARIS.

English character has prevented that phase of "automobility" from developing before the commercial use of motor-vehicles has been established. Ere long the newspaper press will realise that even the expense will not prevent the development of motor-car services throughout the country, while the adoption of steam-propelled vehicles for heavy traffic is nearer than the *Chronicle* imagines.

A Suggested Tax on Motor-Cars.

A MEMORIAL from the Northwich Rural District Council in favour of taxing cycles and motor-cars was the cause of a very lively meeting of the members of the Altrincham Urban District Council on Tuesday last. The question of the clerk as to whether he should read the memorial was answered by numerous cries of "Yes," "No," "Rubbish!" and finally the chairman decided that it should not be read. This was the signal for a further outburst. Mr. Gatley moved a resolution in favour of adopting the memorial. Cycles were, in his opinion, a source of danger to the public, and motor-cars were an "infernal nuisance." When driving out he had had his horse driven right across the footpath against the hedge by them. Finally, however, Mr. J. Smith moved that the memorial be not entertained, and said that the suggested tax would be a great mistake. This having been seconded, three members voted for the resolution, and the amendment was carried by a large majority.

THE Kidder Motor-Vehicle Company has been formed at Dover, Del., with a capital of £100,000, to deal in motors and motor-vehicles.

THE MOTOR-VEHICLE USERS' DEFENCE ASSOCIATION.



AT the Automobile Club, Whitehall Court, S.W., a well-attended meeting of this association was held on Tuesday, under the chairmanship of Mr. Roger Wallace, Q.C., the president of the club. There was a representative attendance of private users and manufacturers and agents; Mr. T. W. Staplee Firth and Mr. G. R. Helmore, the solicitor and secretary respectively, were also present.

The Chairman said it was well known that owners of cars were subject to severe handling in the police courts, and it was generally agreed that some kind of defence association was necessary in order to protect the common interests. The association which had been formed was to have a committee, which would consist of the chairman and vice-chairman of the Automobile Club, ten other gentlemen, and three trustees. Captain the Hon. Cecil Duncombe, the Hon. J. Scott Montagu, M.P., and Sir David Salomons, Bart., had consented to act as trustees, and the Automobile Club had elected five members of the committee, Sir E. Jenkinson, Major H. C. L. Holden, Mr. E. R. Shipton, Mr. R. E. Phillips, and the secretary of the club, Mr. C. Johnson. Five other members of the committee, who need not necessarily be members of the club, had to be elected. Mr. Firth, who had acted very successfully in several cases, had consented to act as solicitor. Users of motor-vehicles would be welcomed as members, and donations would also be welcomed. He mentioned that the Hon. Evelyn Ellis had sent a donation of twenty guineas.

The election of the five other gentlemen to form the committee was then proceeded with, the voting being by ballot, and disclosing the fact that the Hon. C. S. Rolls, Messrs S. F. Edge, Charles Cordingley, J. Mann, and F. Wellington had secured election.

A discussion then took place with regard to the subscriptions of members owning more than one car, and of manufacturers and agents.

Sir David Salomons pointed out the various classes which would come into membership, and that those who had several cars, and only one driver really had several risks. In connection with patent questions, if a private owner had several cars the liability of the association would be greater: therefore he thought the number of cars owned by the member should be considered in settling his subscription. But in the case of the trade it was more the number of drivers than of cars that should decide the matter.

Mr. Mann suggested that, instead of taxing cars the association should tax drivers, and that manufacturers should pay upon the same basis, paying for all their drivers.

Mr. Friswell asked what the association was going to do for manufacturers, and suggested that they should pay, say, £1 and 10s. for every driver up to £5.

Sir David Salomons said the association was not going to pay all legal expenses, but the usefulness of the committee would be dependent on the amount of subscriptions and donations.

The Chairman thought the association could be extremely useful in getting evidence, and a good deal of voluntary work would have to be done.

Mr. C. Johnson gave an instance of the useful work which might be done by such an organisation. Last year a motorist living in Kent was summoned for alleged furious driving on the highway. He could not take up the case himself, and so the Automobile Club assisted him in his defence. They were able to prove the horses he was alleged to have frightened were not on the highway, and that his car was only going at nine miles an hour, with the result that he won the case.

Mr. Staplee Firth said the association would be wholly one for mutual protection, and was based upon the principle of self-help.

Mr. R. E. Phillips was surprised to hear it suggested that the association should take up patent questions. If manufacturers infringed patents they should take the responsibility.

Mr. Firth explained that the reference to patents did not mean fighting between patentee and infringer, but if the owner of a patent sought to interfere with the user of a car, and the committee thought it was a case of blackmailing, they might be able to help.

A question was raised as to what action would be taken in regard to Corporation Bills which adversely affected motorists, the chairman replying that in such cases the Automobile Club would continue to act as heretofore.

Ultimately, on the motion of Mr. Mann, seconded by Mr. Friswell, it was resolved that the annual subscription should be £1 for members who do not own but who may drive a motor-vehicle; and £1 for members owning a motor-vehicle or motor-vehicles, but if a member employs a driver or drivers he or they must be registered and a subscription paid by the owner of the car or cars in respect of the said driver or drivers.

The proceedings then terminated, a meeting of the newly elected committee being subsequently held. Intending members will be interested to learn that the office of the new association is at 84, Chancery Lane, E.C.

ACCUMULATORS FOR IGNITION PURPOSES.



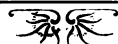
THE Georges Richard Company, the well-known manufacturers of motor-carriages in Paris, according to a French contemporary, give the preference to storage batteries for the ignition of their motors. The batteries, however, should have low resistance and be frequently recharged from a low current. M. Richard estimates an average of sixty miles a day for an automobile, or five hours' work for the motor. The contact producing the spark lasts only about one-fifth of the revolution of the cam which causes it, so that about two ampère-hours would be required for each day of work, nineteen hours out of the twenty-four the battery being at rest. Hence, a charge of continuous current of one-tenth ampère will be sufficient to restore the battery after each day's work, just the amount which a good dry cell will yield without danger of polarisation and with the assurance of a life of 200 to 300 ampère-hours. Hence, a good battery of dry cells ought to keep the storage battery fully charged for a period of five or six months, connection being made immediately after returning to the stable. The voltage can thus be automatically regulated. The voltage of the dry battery being equal to that of the storage battery when fully charged, if on return the storage battery voltage is inferior to that of the dry cells, the latter send current into the storage cells. When the voltage is restored the dry cells cease discharging and tend to depolarise. Hence, the storage cells work continually under the most favourable conditions, receiving and discharging in small quantities.

IDEN'S PATENTS, LIMITED, is the title of a company which has been registered with a capital of £10,000 to manufacture, let on hire, and deal in motors, cycles, and vehicles, and to carry on the business of electricians, engineers, smiths, &c.

THE Winton Motor Carriage Company, of Cleveland, U.S.A., have lately despatched one of their automobiles to the City of Mexico. The output of the Winton factory for the year past is stated to have amounted to nearly two hundred vehicles of the delivery wagon and phaeton types.

A MEETING of directors of the Lincoln Motor-Bus and Parcel Delivery Co., Ltd., was held last week, when the preliminary work necessary for the flotation of the company was proceeded with. The secretary reported that further satisfactory applications for shares continued to be received, whilst inquiries and promises of active support were of daily occurrence. Negotiations for the purchase of the first cars are far advanced. A deputation of directors had recently inspected the systems and vehicles in use in other towns, and thus obtained useful information for their guidance in the management of this company, which has a capital of £5,000.

The Late Herr Gottlieb Daimler.



ALL interested in the progress of automobilism will learn with deep regret of the death of Herr Gottlieb Wilhelm Daimler, which sad event occurred on Tuesday at his home at Cannstatt. For some time he had been in ill health, and although he was approaching the threescore year and ten, when activity frequently ceases, news of his death will be mournfully received by those who have long recognised his genius, and admired the steadiness of work which always characterised the deceased gentleman. In business life he won the esteem of all who had dealings with him, while in private concerns he was ever a faithful friend and sympathetic counsellor.

He was born at Schorndorf, in Germany, in 1834, and very early showed remarkable aptitude in mechanical matters. When he left school he served an apprenticeship in an engineering works, and worked in many of the principal factories in Germany. Then he spent a few years in England, where, at the Whitworth Works, he added to his practical and sound knowledge of construction.

After visiting several foreign countries he joined Dr. Otto in an attempt to develop the gas engine, and in 1872 they, with the help of Herr Langen, a councillor of Cologne, established the Gas-Motoren Fabrik at Deutz, Herr Daimler being the manager. He initiated Messrs. Cross-

ley Brothers, of Manchester, into the principles of gas engine construction on the Otto plan, and in 1882 relinquished his direction of the works at Deutz in order to devote all his time and thought to the introduction of a light and high-speed petroleum motor. The results of his efforts were subsequently seen in the now well-known Daimler motor.

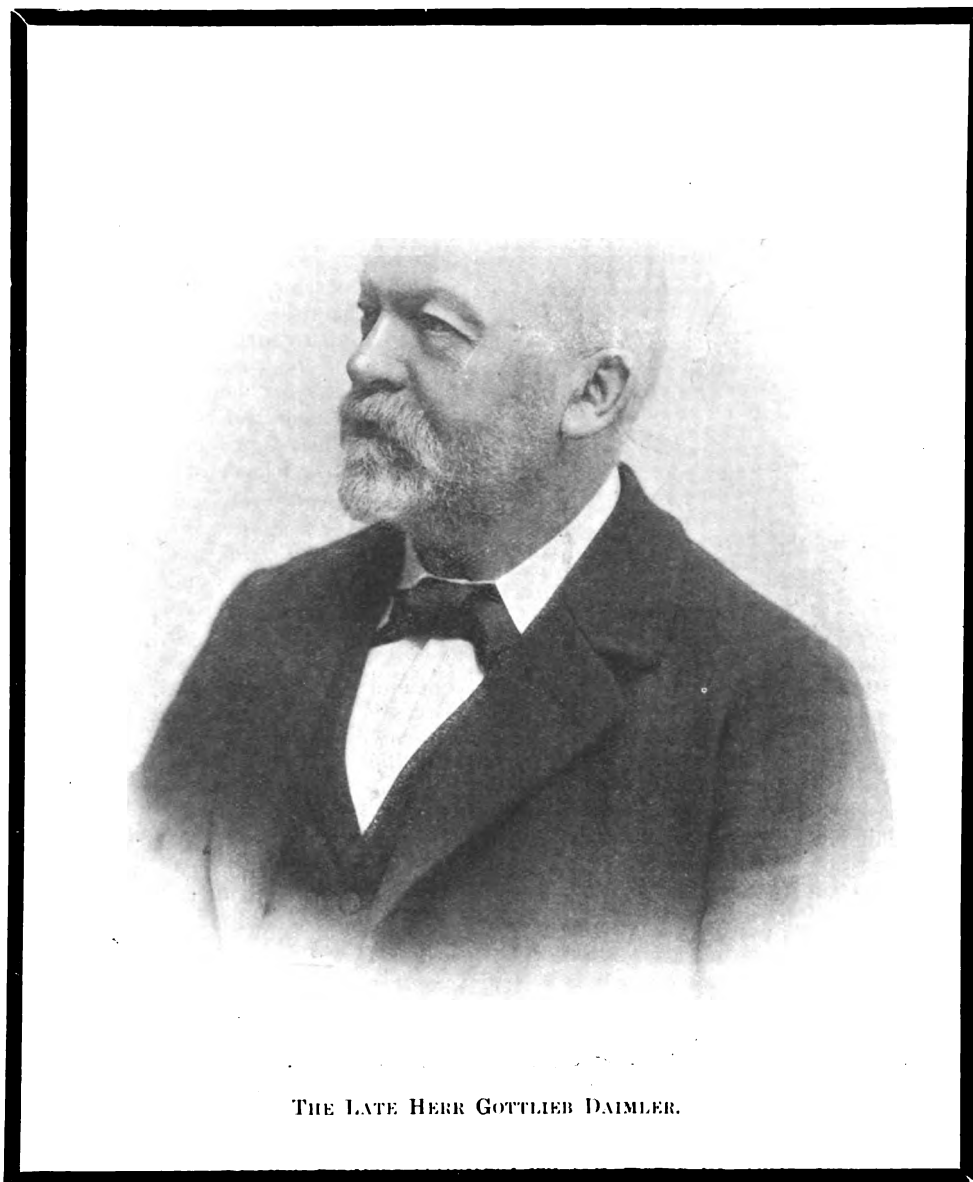
In 1886 he succeeded in applying his motor to a bicycle for the first time with success, and, in the following year, he adapted it to a vehicle with eminent satisfaction, not only to himself but to other experts. Of course, he did not rest content with that, but has since introduced many improvements, with the result

that the Daimler motor has been adopted by many of the principal motor-car constructors in France, England, and other countries. In fact, the demand of late has been so great that Messrs. Panhard and Levassor, who enjoy the sole French rights of Daimler's patent, have been compelled to withhold any supplies to other firms, retaining the privilege of using the Daimler motor only on their own cars.

It has often been thought that the "Phénix" motor, which

is slightly different to the original Daimler motor, was the invention of and was introduced by the late M. Levassor, but Herr Daimler proved some time ago that such impression is erroneous, he himself having originated the improved form.

Five years ago the deceased gentleman left the Daimler Motoren Gesellschaft, and formed a new company to work the new invention which he had patented—viz., the "Phénix" motor just referred to. This proved so successful in superseding the earlier invention that after a short time the older concern saw the wisdom of amalgamating with the newer company.



THE LATE HERR GOTTLIEB DAIMLER.

THE *Horseless Age* states that Mr. E. H. Lyon, of Englewood, N. J., has devised an automatic electric lighter for the boiler of his Locomobile steam-car. It consists of two dry cells and a 6-in. coil, the latter fastened on the inside of the car-

riage body and the former carried in the tool box, a magnet and a vibrator. The stem of the igniter stands permanently in one of the air holes of the burner, and is supported on a bracket screwed to the woodwork underneath. The device is operated from the seat by pressing a button and turning on the fuel, when the buzz of the vibrator will give notice if the effective spark has been obtained, thus avoiding waste of fuel. One great advantage of this automatic lighter is the ease with which the fire can be extinguished and relighted, preventing blowing off of the boiler and consequent frightening of horses. The device is being put on the market by Mr. A. L. Bogart, 123, Liberty Street, New York.

THE "EOLE" VOITURETTE.

ONE of the new motor-voiturettes shown at the recent cycle and motor exhibition in Paris was the "Eole," manufactured by Messrs. J. B. Clement and Company, of the Palais des Chauffeurs, 120, Boulevard de Courcelles, Paris, and of which a general view is given herewith. The motor is a $2\frac{1}{4}$ -h.p. Aster, and, as will be seen, it is located in the front of the car where the air is free to circulate around the radiating fins of the cylinder. On the end of the motor shaft, towards the axis of the car, is a sprocket wheel, a chain transmitting the power to an intermediary shaft fixed about the centre of the frame. The latter also carries a second sprocket wheel, loosely mounted on the shaft. The sprocket is, however, of a special form and practically forms the female portion of a clutch, the male part being fast with the shaft, the clutch being controlled by a foot-pedal. From the intermediary shaft to the rear axle the power is transmitted by a centrally-located chain, the sprocket on the axle being formed around the differential gear. The motor is started by means of a detachable handle, it being impossible for the car to move until the clutch gear is thrown in. The frame of the car is of tubular construction, while the body, which is adapted for two persons, is spring suspended. Steering is controlled by a sloping



hand wheel, while the road wheels are of the cycle type with pneumatic tires. The car, which weighs about 4 cwt., can, it is claimed, attain a speed of thirty kilometres per hour. The same firm are also building a car on similar lines, but fitted with two Aster motors giving together $4\frac{1}{2}$ -h.p., they claiming to have overcome the difficulty of getting the two engines to work synchronously. The double-motor car will, it is said, attain a speed of forty-five kilometres per hour. The "Eole" car is interesting as showing the trend of the demand in France—the cost of the single engine car in that country is only 2,500 fr. (£100).

ONE of the latest accessions to the ranks of society automobilists is Viscount Villiers, who has lately purchased a Deauville voiturette from the Motor-Car Company, Limited.

THE prize of £10, offered by Mr. H. Edmunds, a member of the Automobile Club, for the best essay on speed, has been awarded in accordance with the recommendation of the judges to Mr. Sidney Russell.

THE Star Motor Company, of Wolverhampton, have sent us a copy of their new catalogue of "Star" motor-cars. In its latest form this vehicle has quite an attractive appearance, illustrations being given of three designs of "body." As the details of the "Star" cars are now fairly well known, it need only be mentioned that they are all of British manufacture, and that an improved form of carburettor is now being fitted. Six pages of the list are devoted to very clear illustrations of the various parts of the car, such as the motor, petrol and water tanks, axles, wheels, etc.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

At Dieppe.

ON Saturday last at Dieppe, under the presidency of the mayor, M. Coche, there was held a meeting for the purpose of appointing an organising committee for the international automobile race, which it is proposed to hold during the month of June. After considerable discussion the following gentlemen were appointed to the committee. Presidents of honour, M. Coche, Mayor of Dieppe, and Mr. Lee Jortin, British vice-consul; president Comte de Sainte-Marie; vice-presidents, MM. De Meur and Thomas Yeo; secretary, M. Bénoni Ropert; assistant secretaries, MM. Legendre and Samuel Hall; treasurer, M. Dufayel; committee, MM. Bloch, Wallis, Lebesque, Meyer, Ducouect, and Brau. Immediate steps will be taken to push forward the work, and it is hoped to make public the details of the proposed course at an early date.

A Correction.

I NOTICE that by the addition of an "R" the sense of paragraph 12 in the list of advantages of electrical vehicles, as enumerated by Monsieur Ernest Cuénod, is somewhat distorted. A glance at the paragraph in question, which appeared on page 780 of this journal, would lead one to suppose that the "horse" bars the streets of Paris during half the day, and the reader is left to surmise as to how the noble animal spends the remainder of his time. It is not, however, the horse, but the "hose" that is to blame for the encumbrance of the streets to which M. Cuénod refers in this particular instance, and in order that no unjust stigma shall rest upon the character of the fiery steed of Paris, I hasten to correct the error.

The Spa Meeting.

AS I have already announced in these columns, the Spa Automobile Meet will take place during the last week of August, and although this is a long way ahead the official programme has already been definitely settled. Proceedings will open on Saturday, August 25th, with a "caravane" race from Brussels to Spa, while the following day, Sunday, will witness the big *course*, Spa-Fraiture-Spa. On the Monday, August 27th, a race for voiturettes will be decided over the same route. The opening of the automobile exhibition will take place on Tuesday, August 28th, and the following day will be devoted to the formal distribution of prizes to the various successful competitors. At night a banquet will be given to those automobilists who have assisted at the *réunion*. The prize fund will amount to at least £800, which should induce many racing men to participate in the events of the Spa week.

Motor-Cars and Reverse Gears.

MONSIEUR PIERRE BAUDIN, the French Minister of Public Works, has recently addressed a circular letter to the *préfets*, which sets at rest the fears of many *chauffeurs* relative to their cars, and which further demonstrates the desire of those in authority not to throw obstacles in the way of the new industry. As is doubtless well known, every automobile vehicle in France, which exceeds 250 kilos. in weight, is required by the law of March 10th, 1899, to be fitted with a *marche arrière*, or backward gear, and this ruling has caused much uneasiness of mind to those automobilists who possess cars built previous to the issue of this decree and not so provided. In some cases the addition of the gear presented no difficulties, and the work was carried out, but, generally speaking, owners chanced the possibility of penalties, and continued to drive their cars minus the stipulated addition. Monsieur Baudin's letter authorises the *préfets* to permit of the circulation of cars exceeding 250 kilos. in weight, and unprovided with reverse gear, upon condition that

the owners of the vehicles afford the administration proof that their cars were constructed previous to the decree of March 10th, 1899, coming into force. Monsieur Baudin further expresses the opinion that it would be an excess of rigour to insist upon these vehicles being changed to comply with the prevailing law, entailing as it would do in many instances, heavy expense to the owners.

The New Clubs.

ONE of the more recently-formed automobile clubs, namely Le Moto Club de Roubaix, has announced the intention of organising an automobile *course* between Roubaix and Béthune, a distance of about 100 kilomètres, or 62½ miles. This race will be decided on one of the Sundays of the present month, and only members of the promoting club will be eligible to compete. The Automobile Club of Nantes, another fledgling society, is contemplating the organisation of its maiden race, and this too on somewhat ambitious lines, for Nantes—Paris is talked of, and categories for both cars and motor-cycles. Two well-known local enthusiasts in the persons of MM. Saufriquet and Lefèvre-Utile are the mainstays of the Nantes club, which has only been in existence a week or two. That these initial efforts of the two clubs may be crowned with success will be the wish of every *chauffeur*.

Central Europe.

As is generally known the leading automobile clubs of Central Europe some time ago appointed a general committee. This committee is now busily engaged in organising a competition for electric motors, which it intends to bring off at Berlin, either in May or June next. The general programme of this "concours" has not yet been made public, but it is believed that the trials will be carried out on a very extensive scale. Another event exciting considerable interest in Central Europe is the Vienna Automobile Exhibition, which will open during the month of May. The Count Max Egon Furstenburg is president of this exhibition, and the Duke Jean Wilezek and the Chevalier de Schœller vice-presidents. Automobilmism is making such rapid progress in Austria that the show is sure to be one of exceptional interest, and will draw great numbers of enthusiasts to Vienna.

In Belgium.

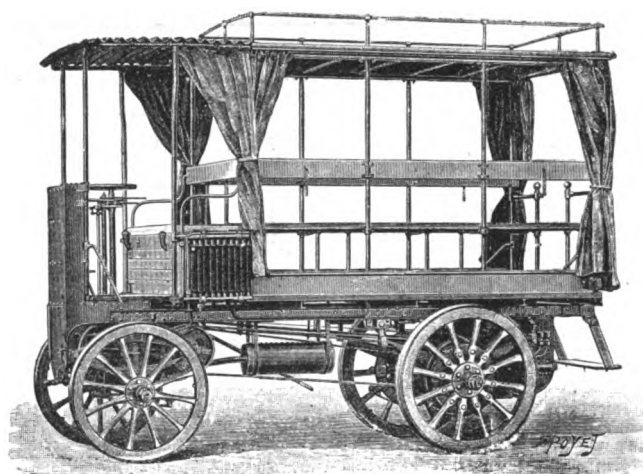
THE Liège Salon du Cycle et de l'Automobile will not be held this year as manufacturers showed no disposition to participate, and the organisers were therefore compelled to abandon the scheme. It is all very well to endeavour to popularise automobilism, but one can have too many exhibitions, and then the shows result in nothing for the exhibitors except a very heavy bill of expenses. A practical demonstration is in course of organisation by the Automobile Club of Belgium. It will take place on Sunday, April 29th, and will afford plenty of amusement and instruction. An obstacle race, a *concours d'élégance*, a floral fête, and a gymkhana will be among the numbers of the programme, which will also include a new item in the shape of a series of combined movements, executed by a dozen cars driven by members of the Automobile Club of Belgium, of a patronised club, or of a recognised foreign association. The Salon du Cycle have subscribed £20 towards the prize fund for these competitions, and the Automobile Club of Flanders has announced its intention of presenting a handsome gold medal as award for one of the trials.

The Paris-Bordeaux Race.

La France Automobile announces that entries for the Paris-Bordeaux race have been received from America from Messrs. Pennington, Jarrott, and Wridgway, who will drive vehicles fitted with motors of 20 h.p. The cars will, it is stated, only weigh 11½ cwt., which our contemporary considers is altogether too light.

The De Dietrich Petrol Motor-Wagon.

MESSRS. DE DIETRICH AND Co., of Luneville, the makers of automobiles on the Amedée-Bollée system, are now turning out motor-wagons capable of carrying loads up to from 2½ to 3 tons, one type of which is illustrated herewith. The frame is built up of channel steel sections, the motor, a 10 b.h.p. two-cylinder one, with tube-ignition and water-jacket, being located in front. Three speeds forward—4, 8, and 14 kilomètres per hour—are provided, as also a reverse motion of 4 kilomètres per hour. From the motor the power is transmitted by a single belt to a counter-shaft at the rear; this is geared by spur-wheels forming the variable speed gear—to a parallel intermediary shaft, while this is connected direct by short longitudinal shafts and bevel gearing to large bevel wheels bolted to the rear road wheels. The driver is, as will be seen, provided with a covered seat, and has all the control levers grouped near the steering wheel. The petrol tank has a capacity sufficient for a run of 150 kilomètres, while 30 litres of water are carried, this



being said to be enough for a day's run, two radiating coils being provided. Special attention has been paid to road wheels, which are of the artillery type with iron tires. The front wheels are 36in. diameter, and the rear 39in. The platform measures 5ft. 2in. by 8ft. 2in., while the overall dimensions of the vehicle are 6ft. by 11ft. 9in. With a load of 2½ tons the wagon will, it is claimed, attain a speed of 14 kilomètres (nearly nine miles) per hour, and ascend gradients on the low gear of 1 in 8, while in districts where the gradients do not exceed 1 in 20, three ton loads may be carried. The weight of the wagon, with petrol and water ready for a day's work, is given as about 1 ton 15½ cwt.

La Coupe des Voiturettes.

It is on Sunday next that the race known as "Le Coupe des Voiturettes," and organised by *La Journal des Sports*, will be decided over a route from Saint-Germain to Rouen and back. As the very greatest activity exists among constructors of small cars, who are all anxious to place their productions prominently before the public at the very outset of the season, very considerable interest is being taken in the event, and should the fine weather continue a big crowd will surely assemble to see the start and finish of the race. Comprised in the list of entries, which closed on Wednesday evening, I notice the following names:—1. Voiturettes fitted with water-cooled motors: (a) cars weighing less than 250 kilos., Hertel, Camus, Sauvage and Echalié; (b) cars weighing less than 500 kilos., Stepho, Hugot, Pullinger, three Decauvilles, Delautre, Klauss and Vehel, 2. Voiturettes fitted with air-cooled motors: (c) cars weighing less than 250 kilos., Schrader, Thierry, Velain, Jacquelin, Domptet and Tart; (d) cars weighing less than 500 kilos., Van Berendonck, Fernandez, Gaillat, D'Arnaud, Lepape and Laurent.

The A.C.F. "Garage."

THE *garage* of the Automobile Club de France is now open, and members are already commencing to avail themselves of the splendid building for the storage of their automobiles. Great as is the available space its capacities will be taxed to their utmost in a month or two's time, when *chauffeurs* will be concentrating in Paris, and the *garage* superintendent and his assistants will be fully occupied in looking after the infinite variety of automobile types which will be placed under their charge. The tariff is distinctly moderate, as will be seen from the appended table:—

Class of Vehicle.		Per Year.	Per Month.	Per Night.	Per Unit.
Petrol and Electric Cars	Storage ...	300	30	2	—
	Cleaning...	350	40	—	3
	Total ...	650 fr.	70 fr.	2 fr.	3 fr.
Voiturettes and Voiturelles	Storage ...	250	25	1.50	—
	Cleaning...	300	30	—	2.50
	Total ...	550 fr.	55 fr.	1 fr. 50 c.	2 fr. 50 c.
Motor Bicycles and Tricycles	Storage ...	150	15	1.50	—
	Cleaning...	200	25	—	2
	Total ...	350 fr.	40 fr.	1 fr. 50 c.	2 fr.
Bicycles	Storage and Cleaning.	100 fr.	10 fr.		

The adjuster-engineer's time in effecting repairs will be charged for at the rate of 1s. 3d. per hour, that of the assistant engineers at 10d. per hour. The *garage* will open at 6 a.m. during the summer months, and at 8 a.m. in the winter. All automobiles deposited should be insured by the owners. Electric vehicles can be recharged and all light repairs carried out. The whole scheme has been capitally arranged, and reflects the very greatest credit on the club committee.

A Savage.

On the afternoon of the 1st instant, in the Avenue de l'Isle at Vitry, there took place an unfortunate accident, which, by reason of the heartless and utterly incomprehensible conduct of a *chauffeur*, has aroused considerable feeling in the neighbourhood against automobilists in general and this one in particular. From the accounts to hand it appears that a labourer named Charles Neuve-Eglise, aged thirty-one, and living in the village of Vitry, was riding to Choisy-le-Roi on his bicycle, when from some cause or other he fell heavily to the ground. The violence of his fall was such that he fainted, and at the same moment an automobile travelling at a high rate of speed and in the same direction as the unfortunate man had been pedalling, passed over his body. For this the *chauffeur* may or he may not have been to blame, but it was his subsequent conduct that has excited so much local indignation. One would have thought that the slightest sense of humanity or the smallest spark of pity would have prompted him to have immediately stopped and rendered every service in his power. But apparently this individual was devoid of all human feeling, for he employed his best endeavours to get clear of the scene of the accident, and quickly disappeared down the road. Transported by the passers-by to the residence of Dr. Aubry it was quickly ascertained that the unfortunate victim's injuries were of a very serious nature, and he was removed as speedily as possible to the Bicêtre hospital. A broken thigh, three fractured ribs, and internal injuries render his con-

dition one of great gravity. As for the automobilist who caused the mishap—well, the police are looking out for him, and the sooner that he is brought to book the better. It seems almost incredible that such savages actually exist, and it is to be sincerely hoped that this one reaps the reward of his callousness.

Average Speeds.

THE record performance achieved by M. René de Knyff in the recent big race known as the "Circuit du Sud-Ouest" has again drawn attention to the average speeds made by the winners of last year's courses, and as many of these events will be repeated this season, I propose to quote some of the average speeds recorded, in order to enable comparisons to be drawn. As I stated last week, M. de Knyff's time for this course of 335 kilomètres, or 209½ miles, was 4h. 46min. 57sec., or at an average speed of 70 kilomètres (43½ miles) per hour. The nearest approach to this achievement is that of M. Levegh, who, on Sunday, October 1st, 1899, covered the 281 kilomètres (175½ miles) of the Bordeaux-Biarritz race in 4h. 24min., representing an average of 63 kilomètres 863 mètres (40 miles) per hour. M. Levegh's actual net time, deducting 15min. lost in repairing a punctured tyre, brings the average speed made out at 67 kilomètres (42 miles) per hour. Another of the fastest performances recorded, but made over a much shorter route, was M. Antony's win in the Paris-Trouville race of August 27th. Here the distance was but 175 kilomètres (109½ miles), and the winner's average speed 58 kilomètres (36¼ miles) per hour. M. Girardot's 12 h.p. Panhard finished first in the Paris-Boulogne race of September 17th, covering the 230 kilomètres (141½ miles) in 4h. 17min. 44sec., equalling an average speed of 54 kilomètres, or 33½ miles per hour. M. René de Knyff's time of 42h. 33min. 39½sec. for the 2,175 kilomètres (1,359½ miles), which constituted the distance covered by the competitors in "Le Tour de France," gave him an average speed of 51 kilomètres 100 mètres (32 miles) per hour. The Paris-Saint-Malo race of July 30th was 372 kilomètres (207½ miles) in length, and M. Antony covered the distance in 7h. 32min., giving an average speed of 50 kilomètres, or 31¼ miles per hour. The dead-heaters, MM. Levegh and Girardot, took 6h. 11min. to accomplish the 332 kilomètres (207½ miles) of route between Paris and Ostend, representing an average of 52 kilomètres (32½ miles) per hour. Paris-Bordeaux, the automobile "Derby" was won by M. Charron in 11h. 43min. 20sec., or at an average speed of 48 kilomètres 200 mètres (30 miles) per hour for the route of 565 kilomètres (353 miles). M. Albert Lemaître's time for the 120 kilomètres (75 miles) of hilly route over which the Nice-Castellane-Nice race was decided on March 21st was 2h. 52min. 50sec., giving an average speed of 41 kilomètres 990 mètres (26¼ miles) per hour.

A GLASGOW evening paper gravely explains to its readers—men and women alike—that "the so-called 'motor' hats are wide toques of velvet or cloth, copied from the styles affected by French lady motor-carriage drivers."

A MOTOR-CYCLE race meeting will be organised by the Automobile Club to take place at the Crystal Palace track on the afternoon of Saturday, 30th June. Further particulars will be published later. Official test of the speeds of motor-tricycles on the track will be carried out on the same day.

SOME weeks ago we mentioned that Mr. Robert E. Phillips, in conjunction with one or two other members of the Automobile Club, was endeavouring to find stabling accommodation for motor-cars in the west district of London. Mr. Phillips now writes to say that he has found what he requires, and that all the available space is taken up.

MR. LISLE, of the Star Motor Company, Limited, Wolverhampton, informed me, writes our Midland correspondent, that a gentleman bought a new "Star" car on Monday last and drove it straight away to his destination at Haywards Heath—a distance of about 170 miles. He reached there late on Tuesday evening having only made one stop—at Oxford—and reported that the car went right through the journey without the slightest mishap.

THE AUTOMOBILE IN LOCAL TRANSIT.

By SYLVESTER BAXTER.

ONE of the most vital problems relating to the modern municipality is that relating to local transit. The development of the automobile bears upon this question in two important ways. One of these replaces an existing form of animal-traction service and the other supplements a highly developed form of mechanical traction. Each has the advantage of a greater flexibility in operation than the corresponding methods in existence. The first, a motor-cab service, is already in a well-advanced stage in several American cities. This may be called the individual aspect of automobile local transit, giving to a person at a moderate charge all the advantage of a privately owned carriage; taking the passenger, as it does, from his own door to any spot that he may desire to reach. No investment is required on the part of the individual; the vehicle company assumes all the care, repairing, cost of charging, etc.; and with a telephone in his house or office a person may bring to his door at any moment what practically amounts to his own carriage. While, of course, there is a manifest economy in the possession of one's own automobile when it is wanted for regular use every day, for a very large number of persons — particularly those who live in cities — the hired vehicle will prove highly economical, and we may expect to see an enormous increase in the use of the motor-carriage for individual business and recreative purposes, such as errands to sections of a city not reached by the ordinary transit routes, pleasure drives in the parks and suburbs, etc. The celerity of the motor-vehicle, its easy motion, its tirelessness, the free view on all sides, make it an ideal form of recreative conveyance, and with its growing availability we may expect to see a very great increase in the number of those who patronise livery carriages. An economic aspect of this form of service lies in the fact that the capacity of the plant is so much in excess of an aggregation of a corresponding number of privately-owned carriages, each one of which is used, as a rule, only by the person or the family possessing it. But when a company owns the same number of vehicles for hire, they are naturally in use by a very much larger number of persons, and consequently make a much greater return on the investment in the way of utility, which in the matter of the commercial company is equivalent to profit. This suggests the desirability of what may be called a modified form of private ownership in the shape of collective ownership on the part of groups of individuals. For instance, a number of persons might act co-operatively by clubbing together and purchasing any desired number of motor-vehicles to be kept for their common use as required. In this way there would be a material economy in expenses for stabling, care, charging of batteries, experienced drivers, etc., while a greater variety of vehicles would be at the disposal of the individual. Such a function might be assumed by automobile clubs to the advantage and convenience of their members, and we may expect to see a great growth of clubs for this very purpose, with membership as large or as small as may seem desirable. It is a common custom for boat and canoe clubs

to own various kinds of water-craft for the use of their members, and there is no good reason why an automobile club should not follow the example.

The public aspect of automobile local transit is represented by the motor-omnibus service, now in successful operation in various towns and districts. The possibilities of automobile omnibus lines is something enormous, and there is probably no more promising field for the profitable application of the principle than is offered in this. While it cannot be expected that this form of traction will to any degree supplant the tramway method, in all probability the motor-omnibus will rival the latter to a considerable extent, as it certainly will supplement the latter most conveniently. Moreover, it can easily be made a most valuable auxiliary to a tramway service. A tramway system, of course, has the advantage of larger vehicles than are practicable for motor-omnibuses, as well as that of a higher rate of speed. For in the former the element of guidance, so far as steering is concerned, does not appear, and the matter of control being therefore limited to fewer particulars, a higher speed in city streets is practicable, as a rule, than where the matter of direction enters very largely into consideration. But these advantages are counterbalanced by certain factors that tell in favour of the

motor-omnibus. The latter has a much greater flexibility than the tramway system possesses. If a tramcar breaks down it brings to a stand every car behind it until the way is cleared. The same interruption occurs in the case of a blockade of the street for any reason—from the collapse of a heavily-loaded team—and loaded teams seem invariably to have the perversity to choose the tramcar tracks as the scene of misfortune—to the congestional effects of processions, circus parades and gas-main explosions. But the breaking down of a motor-omnibus can have no effect on the other vehicles of the line, and in case of the



THE NEW FOUR-SEATED 8-H.P. DECAUVILLE CAR. (For description see next page.)

blockade of any portion of the route the traffic can at once be diverted around through other streets for the time being. The motor-omnibus can also take the fullest advantage of improved forms of pavement. An asphalt pavement, for instance, converts the entire street-surface into what for the motor-vehicle is practically one broad rail of indefinite width—or what is the equivalent of a rail in every property except that of guidance. It can skilfully thread its way through the tangle of a crowded thoroughfare where the tramcar is constantly brought to a halt by this or that interruption. So, even in the matter of speed through the busy streets of a city, the motor-omnibus will be found to have the advantage over the tramcar. Another point in favour of the former is its great directness. A tramcar between two cardinal points—such, for instance, as terminal railway stations on opposite sides of a city—makes its route as devious as possible—going the longest way around so as to pick up the greatest number of passengers practicable. An omnibus line, however, having for its special object the conveyance of passengers between two such points, would take the shortest cut across and get its patrons to their destination in the quickest possible time. As to elements of profit—while a motor-omnibus cannot carry anywhere near the number of passengers that a tramcar can, and while a storage-battery system is much more costly in operation and maintenance than a trolley system, on the other hand the

motor-omnibus is entirely free from the very costly factor of construction, maintenance, and renewal of track—items that consume a very large proportion of the capital and the receipts of an entire tramway company. For the motor-omnibus line the traction surface is provided by the public. And when we consider what enormous profits a tramway would make were the element of rails, roadbed, trolley-wire, return-conduits, etc., eliminated, it may be imagined what a field for investment is offered in the establishment of motor-omnibus lines in cities.

It is safe to say that the prospective demand in this direction alone is sufficient to exceed enormously the capacity of all the existing manufacturing facilities in this country were they confined solely to that special feature, instead of being overrun with orders for motor-vehicles of every description.

There are three cities in North America where lines of automobile omnibuses will be in full operation before the end of the present year, and each of these present exceptionally favourable opportunities for the purpose. These are New York, Boston and Mexico. In the city of New York, Fifth Avenue, with its magnificent extent of asphalt pavement unbroken by car tracks, offers a superb opportunity for the profitable operation of such a line. And this has been taken advantage of by the purchase of the Fifth Avenue Stage Line—so long celebrated for its decrepit horses, the butt of the caricaturists—by interests connected with the great Electric Vehicle Company. This will be the pioneer electric omnibus line of the continent, and the change will mark the beginning of an important epoch in local transit matters for the United States.—Extract from article in the *Automobile Magazine*.

A NEW DECAUVILLE CAR.

TO the well-known two-seated voiturette La Société Decauville, of 13, Boulevard Malesherbes, Paris, have lately added a four-seated car, of which an illustration is given on page 9. The new car differs from the small one in that the motor is placed in the fore part of the frame under a bonnet instead of at the rear. The engine is a two-cylinder vertical one of 8 h.p., with electrical ignition and water jackets. Three speeds forward and one reverse are provided, the power of the motor being transmitted as usual through bevel gearing direct to the rear axle, no chains or belts being employed. Steering is controlled by a bar, while ample brake power is provided. The car, which weighs only about 8 cwt., can, it is claimed, attain a speed of from 35 to 40 kilometres per hour. We may add that the Motor Car Company, of Shaftesbury Avenue, London, W.C., are the agents for the Société Decauville's vehicles in this country.

Dr. O. P. Sook, of Newark, O., U.S.A., has recently purchased a steam carriage, which he is arranging to keep at the back of his house in a steam-heated structure. The gas jet will also be kept burning under the generator and the water kept hot, so that the vehicle will be ready for use at a moment's notice.

BROOKLINE, a town near Boston, U.S.A., noted for its fine residential streets and drives, has been a Mecca for automobilists ever since they began to be at all common in the neighbourhood, but now the local authorities have placed certain restrictions on horseless vehicles. The rules adopted are as follows:—(1) No automobile used either wholly or in part in the town of Brookline shall be run within the limits of said town at a rate of speed greater than ten miles an hour. (2) Every public automobile used either wholly or in part in the town of Brookline shall bear the number of its licence in a conspicuous place in the rear of the carriage in figures of Arabic characters, not less than 2 in. in height. (3) Every person in charge of an automobile waiting for passengers in any street, square, or public place in Brookline shall obey the directions of any police officer respecting the place of standing, and the route to be taken when going to or leaving such place. (4) The owners and persons having charge of an automobile used in violation of any of the foregoing regulations shall forfeit and pay for each offence a fine not exceeding 20 dols.

THE BUTIKOFER MOTOR-BICYCLE.

AN ingenious motor-bicycle, Figs. 1 and 2, is that which has lately been constructed by M. Ed. Butikofer, of Bienne, Switzerland. Whilst most makers of motor-bicycles have hitherto fixed the motor on to a tube of the frame, connecting it with the driving wheel by a chain or belt, M. Butikofer has conceived the idea of utilising the motor as the

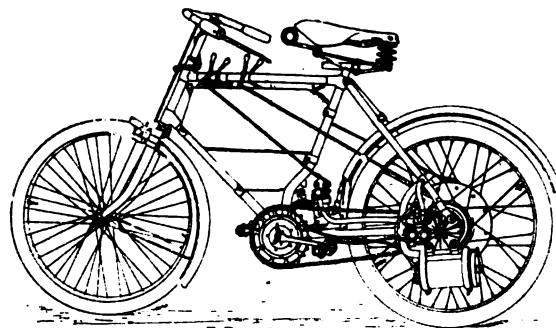


FIG. 1.—GENERAL VIEW OF BUTIKOFER MOTOR-BICYCLE.

axle of the rear wheel of the machine, the engine being disposed horizontally through this wheel. This disposition permits, it is claimed, the obstruction in the frames to be considerably reduced, there being but the carburettor and the spirit and oil tanks to be carried on the frame. As regards the crosswise dis-

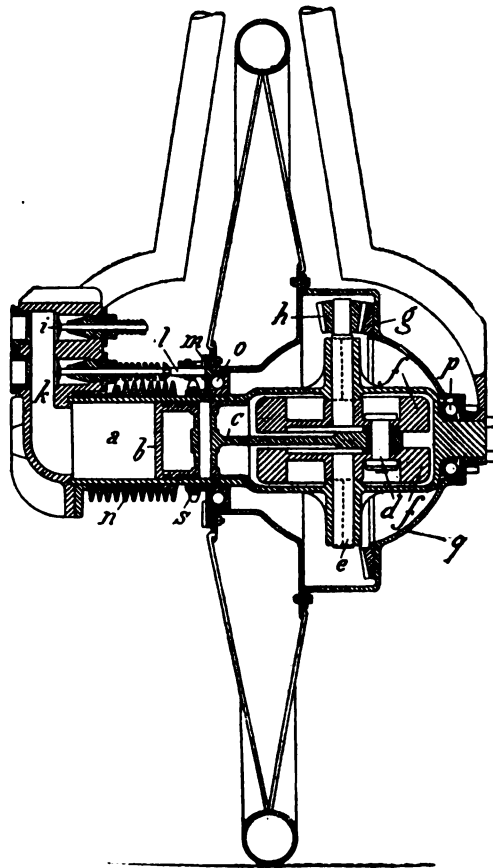


FIG. 2.—SECTION THROUGH REAR WHEEL.

position of the motor and its effect on the bicycle stability, M. Butikofer affirms that it gives rise to no inconvenience, but that, on the other hand, it reduces the amount of vibration transmitted to the rider.

As will be seen from the illustrations (Figs. 1 and 2), the single-cylinder motor is disposed crosswise through the back wheel, firmly held in position by the two extremities of the back forks

of the frame. In the cylinder, fitted with radiating discs *a*, works the piston *b*, which through the medium of the crank *c*, and the connecting rod, causes the fly-wheel *f* to rotate. On the axle *e* of the fly-wheel is keyed a bevel pinion *h*, which gears with a toothed wheel *g*, fixed to the case on which the spokes are fastened. The case *q* forms then the hub of the wheel, and rotates round the motor, it being carried on the ball-bearing *o p*. The case *q* is fitted at its extremity with a chain wheel *s*, on which the starting chain runs; it is also provided with four cams *m*, suitably disposed to actuate at the proper time the exhaust valve *k*, *i* being the automatic inlet valve. The ignition is effected by an electrical spark or incandescent tube as desired. As will be seen, all the working parts of the motor and transmission gear are grouped within a very small space, and are entirely enclosed in an oil-containing case.

CORRESPONDENCE.

LIGHT STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—I was glad to learn from one of your recent issues that an English firm is building a light steam-car, somewhat on the lines of those that are now so largely used in America. I notice that the vehicle has been entered in the forthcoming 1,000-mile trial, and no doubt many of your readers like myself are looking forward to its appearance with interest.

From an American paper just to hand I note that one of the Locomobile Company's cars has recently been careering wildly about the streets of New York, it having, the newspaper states, been started by a boy after the owner had left it unattended to enter a building. While on the subject may I mention that any information from users of the Locomobile vehicles in this country as to the behaviour of the same in practice would be extremely valuable and interesting.

Richmond, S.W., March 5th, 1900.

Yours, etc.

STEAMER.

THE SPEED OF MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—If the makers and those interested in motor-cars wish to drive them off the roads entirely they will continue in the strain of the first comment in your issue of the 2nd inst. Surely anyone considering the matter for a moment must see that no such speed as 37½ miles an hour will be allowed on the public roads, and, though I am financially interested in motor-cars, I would never dream of allowing anything like such a speed; in fact, I should suggest that the authorities should amend the law and make it illegal to make cars capable of going at a greater speed than may be decided to be safe on the high road where vehicles and foot-passengers are passing.

Yours truly,

THOS. S. GOWLAND.

The Library, Eastbourne, March 7th, 1900.

THROUGH THE FLOODS FROM MANCHESTER TO LONDON ON A MARSHALL CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—I venture to send you a short account of a trip I recently made from Manchester to London on a Marshall car.

I had intended starting for London on the Sunday made remarkable by the heaviest fall of snow we have had for years, but a look out of the window on the morning in question was sufficient to make me change my mind and to put off my journey. It was not until Saturday, a fortnight later, accompanied by three others, that I made a start from Manchester at noon. Anticipating some difficulty in obtaining petrol on the Sunday I took sufficient with me for the 200 miles, so that on starting with this and our personal belongings we were well loaded. The motor did not seem to feel the additional weight, going very steadily, and taking the hill out of Stockport easily on the second speed, and over the wretchedly-paved road at Hazel Grove on the first. On the last few yards of the hill leading into Macclesfield I used the

hill-climbing gear for the first time. From there (though now I think it would have been better to have gone through Leek) I went through Congleton, entering the town by way of Rood Hill, and by turning to the right up Antrobus Street obviated the necessity of passing through the narrow streets to the centre of the town.

We found the roads to Newcastle extremely heavy, and only reached there at three o'clock, putting up at the Castle Hotel, which we found possessed very good accommodation both for the car and ourselves. After having lunched and seen to the car we started again at 4.30, passing through Trentham, Stone, Rugeley, reaching the Peel Arms Hotel, Tamworth, at 8.30, without any incident worth mentioning.

The next morning (Sunday) we started off at 9.30 to do the remaining 118 miles to London. About half a mile out of the town the river had overflowed its banks for a considerable distance, coming right up to the side of the road, and in places washing over it. A few miles further on the water for a long stretch was up to our axles, making us think that if anything went wrong with the motor, it would be, to say the least, rather awkward. The roads were in places like seas of liquid mud and we were continually passing by large expanses of water where streams had overflowed their banks.

Our next stop was for lunch at the hotel on the top of the hill leading into Daventry. Shortly after re-starting we were surprised to find the car was "steaming"; this was more surprising as the car was fitted with radiator and pump, and up to Tamworth we had seen no steam and had not lost any appreciable quantity of water. On stopping to investigate we found that going through so much liquid mud had had a bad effect on the radiator, as it was one solid mass of baked earth, which took nearly an hour to knock off. Shortly after we passed through Coventry, and after this our journey to London, which we reached at 9.30, with the exception of taking a wrong turn in the dark, and nearly being run into by two horses which had been left unattended at a roadside public house, was uneventful. I was, however, not sorry to arrive, as driving on a pitch dark night on a bad unknown road is not one of the most pleasant things in the world.

Yours faithfully,

6th March, 1900.

J. HOYLE SMITH.

EMERGENCIES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have so often found useful hints and suggestions in letters of correspondents that I desire to reciprocate by pointing out two very useful and important emergency "aids" that I have just added to my convertible motor quadricycle. The first is the most ingenious "emergency" stand, already mentioned in your journal as having been brought out by the Speedwell Motor-Car Company, of Reading. The stand is made of very strong wood, and being only 16 inches long when folded, and weighing merely some 12 ounces, can readily be carried anywhere about the machine. It can be as well used for "quads," as for "trikes," and having found its extreme usefulness I should be as reluctant to ride without it as without my bag of tools.

The other "aid" I refer to is a brake. Motor-cyclists are aware that as soon as the usual convertible trike is changed into a quad, the machine loses the front wheel and the band brake generally attached to the same. Thus, instead of obtaining additional brake power for a quadricycle, so necessary for a heavier vehicle, one loses one of the two brakes fitted to the machine. This is a serious disadvantage, as I have experienced. I have, however, got over the difficulty in a very simple and inexpensive manner. The Speedwell Company, of Reading, have entirely removed the band brake attached to the front wheel of the trike, and refixed it to the bottom bracket to which the pedal crank is fixed. The result is excellent. I have now two very powerful brakes for use whether the machine is in the form of a trike or a quad. The experienced rider will understand that, by this arrangement, when both brake levers attached to the handle bar are pulled up, both sides of the differential gear on the main axle are gripped, giving a very powerful and quick brake action.

I enclose my card, and remain, yours,

Reading, March 5th, 1900.

G.

THE MORS MOTOR-CARRIAGE.—VIII.

By "VELOX."

(Continued from Vol. I., page 810.)

BELT ADJUSTMENT AND REPAIR.

HAVING in the last section of these articles dealt with the method of adjusting the tension of the belts employed in transmitting the power from the engine to the intermediary shaft of the Mors car, it now remains to be said that when this means of adjustment is no longer possible, owing to excessive stretching of the belts, or by reason of their joints giving way, it becomes necessary to shorten the belts or to make a new joint, as may be required. This, of course, is at the worst but a comparatively simple operation, but, like most other adjustments, it can be carried out more easily or more exactly in a given way than by any other method. It will be useful, therefore, to describe the method found in practice to be most satisfactory, and in the present section a few hints will be given to this end.

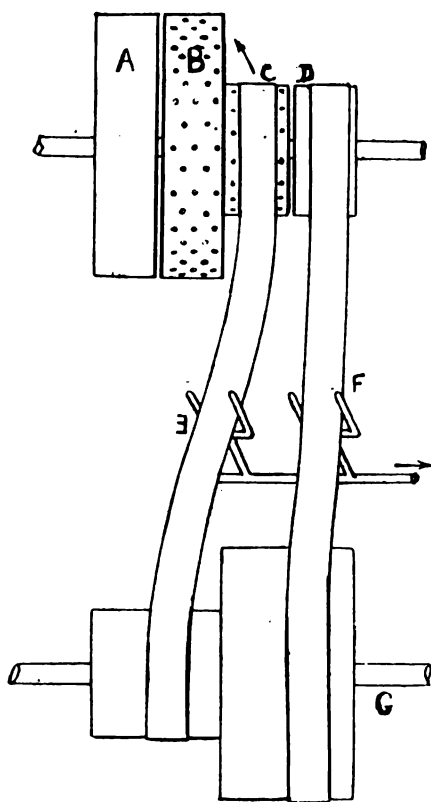


FIG. 24.

- A. Loose pulley, low speed.
- B. Fast pulley, low speed.
- C. Fast pulley, high speed.
- D. Loose pulley, high speed.

- E. Low speed belt under repair.
- F. High speed belt.
- G. Motor shaft.

In the first place, it must be remembered that by the adjusting apparatus last described it is a necessity that both belts are stretched equally at one time. It is necessary, as both belts are of the same length, that the tension should be equal, for if one be slacker than the other the mere fact of tightening the slacker belt would tend to unduly stretch that one whose tension was normal. To secure ease and comfort then it is necessary that the length of both belts, and therefore their tension, should be equal. It arises, however, that by a greater use of one speed, and from other causes, that occasionally one belt is found to have stretched more than the other; it therefore becomes necessary to equalise the tension and to shorten the longer belt.

To commence operations for effecting this it is necessary first to so turn the hand crank-lever that the carrier holding the differential shaft shall be made to travel in a direction towards the back of the car to the full limit permitted by the stops. By

this operation all tension is taken off the belts, both being made quite slack, and it is then quite easy to detach either of them and to shorten it to the greater or lesser extent requisite to gain equal length in both belts.

When this is done, however, it remains to reshuffle the belt, and this is an operation that can be quite easily effected practically without labour if the following hints are followed, but that otherwise becomes a troublesome and disagreeable task.

Let it be imagined that it has become necessary to shorten or make a new joint in the low-speed belt. After having effected the necessary operation let the belt rest in the position shown in Fig. 24, to which it has originally been put in order to effect the shortening. That is, whilst permitting the low-speed belt to occupy its proper position on the motor shaft, to place it on the first pulley of the high-speed gear on the differential shaft. All that is now necessary is to depress the clutch pedal, thus disconnecting the road wheels, and to slowly turn the change speed lever controlling the movement of the belts, whilst at the same time slowly rotating the motor shaft by means of the starting handle.

It then, of course, remains to place the belts in proper tension by moving forward the differential shaft carriers by means of the crank handle provided and fixed to the left of the driving seat.

The carrying out of similar operations with the high-speed belt is effected in the same way, the only difference being that in this case the motor shaft end of the belt is moved on to the low-speed pulley of that shaft.

It occurs, however, no matter what amount of care is exercised to equalise the tension of the two belts, that on adjustment they are still found to be in unequal tension. It then remains to perfect the adjustment by other and more drastic means. Let it be imagined that, in completing the operations just mentioned, it is found that the tension of the low speed belt is too great, and that the tension of the high speed belt is consequently not great enough. Let the motor be started, and the car driven on the slow speed for a short period, whilst the side brakes are put lightly on the road wheels. Under these circumstances the slow speed belt is given work to perform which will immediately tend to its speedy lengthening and consequent release of the tension. On the other hand, if the tension of the high-speed belt is found to be greater than that of the low speed, the former belt should be slightly moistened with water, and when changing from the high-speed gear to the low speed, the crank handle commanding the tension must be so turned as to slacken the tension of this belt.

If at the end of the run it is still found that the tension of the two belts is unequal, and that these operations have produced a result still imperfectly satisfactory, there remains yet another course to be pursued. When the car is at a standstill interpose a wedge of wood between the belt which is too tight and its pulley, next press heavily on the surface of the belt between the two sets of pulleys, until the requisite degree of tension, coincident with that of the other belt is attained.

To summarise the means of controlling the transmission of power we have (a) two levers, (b) two pedals, (c) two brake levers, and (d) a belt-stretching device.

Of the pedals, that to the left hand controls merely the engaging or disengaging of the clutch, whilst that on the right hand not only commands the disconnecting of the clutch, but applies the brake on the differential shaft. The lever on the right hand side, outside the body of the car, controls the hand brake in the nave of the left-hand rear road wheel. Further descriptions of these various appliances will be given, with illustrations, in subsequent sections of these articles.

(To be continued.)

ROBERTSON'S Auto-Car Agency, of Peterboro', have sent us a copy of their 1900 list, which gives particulars of the Rouxel motor-voiturette and tricycle.

THE Hewitt Lindstrom Motor Company has been formed in Chicago, with a capital of £6,000, to manufacture automobiles, motors, steam and electrical engines.

THE LOUTZKY MOTOR-VOITURETTE.

—88—

IT is not only in France that automobile builders are now devoting attention to the construction of light voiturettes adapted to accommodate two persons side by side. Several concerns in Germany are following the example, and this week we are able to illustrate, in Figs. 1, 2, 3, and 4, a vehicle of the kind which has lately been built by the Gesellschaft für Automobil-Wagenbau (system Loutzky), of 49, Französische Strasse, Berlin, W. The motor power is supplied by a vertical two-cylinder petrol-motor of $3\frac{1}{2}$ h.p., fitted with water-jacket and electrical ignition. Two sectional views of the motor, which runs at a speed at from 1,200 to 1,500 revolutions per minute, are given in Figs. 3 and 4. For the purpose of a sure ignition, a straight narrow igniting passage must, Herr Loutzky considers, be employed, which should be filled with, as far as possible, a pure mixture. For this object



FIG. 1.—GENERAL VIEW OF LOUTZKY VOITURETTE.

the exhaust valve is arranged in the narrow igniting passage in front of the suction valve, so that during the compression stroke of the engine only a pure mixture exists at the outermost end of the igniting passage over the valve. It will also be noticed that the inlet valve differs from the general system in that it is mechanically operated. The valve rods lie in one plane with the vertical axis. In order to regulate these

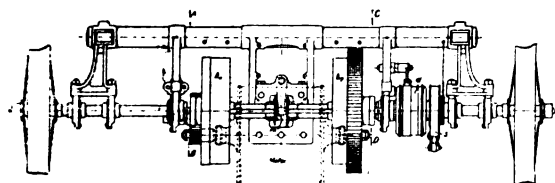
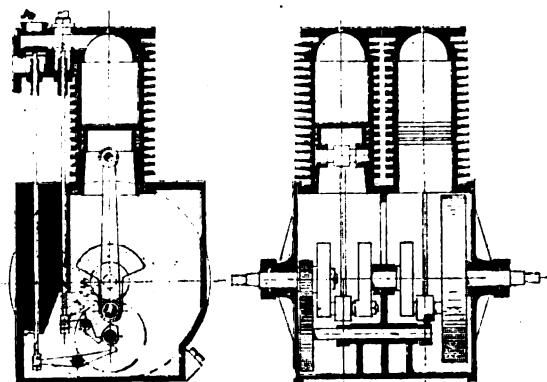


FIG. 2.—VIEW OF REAR AXLE.

valves the controlling levers belonging thereto also lie in a similar vertical plane and are operated by a common cam. The cam-engaging points of both levers are arranged in such a way on a centric angle of 90 deg. that the common cam serves for controlling both the suction valve and also the exhaust valve. In the case of motors which are provided with a means for suppressing the noise of the exhaust it has been found that a back pressure is exerted on the exhaust or discharge gases by the device employed for suppressing the noise. To overcome this back pressure the exhaust valve in the motor under notice is opened a little before the completion of the expansion period, so that a portion of the consumed gases can escape under pressure. With the object of obtaining this quickening of the movement of

the exhaust valve, the valve-controlling cam is provided with a step which operates the lever of the exhaust valve, whilst the shorter projection of the operating lever of the inlet valve is not operated by this step. The motor is located in the rear of the frame, and is geared direct to the rear axle (Fig. 2). Two speeds forward and a reverse motion are available, the variable speed gear being controlled by a single lever on the steering standard connected up to friction clutches.



FIGS. 3 AND 4.—SECTIONAL VIEWS OF LOUTZKY MOTOR.

The car is provided with a device (Fig. 4) which permits the motor to be put in operation from the driver's seat while the steering is controlled by a hand wheel. Ample brake power is available, while a foot pedal is provided by means of which the compression tap is opened at starting. The petrol tank which is located under the seat has a capacity of thirty litres. The water circulation is maintained by a small pump, a water-cooling coil being introduced in the circuit. The road wheels are of the cycle type, fitted with pneumatic tires. It will be noticed that the front steering wheels are not mounted on the usual short vertical pivots, but between forks similar to those adopted in cycle construction. The weight of the Loutzky car is about 250 kilogrammes, or a little under 5 cwt. A speed of 35 kilometres can, it is claimed, be attained on level roads.

A MUNICH firm has secured a concession to operate a number of electric cabs in the town of Würzburg, Germany. In crowded thoroughfares the speed is not to exceed 15 kilometres per hour.

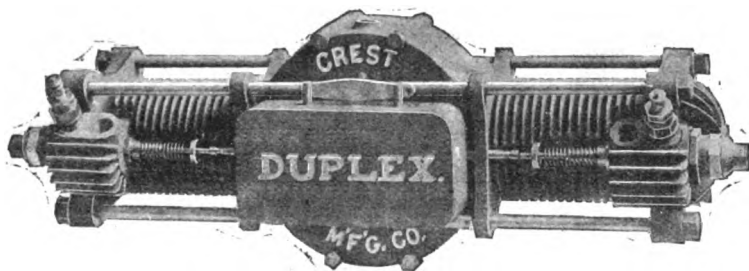
THE municipal authorities of Nuremberg, Germany, have lately officially inspected a four-seated electrical car which is shortly to be put in service in that town by a Cologne firm. The car was built by Messrs. J. Lohner and Co., of Vienna.

Two Frenchmen, named De La Marre and Merville, have left Paris for Havre, where they will embark on board a steamer for America, in order to journey from Bennett to Dawson City in the Klondike on a motor-car. The actual distance they will travel by car will be about 750 miles. *La Locomotion Automobile* states that the car they are taking out is a special one, but details are wanting.

THE grievances under which the automobile car drivers of Paris consider themselves to be suffering are, it would appear, sufficiently serious to demand united action, for these *chauffeurs* have decided to form a syndicate to protect their interests. At least, this was the decision arrived at by a number of drivers who met in solemn council on Saturday evening last, on the premises of a wine merchant in Paris. The main trouble is the question of wages, both as regards the amount itself and the manner of payment. The actual salary is very small, and some of the men are paid daily, while others only receive their money once a month. The drivers state that the tips received do not increase their earnings very materially, and complain that the general tendency of the public is rather to diminish than to augment their "pourboires." The subscription to the new syndicate was provisionally fixed at one franc, and the entrance fee at half a franc. It is intended to hold another meeting to which more publicity will be given, so that a larger attendance of drivers may be secured.

THE CREST PETROLEUM SPIRIT MOTOR.

REFERENCE has already been made in these columns to the petroleum-spirit motor lately introduced by the Crest Manufacturing Company, of Dorchester, Mass., U.S.A., of which we are now able to give an illustration. The motor weighs less than ninety-five pounds, and develops about 4-h.p. The engine which can be speeded from 100 to 2,000 revolutions per minute, is twenty-eight inches long, eight inches wide, and nine inches high, it is arranged to run with one cylinder or two, as may be desired. All the parts of the



motor are self-oiling, as they work in a crank case enclosed from dust. There are, it is claimed, no nuts to get loose, and no adjustable parts. The motor can be taken apart in three minutes by removing the nuts from the bolts and crank-case. All the working parts are then exposed for cleaning and inspection. It is claimed for the igniting device that it is a great advance on anything of the kind now used, but that it cannot be explained at present as the patents are still pending. The device gives all the ranges of speed desired. The motor is entirely automatic, and being horizontal what little vibration it may have is said to be absorbed in the moving carriage.

THE Stringer Automobile Co. has been organised at Marion, O., with a capital of £4,000, to manufacture petrol vehicles invented by Mr. J. W. Stringer.

QUITE a number of applications have been made to start services of motor vehicles in the Tyrol, particularly between Pöten, Bruneck, and Ampezzo.

LA SOCIETÀ MILANESE D'AUTOMOBILI, ISOTTA, FRASCHINI, AND CO. is the style of a new company which has just been formed in Milan, Italy, with a capital of £20,000, to manufacture and deal in motor-cars.

THE Oceanic Automobile Company has been incorporated in New Jersey, with a capital of £80,000, by New York, Philadelphia, and Atlantic City capitalists, to operate automobiles in Atlantic City. It is an offshoot of the Electrical Development Company, of Philadelphia.

It is reported that M. Charron, the well-known French *chauffeur*, has ordered a special racing car, to cost 35,000fr. (£1,400), for the Gordon Bennett International Cup Race. The builders, whose name is not stated, are under engagement to have the car ready in time, or to pay an indemnity of 10,000fr. (£400).

THE new motor fire-engine in Paris fully realised the hopes of its inventors at the two recent great fires of the Trianon Theatre and St. Ouen spirit warehouse, where it rendered valuable assistance in quelling the flames. The new engine carries six men, and is capable of travelling at the rate of thirteen miles per hour.

THE secretary of Ranelagh Club has agreed to submit to his committee a proposal that a motor gymkhana should be given by the members of the Automobile Club at the Ranelagh Club on Saturday, July 14th. It is also being arranged that earlier in the day, in accordance with a suggestion made by the Attorney-General, the motor-vehicles will be at Ranelagh Club grounds, so that nervous horses belonging to members of Ranelagh Club may be sent there and trained to encounter motor-vehicles without fear.

THE PETITJEAN AND SEVETTE VARIABLE SPEED-GEAR.

MESSRS. PETITJEAN AND SEVETTE of 196, Rue Saint Maur, Paris, have recently introduced a variable speed-gear for motor-cycles and voitures, of which illustrations are given herewith. It consists of a train of reducing gears, with this peculiarity, that while always in mesh with the pinion commanding the countershaft, it communicates motion to that shaft only when the low speed is thrown in. Fig. 1 is a sectional view of the mechanism at the moment of passing from the high to the low speed, or the reverse. Fig. 2 shows three positions: Gearing for high speed, low speed, and complete disconnection.

Upon the motor-shaft *a* is a clutch, *b*¹, free to slide along this shaft and revolving with it. In the high speed it engages directly with the hollow shaft *c*, mounted loosely upon the shaft *a*. The toothed part of the clutch *b*¹ is brought into engagement with the toothed wheel *d*, solid with the shaft *c*. The shaft has a toothed part, *d*¹, meshing with the large pinion of the differential shaft.

In the low speed motion is transmitted to the hollow shaft *c* by means of reducing gears and a special clutch device. The clutch *b*¹, shifted along the shaft out of engagement with the pinion *d* of the hollow shaft *c*, rotates the latter by means of reducing gears *e*, *f*, both fixed and revolving on the shaft *g*, the pinion *e* engaging with the coupling *b*¹ and the wheel *f* with the pinion *h*, which surrounds and turns a rack *c*¹, cut in the hollow shaft *c*. In the spaces between the inner rim of this pinion and the rack teeth are friction rollers, *i*, intended to come into play when the pinion is moved in the direction the motor shaft is rotating.

The clutch *b*¹ is shifted by means of a fork, *k*, fixed to a shaft, *l*, operated by a lever located within easy reach of the driver. To change from high to low speed the lever is moved, bringing the toothed part of the clutch into engagement with the pinion, *e*; thus in the passage from high to low speed the clutch *b*¹ is for an instant in mesh with both the teeth of the pinion *d*, fixed to the hollow shaft *c*, and the teeth of the wheel *e*, but owing to the arrangement of the rollers *i*, and the direction of rotation, there is complete separation of the shaft and the pinion *h*, so long as the speed of the shaft is equal to that of the motor shaft. On the other hand, when the teeth of the clutch *b*¹ leave those of the hollow shaft *c* the speed of the latter decreases until it equals that of the pinion *h*. At this moment the rollers *i* become wedged, and the pinion *h* moves the gear *c*¹ and consequently the hollow shaft *c*.

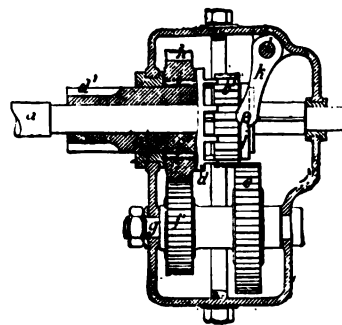


FIG. 1.

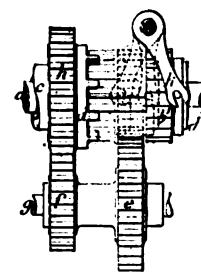


FIG. 2.

Consequently the low speed is always thrown in before the high speed is thrown out, and becomes operative only when the motor has reached the same speed, thus avoiding, it is claimed, stripping of teeth, etc. To pass from the low to the high speed it is only necessary to move the clutch *b*¹ in the opposite direction to bring it into engagement with the pinion *d*. To facilitate this it is recommended that the ignition be switched off for a moment. The clutch can also be moved along the shaft *a* past the wheel *e*, so that complete disengagement may be obtained, thus permitting the machine to be brought to a standstill without stopping the motor. The parts of the device are all enclosed, and run in oil. The change of speed is, it is claimed, accomplished without noise or shock by means of a single lever.

DAMAGES AGAINST A MOTOR-CAR DRIVER.



At Coventry, on Tuesday, before his Honour Judge Ingham, a carrier named John Smith, of Bulkington, claimed £12 14s. from George Ormerod, of Foleshill, in the employ of the Daimler Motor Company.—Plaintiff said on the day following August Bank Holiday he was knocked down by a motor-car driver driven by the defendant, and sustained injuries which necessitated his detention in the hospital for twelve days, and kept him away from work for seven weeks.—The defence was that Ormerod used every means to signal the approach of the car, and that plaintiff stumbled in front of it. His Honour, in giving judgment for plaintiff for five guineas, said he thought crossing the road at right-angles was a curious manoeuvre, and one which ought to be carried out with extra care. He thought plaintiff was not to blame if, when he suddenly found the motor-car on him, he ran the wrong way.

MOTOR RACING AT BIRMINGHAM.



THE Birmingham annual theatrical charity sports took place on Wednesday afternoon at Villa Park, Aston, and were an unqualified success. Under the direction of a large and influential committee—a capital programme was carried through. This included footraces, tug-of-war, and a variety of amusing contests, in which the artistes from the theatres and the Aston Villa players participated. The chief attraction was a couple of motor races on the cycle track. In the first heat of the one-mile motor handicap, for a gold medal, J. W. Stocks (scratch) was first, W. Dunn (50 yards) second, and A. C. Edge (50 yards) third. Time, 2min. 2.5sec. The second heat was won by C. Sangster (50 yards), E. Felix (150 yards) second, and C. Sangster (150 yards) third. Time, 2min. 1sec. Final: Dunn 1, Felix 2, C. Sangster 3, Stocks 4. Time, 1min. 54 1-5sec. The race was a grand one. Dunn, who was lying second on coming into the straight, rushed to the front, and won by a length; ten yards between second and third; the fourth close up.—The three-miles motor handicap resulted as follows:—1st heat: W. Dunn (150 yards) 1, J. W. Stocks (scratch) 2, A. C. Edge (150 yards) 3. Won by a yard. Final (including second heat): Dunn 1, Felix 2, Stocks 3, Sangster 4. Time, 5min. 18 3-5sec. Won by 40 yards; 50 yards separating second and third.

THE MOTOR MANUFACTURING COMPANY.



A CIRCULAR has been issued by the Motor Manufacturing Company, Limited, convening an extraordinary general meeting to be held on the 13th inst. to consider proposals for the reconstruction of the company, in accordance with the suggestions of the shareholders' committee appointed at the recent general meeting.

The following is the report of the shareholders' committee above referred to:—

"Your committee, who were appointed at the recent annual general meeting to consider the question of further capital, met on the following day, when the company's position was fully placed before them by your chairman and directors, and it was arranged that such of the members of the committee as could possibly do so should proceed to Coventry for the purpose of inspecting the company's works and forming an independent idea of the position and prospects of the company.

"Four members of your committee (Messrs. Glass, Harris, Barr, and Garnett) were able to meet your chairman (Mr. Gretton), together with Mr. Buckea and the company's manager (Mr. Iden), at Coventry, and carefully went over your works and inspected every department, Mr. Hutchings having previously, and Mr. Holt having subsequently inspected the works. Your committee were much pleased to notice that the works appeared, so far as they were able to judge, to be thoroughly well equipped and to be very ably organised. The various shops were inspected, and the processes were fully explained by your chairman and Mr. Iden. Your committee were very favourably impressed by the appearance of the works, and the machinery in particular appeared to work efficiently and to be in good condition, and to be capable of a greatly increased output, and your committee consider that the statements made by your chairman in his speech at the general meeting were fully justified.

"Your committee have not attempted to investigate the company's accounts, but the company's position was explained, and the committee think the balance-sheet figures in respect of plant, stock, and buildings are not at all over-estimated. Your chairman courteously answered all the enquiries of your committee; and it appears that there is now due to the company's bankers (to whom a debenture has been issued), and to sundry creditors for current liabilities, sums approximately estimated at together £7,000, which we believe to be represented by additional machinery and stock provided and acquired since the date of the balance-sheet, and that in addition to providing for these sums, further working capital is required to enable the business to be properly and efficiently conducted.

"Your committee considered various schemes for raising the capital required. It was suggested that the company should be reconstructed, and that the present shareholders should be offered shares in the reconstructed company, credited with 17s. paid up and with a liability of 3s. per share to be payable as to 3d. per share on application, and 9d. per share on allotment, and the balance to be called up as required. A proposal was also considered for the raising of the money required by the issue of debentures or preference shares, but it was felt

that the nature of the company's property was such that it was doubtful if the money could be raised by this means unless the existing shareholders themselves subscribed for the debentures or shares to be so issued. The former plan therefore appeared to your committee to be the most practicable course, but Colonel Harris and Mr. Garnett, two of the members of your committee, intimated that as they were acting only as proxies for shareholders they could not pledge their principals to any scheme, although they personally concurred in the views of your committee.

"Your committee are strongly impressed with the future prospects of the company, and believe that the organisation which now exists, and which has obviously been the result of much labour and expenditure of money, is well adapted to earning a profit within a reasonably short space of time, and also feel that it would be a disaster if the benefits of the labour and expenditure which have been devoted to the establishment and development of the company's business, should be thrown away for the want of a comparatively small sum of money.

"After carefully considering the position and needs of the company, and the course most likely to lead to the provision of the further capital required, your committee recommend the adoption of the following proposals, viz.:—1. That the company be reconstructed, and that the shareholders in the present company be entitled to receive a £1 share in the reconstructed company credited with 17s. paid up in exchange for each fully paid up share held by them in the existing company. 2. That the balance of 3s. per share be payable as to 3d. per share on application, 9d. per share on allotment, and the remainder as and when required, but not to exceed 1s. per share, or to be called up at intervals of less than three months."

The directors in their circular state that "It will be remembered that at the recent adjourned general meeting it was explained that the company, which is now controlled by directors selected on the shareholders' behalf, had in bringing the business to its present position, found the working capital originally provided not sufficient, and the meeting thereupon from among its number appointed a committee for the purpose of conferring with the directors.

"The board have pointed out to the committee that having regard to the great increase in the company's business further capital can be advantageously employed for the following purposes:—1. To pay for further labour saving machinery, some of which takes many months to make and was ordered some months ago. 2. To enable larger stocks of manufactured cars to be held, both for exhibition purposes, to push the business, and to ensure full prices being obtained. 3. To erect a foundry and smithy to enable the company to make its own castings, instead of having to place this work outside and pay profits to others, a process attended also with great inconvenience and delay. 4. To pay off the existing overdraft at the bank, which overdraft has been rendered necessary on account of the larger business now being done and the larger stocks held.

"In the Directors' report they referred to the high favour in which the company's cars are now held by the public, and the numerous awards they have gained at exhibitions, and in the chairman's speech at the general meeting, he gave figures showing the remarkable expansion of the company's business.

The chairman's speech at the meeting referred to and the committee's report deal fully with the greatly improved position of the motor industry, in which your company claims that it holds the leading position, and there is in the opinion of the board little room for doubt that your factory, with sufficient working capital, used as above indicated, could not only increase its output to the full extent of its capacity and work cheaper, but could sell this output at remunerative prices. It may be added that a general advance of prices has just taken place in the trade.

"The necessary capital to bring about this state of affairs, however, has to be raised, and the directors, who have given careful consideration to the subject, see no other course open to them but to agree with the committee that the only mode of obtaining it is by reconstructing the company. The raising of this working capital by any other means being in the opinion of the board not likely to succeed, they consider that the scheme set forth in the committee's report is the best to adopt under the circumstances. It is as follows:—1. A new company to be formed with a capital of £300,000, divided into shares of £1 each, and the same or a similar name and Memorandum and Articles of Association to be approved by the liquidator of this company. 2. The new company to take over all the property, assets, undertakings, liabilities, and costs of winding up of this company, and carrying the reorganisation scheme into effect. 3. Every shareholder in this company who shall apply upon and subject to the terms of the reorganisation agreement will be entitled to receive from the liquidator a share in the new company for each fully-paid £1 share in this company. 4. Such shares to have 17s. per share credited as paid-up thereon, and the 3s. unpaid upon each share is to be paid as follows:—3d. per share on application; 9d. per share on allotment; and the remainder as and when required, but no call to exceed 1s. per share or to be called up at intervals of less than three months.

"While agreeing with the committee's views, the directors believe, firstly, that it will not be necessary to call up the full amount of the assessment, at least for some time to come. They, however, think the committee are wise in fixing it at a figure which, while it may be thought by some too large, is preferable to one that may ultimately be found too small; and, secondly, that the committee's scheme, providing as it does for an additional £45,000 working capital, will place the new company in

the strongest position in the trade; and that as the market value of the company's shares is now undoubtedly affected by its present financial position, the shares in the new company should advance in value in the market by an amount considerably exceeding the proposed assessment."

THE LONDON MOTOR-VAN AND WAGON COMPANY, LIMITED.



THE report of the directors of the London Motor-Van and Wagon Company, Limited, for the period from 1st April, 1899, to 31st January last, to be presented at a meeting to be held in London on the 12th inst., states that the accounts for the ten months are more satisfactory than any preceding accounts. Not only have several of the items of expenditure been reduced, but the sales effected during last season show a profit. The profit and loss account shows a gross profit of £1,636, and a net one of £393. Accompanying the report is a circular addressed to the shareholders by the directors, who state that they have pleasure in submitting proposals for placing the London Motor-Van and Wagon Company, Limited, upon a business-like footing, and one which will tend to enable the directors to divide among the shareholders by way of annual dividend any trading profits which may be earned. As shareholders are aware, the issued capital of the company at present is 32,400 shares of £5 each, equal to £161,984. Of this sum, 4,800 shares, equal to £24,000, are held by what may be conveniently called cash shareholders, and the balance—27,600, equal to £138,000—were issued as fully paid to the vendors, but do not participate in profits until 6 per cent. has been paid upon the subscribed capital. No dividend whatever could be paid by the directors until the trading loss up to March 31st, 1899—namely, £2,355 10s. 5d.—has been written off out of subsequent earnings, nor until the preliminary expenses and stamp duty had been written off out of earnings and a reasonable sum allowed for depreciation. The total amount, probably nearly £5,000, would have to be added to a 6 per cent. dividend on 4,800 ordinary shares, and would necessitate earnings of net profit available for dividend amounting to between £6,000 and £6,500. Even if this sum can be earned, a great number of years (having regard to the available working capital of the company) must elapse before such even could happen, and in the meantime no part of the profits until they amounted to between £6,000 and £6,500 could be distributed among the shareholders.

The company has, during the past year, earned a profit on trading, valuing the stock at prime cost as hitherto, but writing off £70 13s. 8d. for dilapidations at the company's former premises at Chiswell Street, vacated on March 31st last, and the directors believe that even deducting a fair proportion of depreciation, clear net profit was earned during the past season, and they hope with great confidence that the profit will, as time goes on, increase continuously. At the meeting of the cash shareholders held in November last, the directors promised, if possible, to arrange for the placing of the affairs of the company upon a more businesslike footing, and also to endeavour to obtain new channels of business if a reasonable anticipation of profit could be formed. Both of these promises the directors now feel themselves able to redeem. The first has involved a scheme for the reconstruction of the company. The scheme is one which had its origin in a letter from one of the holders of vendors' shares, who wrote to the then chairman of the company, offering to surrender his vendors' shares for the benefit of the cash shareholders, and the chairman, when retiring from the board, made a similar offer on his own account. Nearly the whole of the holders of vendors' shares have been communicated with, and have been asked to surrender their holdings of vendors' shares in order that the rights held in respect of such shares should be entirely extinguished in favour of the cash shareholders, and a large majority of the holdings have been promptly and generously given up, upon condition that the proposed scheme for reconstruction is carried, and in many cases transfers have been made to the present chairman of the company to enable him to extinguish the rights appertaining to the shares in favour of the cash shareholders. In other cases promises have been made by the holders to concur in the scheme. Absolute refusal to agree has only been received from one holder, and it is probable that there will be no substantial opposition from the remaining holders of vendors' shares, who have not yet consented to the proposal. If, however, contrary to the hope of the directors, the scheme should be defeated by votes of holders of vendors' shares, the directors will be pleased to confer with a committee of the cash shareholders with a view to presenting a petition for compulsory winding up of the company, because the directors are not prepared to accept the responsibility of a voluntary winding up, with the necessity of distributing the assets of the company *pro rata* among the holders of the whole £161,984. Such a distribution would be most disastrous to the cash shareholders, and, if it must take place, the directors would prefer that it should be under order of the court rather than by their own action.

Special remark must be made with reference to one holding of the deferred shares above referred to—that is, the holding of 10,000 shares, equal to £50,000, by the British Motor Company, Ltd. These shares were acquired by the British Motor Company, Ltd., in return for the licence sold to the vendor syndicate, and some considerable difficulty was involved in framing a reasonable and acceptable proposition between this company and the British Motor Company, but the British Motor Company have agreed, upon certain conditions, to permit of the extinguishment of the holding in return for the cancellation of the licence and an arrangement with the new company by which any motor dealt in by the new company other than motors purchased from companies already licensed by the British

Motor Company, Ltd., shall bear a royalty of 5 per cent. upon the selling price to the British Motor Company, Ltd., if the new motor so dealt in infringes any of the British Motor Company's patents. Questions of infringement to be determined by a leading expert. The total numbers of deferred shares already agreed to be extinguished in favour of the cash shareholders are 18,988, or thereabouts, equal to £94,940, including the holdings of members of the Board. Every member of the old company, except those who agree to extinguish their shares for the benefit of the cash shareholders, will be entitled in respect of each fully paid-up £5 share in the old company to claim an allotment of four shares of 10s. each in the new company, with the sum of 7s. per share credited as having been paid up thereon, leaving 3s. per share to be paid to the new company. The directors regret the necessity for creating this burden, but point out that it will fall very lightly upon the cash shareholders in comparison with the holders of vendors' shares, and that if the whole of the vendors' shares had been given up, it would probably not have been necessary to have made any assessment. The other promise of the directors to the cash shareholders at the November meeting has been fulfilled by an arrangement entered into with a manufacturer for the purchase from him of voiturettes of novel design, and in respect of which the directors hope to do a satisfactory trade during the coming season. Unless the hopes of the directors are entirely illusory, the ordinary business of the company, increased by the sales of the new motor, will enable a profit available for dividend to be earned upon the reduced capital of the new company, but that result could not be achieved with the old company in its present position, even with profitable trading for a long period.

THE Locomobile Company of America has opened a depot room in Washington, U.S.A., for the exhibition and sale of the different styles of vehicles made by the concern. In connection with the depot it is the intention of the company to have a repository, where purchasers can have their carriages kept in good order, cleaned, oiled, and charged with fuel and water, ready for use at any time.

TO CORRESPONDENTS.



All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

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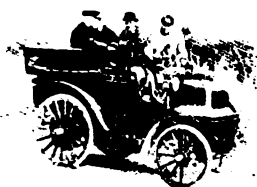
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COMMENTS.

SUNSHINE or snow apparently make little difference to automobilists, and owners of motor-vehicles are to be found indulging in their favourite amusement in fair weather or foul. Two or three weeks ago we referred to the number of cars seen out during the bad weather; the number has been greatly increased in the last few days, and automobiles have been seen in



greater force than ever, voiturettes with seating accommodation for two persons being the favourites, motor-tricycles also being extremely popular. In fact, in some London districts "teuf, teuf" has been almost as common as the "clatter, clatter" of the horses' hoofs. On Saturday last on Richmond Hill were seen an Iveagh Phaeton, an Orient Express, a Marshall car, a quad, and several tricycles—all within a space of a couple of hundred yards. On the following day an even greater number of vehicles were observed in Richmond Park and on the Ripley road, one of the most notable passengers being Sir Richard Webster, Q.C., on the front seat of a "twin Daimler."

The Forthcoming Exhibition.

IN connection with the forthcoming exhibition, which is being looked forward to with interest in automobile circles, it is being arranged that an additional dinner of the members of the club shall be held at the Agricultural Hall on Saturday, April 21st, at 7 p.m., on the termination of which the Right Hon. the Lord Justice Clerk of Scotland has consented to read a paper on "War and Power Traction." Arrangements are also being made whereby a large room at the Agricultural Hall, handsomely equipped and furnished, will be reserved for the use of the members and friends of the Automobile Club during the course of the Exhibition. It is also proposed to organise a ladies' afternoon for the benefit of the wives and friends of the members of the Club.

Mr. A. F. Mulliner's Works at Northampton.

THE name of Mulliner is well known in the motor-car world, being synonymous with all that is excellent in the way of body building in connection with automobiles. We recently went to Northampton for the purpose of bringing down our new Iveagh Phaeton, and while waiting for the car being prepared for the journey Mr. Mulliner kindly showed us round his fine factory. Altogether there are more than 150 men employed at these works, a large number of whom are engaged on motor-cars—a class of work which he has specialised. At the time of our visit over twenty cars were being fitted at the works, while there were orders in hand for many more. For the 1,000-mile Trial he has several aluminium bodies under way, one of which is for Mr. C. Johnson's new Parisian Daimler car. The present extent of Mr. Mulliner's premises is apparently not sufficient to cope

with the business, and extensive alterations are in progress to meet the demand for facilities for an increased output. All motorists evidently know that Mr. Mulliner is the man to build handsome "bodies" for motor-cars.

Northampton to London.

WE left Northampton on our new Iveagh Phaeton at three o'clock in the afternoon, Mr. Mulliner kindly acting as pilot the first part of the way. The roads were in a shocking condition throughout the journey—either being heavy with mud or covered with newly laid stones evidently left to be ground in by the traffic. Despite these bad conditions the motor pulled remarkably well and developed great power. Unfortunately, as no radiator had been affixed, six or seven stoppages had to be made for water, and it was after ten o'clock when we arrived in London. Allowance should, however, be made for an hour's stoppage at St. Albans for refreshment. The way in which the landlords of the inns are realising the needs of motorists was very notable and those on the route from Coventry to London make every provision. At the Saracen's Head, Dunstable, there is a nicely paved yard and stabling for motors and a long hose. From all we were told it is evident this is a favourite house of call with automobilists.

A Private Motor "Garage."

ON another page we are able to publish an illustration of the motor-garage of the Hon. Evelyn Ellis, at Datchet, near Windsor. This gentleman, as is well known in automobile circles, was one of the first to take up the motor-car in this country, and that he is an enthusiastic *chauffeur* is clearly indicated by the illustration, which shows, in addition to several motor-tricycles, a Twin Daimler at the left, an 8-h.p. Panhard, a 5½-h.p. Daimler, an original Panhard adapted as luggage car, and a Panhard car arranged as a fire-engine. In the foreground will be seen the pit over which the cars are drawn to facilitate overhauling and repairing operations. There is little doubt that within a few years such *garages* will be prominent features at large country seats.

Motor-Car Excursions.

THE first trip in connection with the motor-car excursions, to which reference was made in a recent issue, was run on Monday—from Birmingham to Stonebridge and back. A very successful run was made, and the local interest evoked gave promise of good results for the future. Undoubtedly these motor-car excursions should become very popular, and will also have a good effect in causing the public to regard automobiles with greater favour than hitherto. We shall be glad to have accounts of any organised series of excursions or shorter public services, so as to be able to fully chronicle the many developments now being made.

Birmingham Watching.

At the meeting of the Birmingham Watch Committee on Tuesday it was reported that a licence had been granted to the British Electrical Traction Engine Company in respect of an omnibus, and incidentally Mr. Jarvis referred to the proposed excursions by motor-car from Birmingham, and asked if anything had been heard officially of the proposal. The Chief Constable replied in the negative, adding that he understood the Automobile Club were arranging a contest for self-propelled vehicles, which would visit Birmingham and other places. Mr. Thomas asked if the vehicles would require to be licensed, and Deputy-Chief Constable McManus pointed out that "four-in-hands" which made excursions in the summer were so required. The chairman suggested that the matter was not one to be decided off-hand, and the discussion was not carried further.

The Automobile Club 1,000-mile Trial.

WE are now within measurable distance of the 1000-mile Trial, preparations for which are now well in hand. The start is fixed to take place at 7 on Monday morning, April 23rd, at Hyde Park Corner, the Chief Commissioner of the Metropolitan Police having consented to the Trial vehicles meeting on the east side of Grosvenor Place. All the competing cars are, however, to be at the Agricultural Hall, Islington, on the previous Saturday, where they will be officially examined and sealed by the judges. In connection with the Trial a special dinner is to be held at the Agricultural Hall on Wednesday, April 18th, at 7 p.m. The dinner will be open to everyone taking part in the Trial—whether they be manufacturers, agents, private owners, passengers, or paid drivers; and it is hoped that every person taking part in the Trial may be present. The tickets for the dinner may be obtained from our office at the Exhibition, price 2s. 6d. each (without wines). After the dinner a paper will be read on "The Arrangements for the 1,000-mile Trial."

England v. France in America.

FROM Mr. Chas. Jarrott, in New York, we have this week received a letter, in which he refers to the projected motor race between himself and Fournier. "I should have been delighted," writes Mr. Jarrott, "to have raced against him for sport, but no match was arranged for the following reasons: Firstly, open-air racing is impossible at this time of the year. Secondly, I did not wish to complicate matters with reference to the racing rules of the National Cyclists' Association (America) by riding against a professional cyclist. Thirdly, Fournier left for France a fortnight ago. Seriously speaking, it is impossible to race here with the thermometer just a few degrees above zero." In fact, Mr. Jarrott adds that since he reached America he has done more skating and sleighing than motoring.

Carriage Builders and Motor-Cars.

Two trades are claiming the automobile industry as their own, and both cycle manufacturers and carriage builders feel considerable interest in the progress of the motor-vehicle. The *Carriage Builder's Journal*, in its last issue, has a leading article and also a special contribution calculated to impress upon its readers the necessity for devoting attention to vehicles that move without the aid of horses. "That the carriage builder," declares our contemporary, "is the right man to take up and grow with the motor for all classes of road vehicles goes without saying. He is not only in close touch with the vehicle buyers and users of the country, but he is also the inheritor of the accumulated skill and experience of many generations of builders and vehicles." This reasoning seems sound and should appeal to those carriage builders who wish to occupy leading positions in their important industry. But we are afraid that in addition to accumulating skill and experience many of them have gathered a great deal of traditional conservatism. It is this fact which causes not a few to forget that a motor-vehicle is not merely a horseless

carriage. A motor-vehicle should be specially designed and not be regarded as a horse-drawn carriage with the shafts taken off.

A Dictionary Omission.

WE cannot comprehend why our contemporary should speak of "motocars." If the last letter of these compound words is to be dropped we should speak of the "celleman" for cellarman and of the "tracar" for tramcar. Probably all these things will be set right in proper sequence, and the recent date of the revival of mechanical road locomotion is shown in this connection. The 1890 edition of Webster's dictionary has no mention of automobile or automobilism, while motor-car is also absent. The same dictionary knows not autocar, and its definition of *autocar-pian* is foreign to our subject, for it speaks of the "ripened pericarp with no other parts adnate to it."

The Motor-Car Club.

WE have this week received from Mr. F. W. Baily, the secretary, a copy of the report of the committee of the Motor-Car Club for 1899, which is to be presented at the annual general meeting to be held on Wednesday next, the 21st inst. The report gives a brief *resumé* of the several automobile runs and race meetings organised during last year, and concludes with the statement that these will be repeated during the present season in addition to which a hill-climbing competition near London will be organised. At the meeting next week the committee will recommend:—"That the club sanction the transfer of its financial business to a company, called the Motor-Car Club, Limited, and agree to pay all money received to the said company, on the understanding that in consideration of this arrangement—(1) The company will be responsible for all debts incurred. (2) The board of the company will be composed of five directors; at least two of whom will be nominated by the club." Several alterations to the rules as to the liability of members are to be considered, while it is proposed that Rule VIII. shall commence as follows:—"The officers of the club shall consist of president, vice-president, honorary secretary, reporting secretary, and a committee of twelve ordinary members of the club. The officers shall be *ex-officio* members of the committee. Three shall form a quorum."

A Suggestion for a Motor-Bus.

At the Lancashire Steam Motor Company's works at Leyland more than fifty hands are employed, and the manager, Mr. Sumner, has been interviewed by the *Chorley Standard*, to whom he made the confession that he would like to make a bus to carry twenty passengers and 10 to 12 cwt. of luggage with removable seats and fitted with a hood which would give protection against extremes of weather. The weight would be under three tons, and the bus would be fitted with sufficient engine power to make an average speed of five or six miles an hour, including stops. The prime cost would be from £500 to £550, and the weekly working cost would be £4 5s., made up as follows:—depreciation at 10 per cent. on £550, £1; coke at 2s. 6d. per day, 15s.; driver at 30s. a week; oil, grease, and waste, 5s.; repairs, 15s.

A Trip on a Renault Voiturette.

EVER since the little Renault Voiturette illustrated in the *Journal* for September 15 last made its appearance, we have heard good accounts of the performance of this car, but it was not until Sunday last that we had an opportunity of testing its capacity for ourselves, when one of our staff, in company with Mr. Redgrave, of the Comet Cycle and Motor Car Company, of Wandsworth, journeyed out as far as Ditton. The car, which was a new one—it only having arrived from Paris two or three days previously—is both slightly longer and wider than the original model, and has a very attractive appearance. From Wandsworth the route followed was via Wimbledon, Raynes Park, and Kingston, and although only fitted with a 2½-h.p. air-cooled De Dion motor, many of the hills

were taken on third speed. The control the driver has over the car was exemplified between Kingston and Ditton, when owing to a collision between two cyclists immediately in front of us a very quick application of the brakes was necessary. The return trip was made in good style at an average pace of about twelve miles per hour, the enjoyment of the run being only marred by a punctured tire, which had to be repaired, necessitating a delay of nearly an hour ere the journey could be resumed.

More Speed Wanted.

ARE the parsons among the prophets of automobilism? A few weeks ago our correspondence columns contained a letter from a reverend gentleman, who hoped the day was not far distant when he would be able to purchase a motor-car at a very cheap rate. Now the *Christian Globe* is urging that the automobile should be allowed to go quicker. "Parliament," says our contemporary, "has lately fixed the limit of speed at twelve miles an hour; but that is too low, and the sooner it is raised the better." Had such a suggestion come from an ordinary motorist it would have been met with a cloud of dust from scores of local authorities, but who would suspect the *Christian Globe* of any desire against Her Majesty's subjects? And so very little heed has been paid to this latest suggestion for increasing the speed of automobiles on the public highway.

Conversion at Chicago.

THERE is joy in the Chicago coterie of automobilists over the conversion of the South Park Board to the motor-vehicle. It was at the direction of this group of gentlemen that the Chicago park was closed to electric vehicles a little while ago. But experience has since been gained, and the Board is now as heartily in favour of horseless carriages as it was formerly vehemently opposed to such vehicles. It has just been decided to purchase motor-cars for the superintendent and captain of police, on which they will, in future, make their daily rounds of inspection in the park, and the Board has also decided to invest in an automobile watering-cart. No wonder the restrictions on motor-carists in Chicago are being relaxed.

Motor-Wagons for Municipal Purposes.

In our issue of February 16th last we published the report of Mr. T. W. E. Higgins, the surveyor of the Chelsea Vestry, regarding the working of motor-vehicles, and giving also a comparative statement of the prime and annual cost of motor-wagons for which tenders had been received from four builders. We now learn that the Vestry has placed a contract with the Lancashire Steam Motor Company of Leyland for two steam motor-vans at a cost of £475 each. According to the comparative statement prepared by the surveyor, the annual cost of these vehicles, including an allowance of 15 per cent. for depreciation and the driver's wages at £90, amounts to £293 18s. At the time the tenders were submitted, the Thornycroft Steam Wagon Co. offered to sell a vehicle in use by them for £550, this price to cover a watering body as well as the ordinary tipping one. In addition to purchasing the two Lancashire wagons, the

Vestry has taken advantage of this offer, and the Thornycroft wagon, which has been put in repair, is now working in Chelsea.

An Unguided Vehicle.

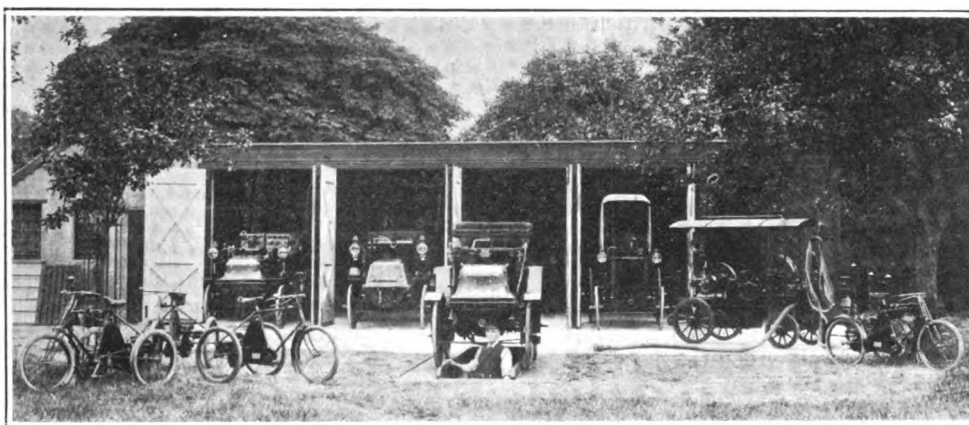
TALES of motor-vehicles careering about town driverless and wantonly have often been pictured in comic papers, but one has actually been disporting itself in that way—to the amusement of small boys, the alarming of old ladies who saw it coming their way, and the destruction of a lamp-post in its path. The incident occurred to a steam vehicle in New York, the driver having left the carriage by the kerb while he made a call. Steam was up and the engine was reversed. During his absence some boys investigated the machine and pulled the lever. The machine commenced to back, and, striking an obstruction, turned toward the sidewalk and ran over a pedestrian. The moral, of course, is plain. All motor-vehicles should be provided with locking devices of some kind to prevent just such accidents as this.

Motor-Cars in the Colonies.

WE learn that motor-cars are being imported into Victoria in increasing numbers, with the result that the question as to the amount of duty importers shall be called upon to pay has again arisen. When the motors were first introduced the department decided, states the *Melbourne Age*, that they must be subject to the highest fixed rate for "victorias," "broughams," and other high-class vehicles, that is, £40 each, and that also they should pay an additional duty of 30 per cent. on the value of the motor power. It has been found difficult, however, to discriminate between the value of the motor power and the rest of the vehicle, and the Commissioner of Customs has decided that importations shall be classified as "vehicles not otherwise enumerated." The rate of duty will therefore be 25 per cent. ad valorem.

Index to Vol. I.

A COMPREHENSIVE index to Vol. I. of the *Motor-Car Journal* has been compiled, and will be published on Tuesday next. The fact that it contains more than two thousand references is a tribute to the variety of the contents which have been indexed no less than to the care with which it has been arranged, and those who are binding or filing their copies of this *Journal* will do well to make early application. It has been provided with an effective frontispiece in two colours, and will be published at one shilling, at which price it will be supplied by the trade or sent, post free, from the office, 39-40, Shoe Lane, E.C., in cardboard tubes so as to avoid crushing or folding. We may add that this index has been prepared in response to a widely expressed desire on the part of subscribers, and that there may be others who, while not retaining all back issues, may yet like to possess such a guide to information with regard to automobile news during 1899-1900. That being so, early application for copies of the index is particularly requested. Orders can, as we have mentioned, be supplied through any railway bookstall or newsagent, or will be promptly executed, at the published price of 1s., from the office of the *Journal*.



THE HON. EVELYN ELLIS'S MOTOR-"GARAGE."
(For description see page 17.)

THE SPEED OF MOTOR-VEHICLES.



IT will be recollected that Mr. Henry Edmunds kindly offered, through the committee of the Automobile Club, a prize of £10 for the best essay on Speed. The following is the essay which has been adjudged to be the best of those submitted:—

In arriving at a satisfactory definition of what should be the speed of a motor-vehicle it is necessary first to consider separately each class of such vehicles, and taking as a whole the entire body coming within the Government tare limit, I propose to divide it into three classes, and consider each on its merits. Two other vital points should be considered, these being first, the construction of the carriages themselves, and second, the conditions of the locality where they may be used. To take each point seriatim:—

First. —Construction.—Commencing with the heavy motor-vehicles first, these being for the sake of brevity all vehicles of above two tons tare weight unladen. It appears for this class the Government limit of five miles per hour is fair, for although it seems reasonable that a speed of six miles might be permitted, yet in a heavy vehicle the increased vibration and consequent wear at speeds over five miles per hour are at present very marked, unless rubber or pneumatic tires are used, and here so far they have not proved the success they have been on lighter cars. It is significant that nearly the whole of the British heavy motor-vehicle builders state that for this class there is little advantage in exceeding the Government limit.

Coming to the second class, however, which comprises those varying between one and two tons, and assuming the employment of rubber in some form for the tires, we find a higher speed might be permitted; this in the writer's opinion being a maximum on main roads of fifteen miles per hour. This speed, with the advantages of modern construction, and the provision of two powerful and independent brakes, should be perfectly safe. No definite advantage seems to be gained, judging by English experience, in exceeding this, while on the other hand there is considerable risk. These remarks, of course, apply to English conditions, and in no way apply to those cars employed on the Continent or specially built for racing purposes.

The last class, which is that of all vehicles below one ton tare weight, and of course includes motor-cycles of all descriptions, again on the point of construction permits of a very high speed being safely employed, both on account of their lighter character and also the fact of their being usually fitted with pneumatic tires. On the other hand it should be remembered that this class is far more numerous, and therefore the speed should not be too high. For the reasons before stated, it seems that 20 miles an hour should be the maximum for this class on main roads.

Second. —Locality.—It is obvious this is an important point. As before stated on good main roads a high speed rate may be permitted, but for street traffic the conditions are entirely different. Bearing in mind the strong point of the difference between the general conditions in England and the great nations of the Continent, as example the French, both as to the roads and laws affecting motor-cars, we must remember the entirely different aspect of the question in each case. It is to be feared that in a small country as Great Britain, and with the numerous interests and prejudices to meet and study, a single set of regulations would not operate fairly in each district.

The writer may, however, indicate that the estimation and regulation of the speed of motor-propelled traffic should not be left to persons with little or no knowledge of the subject, and would venture the proposal that should the growth of the motor-vehicle industry continue, that each large centre of traffic should be provided with a certain number of competent persons to be attached to the police force, these being properly certified and examined, and who should be stationed at proper points for the express regulation of motor-vehicle traffic. As to the first class of vehicles the speed may well remain as before for street traffic, for experience shows that the heavy motor-vehicles at five miles

an hour are under perfect control, and there are very few localities where this speed might be called excessive.

It is, however, very different with Classes II. and III., which I will consider together. In order to protect foot passengers and users of the highway, I would suggest that in passing through towns the speed of each class be reduced to one-half for Class II., and one-third for Class III., i.e., $7\frac{1}{2}$ miles and $6\frac{2}{3}$ miles. If, however, this is considered awkward, I would suggest the alternative plan of reducing both classes to a uniform speed of 8 miles an hour through towns, and this speed not to be exceeded on cross roads less than 20 ft. clear width. It is perhaps too much to expect, but considering the fact that these classes are by far the most numerous, and also that action is being taken by local authorities to get the speed of motor-vehicles reduced, it is suggested Parliament might be approached with a view of preventing interference with motor-vehicle speed by local bodies, by fixing a minimum speed for these vehicles as far as regards Classes II. and III., below which (except as stated through towns) it should be impossible for these authorities to reduce it without proper authorisation, or the proof of the state of the traffic or locality demanding it, and that if such was the case a board should be placed prominently visible with directions as to speed reduction in large letters similar to the well-known "Cyclists' danger boards."

With the provision of traffic regulation by certificated experts and the enforced observance of the rules of the road by all, the foregoing speeds should be perfectly safe. PRECURSOR.

THE *Manchester Courier* is among the latest provincial journals to publish "Automobile Notes."

THE French and German Automobile Clubs are making arrangements for a motor-car race between Paris and Berlin, in 1901.

A COMPANY has just been formed in Paris (29, Avenue de la Grande Armée), with a capital of £48,000, to be known as La Société des Automobiles, Louis Ravel.

MESSRS. J. C. KINGMAN, of the Locomobile Company of America, delivered a lecture on steam vehicles before the American Automobile Club in New York a few days ago.

MR. FRANK BUTLER has driven his new 6-h.p. Panhard from Paris and has arrived in London. He was assured by the Baron de Zuylen that he intended to take part in the forthcoming 1,000-Mile Trial, and also by the MM. Lemaitre that they would be driving their 25-h.p. Peugeot throughout the trial.

"MOTOR-CARS, Past, Present and Future," is the title of a lecture which is to be delivered by Mr. E. Shrapnel Smith, the honorary secretary of the Liverpool Self-propelled Traffic Association, at the Mechanics' Institute and Technical School, Horwich, on Wednesday next, the 21st inst. The lecture will be illustrated by a series of lantern slides.

THE Ariel Motor Company, Limited, has just been registered, with a capital of £5,000, to carry on the business of manufacturers, importers, and exporters of, and dealers in motor-vehicles, cycles, velocipedes, and all kinds of domestic vehicles, both wholesale and retail. The number of directors is not to be less than three. The first are: Mr. S. F. Edge, Mr. C. T. Sangster, and Mr. J. W. Stocks.

A NEW motor-bicycle has lately been introduced by the Steffey Manufacturing Company, of San Diego, Cal. The motor and driving apparatus is very compact: it will go between the cranks of a narrow-tread bicycle, thereby enabling the rider to use the pedals, if necessary. The motor weighs about twenty pounds. It has electric ignition, is fitted with radial ribs for air cooling, or with a water jacket, to suit the purchaser. The motor and attachments are so designed that they can be attached to any diamond frame machine, or be detached therefrom, in a very few minutes. Any speed from six to twenty-three miles per hour may, it is claimed, be obtained, and a ten per cent. grade can, it is said, be mounted with ease. The speed is controlled by a small lever near the handle-bar, or by an electric button close to the handle-bar.

LA COUPE DES VOITURETTES.

(From Our Own Correspondent.)

THE fine weather has come to Paris at last, and *chauffeurs*, in common with the rest of the Parisian world, are bent upon giving it a right hearty welcome. Each day great numbers of automobiles are to be seen scudding hither and thither, while upon special occasions, such as the race of Sunday last, the very air throbs with the sound of the motor. I fully anticipated that there would be a crowd of men and motors at the *contrôle de départ* at Chambourcy on Sunday morning, but the actual attendance fairly surprised me. Shortly after 7 o'clock Saint-Germain became alive with cars, some coming in from Paris, while others made their appearance from local stable-yards and *garages*. These latter vehicles were competitors in the race, and their owners had taken the precaution of running them out from Paris to Saint-Germain the previous evening, the wisdom of

47, Morg; 50, Demester; 51, Delisle; 52, Emile. *Series B.* Cars weighing less than 500 kilos, water-cooled motors: 12, Hugot; 14, Ullmann; 15, Ravenez; 16, Dubois; 17, Delautre; 18, Klauss; 19, Vehel; 20, Théry; 21, Paul Louis; 22, Creux; 23, Terreau; 24, Doriot; 25, J. Richard; 27, Mercier. *Series D.* Cars weighing less than 500 kilos, air-cooled motors: 61, Van Berendonck; 62, Fernandez; 63, Gaillat; 64, d'Arnaud; 66, Laurent; 68, Lefèvre. A total of thirty-five. These were despatched by Mr. Lucenski, the director of *Le Journal des Sports*, in two divisions, series A. and C. leaving at 8.34 a.m., and series B. and D. at 9 o'clock. The majority of the cars were if anything more hideous than last year's racing voiturettes, for in many cases everything but the motor and frame had been dispensed with, the driver being perched on a board. In some instances the passenger was afforded the luxury of a seat beside him, in others he was required to make himself at home upon the frame, from which even the bottom boards had been removed. Osmont, on a three-



START OF CARS IN CATEGORIES A AND C.



GIRARDOT ON 12-H.P. PANHARD CAR WITH CHARRON RACING BODY.



A 16-H.P. MORS WAGONETTE.



LEVEGH ON 16-H.P. MORS CAR, WITH PAUL MEYAN ON 12-H.P. PANHARD CAR BEHIND.

which proceeding is at once apparent to all who are acquainted with that terrible stretch of road lying between the two towns.

A considerable crowd had assembled in the Place Royale even at that early hour to witness the weighing of the competing vehicles, while a steady stream of enthusiasts, either mounted or on foot, was making its way out to the scene of departure. This was the little village of Chambourcy, which is situated on the route de Quarante-Sous, about a mile from the Grille de Henne-mont. Here in front of a small restaurant, rejoicing in the magnificent title of "Au Repos de la Pédale," was placed the *contrôle*, and here, as they arrived from Saint-Germain, the competitors were ranged up into some sort of order. There were many absentees among the fifty-seven voiturettes which had been entered for the race, the actual starters being:

Series A. Cars not exceeding 250 kilos in weight water-cooled motors: 2, Cannes; 4, Echalié; 7, Blondin; 9, Dermillard. *Series C.* Cars not exceeding 250 kilos in weight, air-cooled motors: 31, Schrader; 35, Dompét; 36, Tart; 40, Le Saout; 41, Picard; 43, Biquet; 44, Osmont;

wheeled Phébus-Aster but very little larger than a perambulator, seemed to carry his passenger round his neck, such a wedged-in appearance did that unfortunate individual present. The whole aspect of these racing voiturettes gave me the impression that everything had been sacrificed in the attempt to obtain power with lightness, and that neither the question of endurance or of safety had entered largely into their construction. Almost invariably the motors are too strong for the frames, and the frames far too light for the road strains to which they are put, with the natural result that they simply fall to pieces when a trip of any length is attempted. The speed is great for the class of vehicle, but the average shown at the end of the journey is low on account of the continual breakdowns. Whatever success the voiturette has attained as a pleasure vehicle it certainly has not distinguished itself up to the present as a racer, and as Charron remarked to me when the last batch of competitors had disappeared down the road, "There are not many there that will make a good show"—so it proved.

Once the competitors had got under way the crowd of

spectators quickly dispersed, some returning to Saint-Germain to await the finish, while others set out to intercept the competitors on their return journey. I, on the front seat of M. Brierre's quadricycle, was among the latter, and we made our way through the forest to the Route des Loges, from where we commenced our run over a portion of the course, but in the opposite direction to that of the races. The last of the *contrôles*, which was placed at the famous Croix-de-Noailles, was quickly reached, and then we sped on over magnificent roads and through delightful scenery to Poissy. Once through the town we made tracks for Triel, and there found upon the bridge spanning the river a number of friends, who had made a brief halt to admire the beauty of the picturesque little village nestling against the side of the hill. Again getting under way our party mounted on one voiturette, three quadricycles, one motor-cycle, and a bicycle or two, made a quick, but very dusty, run to Meulan, 43½ kilomètres from Paris, where we found René de Knyff, Charron, Huillier, and many other *chauffeurs* lunching, previous to seeing the passage of the returning voiturettes. Of these latter, Théry, driving a Decauville fitted with two motors in front and two behind, was the first to pass at 1.9 p.m. Twenty-nine minutes later Tart went by nursed by Girardot and Clément in their 12-h.p. Panhards. Demester, on a Gladiator, followed, but before getting clear of the village broke down, hard lines when so well placed, and only 20 kilomètres from the finish. Doriot (Peugeot), Ravenez (Decauville), G. Richard (Richard), Ullmann (Decauville), Creux (Peugeot), and Delautre (Hurtu) came after in the order named, and then we waited for no more, but set out ourselves for Saint-Germain.

At every point of vantage there were groups of people and we met several automobilists driving out, among others being Baron de Rothschild on his 24 h.p. German Daimler. No competitor overtook us *en route*, indeed, Osmont, who was the first to finish after our arrival, was twenty-five minutes behind his predecessor, Delautre. The others came in at lengthy intervals, the classification and net times of the first twenty being as follows:—1, Théry (class B), 4h. 51min. 4sec.; 2, Tart (class C), 5h. 46min. 55sec.; 3, Ravenez (class B), 5h. 56min. 47sec.; 4, Doriot (class B), 5h. 58min.; 5, Ullmann (class B), 6h. 18min. 11sec.; 6, Creux (class B), 6h. 22min. 51sec.; 7, Delautre (class B), 6h. 26min. 12sec.; 8, Max Richard (class B), 6h. 38min. 55sec.; 9, Mercier (class B) 7h. 16min. 25sec.; 10, Osmont (class C), 7h. 17min. 8sec.; 11, Paul Louis (class B), 7h. 28secs.; 12, Camus (class A), 7h. 36min. 50secs.; 13, Delisle (class C), 7h. 40min.; 14, Schrader (class C), 7h. 45min. 2secs.; 15, Hugot (class B), 7h. 45min. 3sec.; 16, Couturier (class C), 8h. 3min. 38sec.; 17, Lefèvre (class D), 8h. 2min.; 18, Teneau (class B), 8h. 16min.; 19, Demester (class C), 9h. 14min.; 20, G. Richard (class C), 9h. 56min.; 21, Klauss (class B), 10h. 14min.; 22, Paul Picard (class C), 11h. 21min.

Classified by series the placings are as follows:—*Series A.*—1, Canus, in 1h. 36min. 50sec. *Series B.*—1, Théry, in 4h. 51min. 4sec.; 2, Ravenez, in 5h. 56min. 47sec.; 3, Doriot, in 5h. 58min.; 4, Ullmann, in 6h. 18min. 11sec.; 5, Creux, in 6h. 22min. 51sec.; 6, Delautre, in 6h. 26min. 12sec.; 7, Richard, in 6h. 38min. 55sec.; 8, Mercier, in 7h. 16min. 25sec.; 9, Paul Louis, in 7h. 28min.; 10, Hugot, in 7h. 45min. 2sec.; 11, Teneau, in 8h. 16min.; 12, Klauss, in 10h. 14min. *Series C.*—1, Tart, in 5h. 46min. 55sec.; 2, Osmont, in 7h. 17min. 8sec.; 3, Delisle, in 7h. 40min.; 4, Schrader, in 7h. 45min. 2sec.; 5, Couturier, in 8h. 3min. 38sec.; 6, Demester, in 9h. 14min.; 7, G. Richard, in 9h. 56min.; 8, Paul Picard, in 11h. 21min. *Series D.*—1, Lefèvre, in 8h. 9min.

The smaller cars fitted with water-cooled motors made but a very poor show, while the vehicles entered in the heavier category and provided with air-cooled engines made an even worse display. And this latter result only bears out the opinion so frequently expressed that the larger sizes of air-cooled motors are not practical, and makers must sooner or later abandon the type. The winners in the two other categories did excellently, especially considering the difficulties of the course. Théry's time of 4h. 51min. 4sec. for the distance of 217 kilomètres gives an average speed of 44 kil. 700 mètres per hour, while Tart averaged 37 kil. 600 mètres in covering the route in 5h. 46min. 55sec.

The only accident recorded was that to Blondin, whose car in passing over a *caniveau* came to grief, and brought about a dislocated shoulder to its driver. But no mishaps occurred to spectators on the return journey to Paris, which is something to be wondered at, for, added to some hundreds of automobiles, there were literally swarms of cyclists, and the dust was perfectly blinding. The promoters of the race should be well satisfied with the result of their efforts, and will doubtless demonstrate their satisfaction at the support accorded them by deciding to make the fixture an annual one.

CORRESPONDENCE.

EMERGENCIES.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—Referring to your correspondent's letter in your last issue I would draw his and your readers' attention to a machine sold by Messrs. William H. M. Burgess, Limited, which I am able to use as a tricycle or quadricycle without the three land brakes on the back axle being interfered with on my converting same. Another most ingenious improvement in connection with this machine is that in the event of my tricycle being taken apart for repair the electric circuit is divided into two parts by means of a terminal plate placed near the seat lug. I am, therefore, able to separate the back part of the frame without taking the electric wire out of the tubing. I am also able to keep this machine in an out-house, as it will pass through a doorway 38in. wide.

Hoping these few points will interest your readers,

Yours faithfully,

Craigmonnie, Finchley, N.,

LORNE WALLET.

March 13th, 1900.

THE LEVENN MOTOR-VOITURETTE.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—In your issue of January 12th last I noticed a description of the Levenn Motor-Voiturette, and have been looking out for further information as to the running of this car. I should be very glad if you or any of your readers could afford me any information as to the working of this car, and especially whether the frictional driving gear is satisfactory or not.

Birmingham,

Yours truly,

March 12th, 1900.

A. E. C.

THE Winslow Motor Carriage Company is a new corporation, organised, with a capital of £20,000, under Delaware laws to do business in Philadelphia.

"THE Automobile in the Army," was the subject of a paper recently read at Lyons by a French military officer. The author considered that the motor-car was likely to prove of great service in connection with military operations, particularly in the Colonies, by affording a rapid means of communication between the main depot and outlying stations.

THE Maltby Automobile Company, of Clinton Street Brooklyn, N.Y., U.S.A., have lately introduced a small 2-h.p. vertical petrol-motor on the lines of the well-known De Dion engine. A noticeable feature is the large surface-cooling area secured by the closely-placed and broad ribs radiating from the explosive chamber. Another important point is the provision for quickly taking apart the motor and accessories. The side studs connecting the cylinder to the casing which usually pass through the head, and require a considerable time and effort to take off, are so placed that a few turns of the nuts will permit them to be slipped out and the combustion chamber and cylinder removed. The sparking plug can also, it is claimed, be taken out by hand, without the use of tools. Three different methods of sparking, the "jump spark," "contact," and "rubbing contact," have been developed, any one of which can be put on at the option of the purchaser. A light motor, weighing about twenty-two pounds, is also being built by the Maltby Company for bicycles.

THE EARLY DAYS OF THE DAIMLER CAR.

It must have been a matter of considerable satisfaction to the late Herr Gottlieb Daimler, whose death was recorded in our last issue, that he had lived to bring his automobile to a state of relative perfection and to see it brought into every-day use in considerable numbers in almost every part of Europe. That the Daimler car as we know it to-day is the result of many years' experiment and slow but steady improvement by Herr Daimler and others it is hardly necessary for us to remark, and



FIG. 1.—DAIMLER MOTOR-BICYCLE (1885).

the accompanying illustrations of some of his earliest productions may not be without interest at the present time. As stated in our last issue, it was in 1882 that the deceased gentleman relinquished his appointment with the Gas-Motoren Gesellschaft of Dantz, Cologne, to devote himself to the introduction of a light high-speed petrol motor. His first automobile production was a so-called bicycle, but as will be seen from Fig. 1 it was a four-wheeled affair, there being, in addition to the two large wheels,

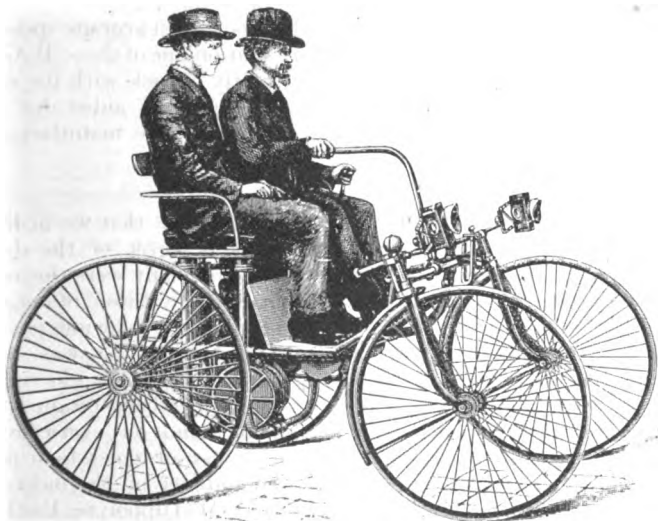


FIG. 2.—THE DAIMLER CAR OF 1889.

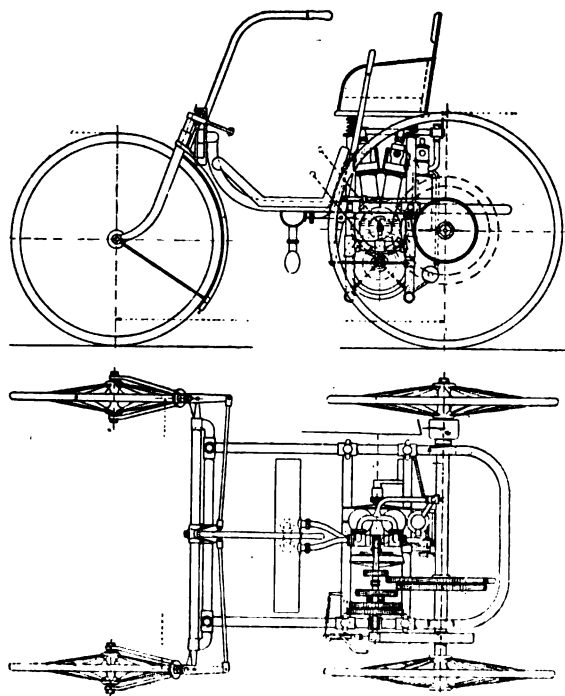
two small wheels, one on each side, just forward of the rear wheel. It was in 1885 that this machine first made its appearance, and although it looks, in modern eyes, very much of a monstrosity, it is undoubtedly the progenitor of the now largely used car. The frame of the machine was constructed of wood, the driver sitting on the petrol tank. The motor was of the air-cooled single vertical-cylinder type of $\frac{1}{2}$ h.p.; it was fitted with tube

ignition and was located in the centre of the frame, practically between the driver's legs. Two speeds were provided, the power of the engine being transmitted by a belt to a countershaft, the latter being geared by pinions to a spur gear attached to the rear wheel. The motor could be cut out from the transmission by means of a jockey pulley, which acting on the belt caused it to grip or run slack as desired. Another feature was that the same lever which controlled the jockey pulley operated a brake. Early in 1886 Herr Daimler fitted one of his motors to a wagonette (see Fig. 3). In this the motor was of a larger size, but the same method of transmission as in the bicycle was adopted. Figs. 2, 4 and 5 show the two-seated car exhibited by Daimler at the



FIG. 3.—THE FIRST DAIMLER CAR (1886).

Paris Exhibition of 1889. As will be seen, the frame of this car was built up of steel tubing, which was also made to serve for the circulation of the cooling water. The car was propelled by means of a two-cylinder inclined motor, located under the rear seat, geared by spur wheels to the rear axle. A friction clutch was introduced between the motor shaft and the continuation of the same carrying the spur wheels. Four speeds were available, ranging from six to nineteen kilometres per hour. The front



FIGS. 4 AND 5.—ELEVATION AND PLAN OF THE DAIMLER CAR OF 1889.

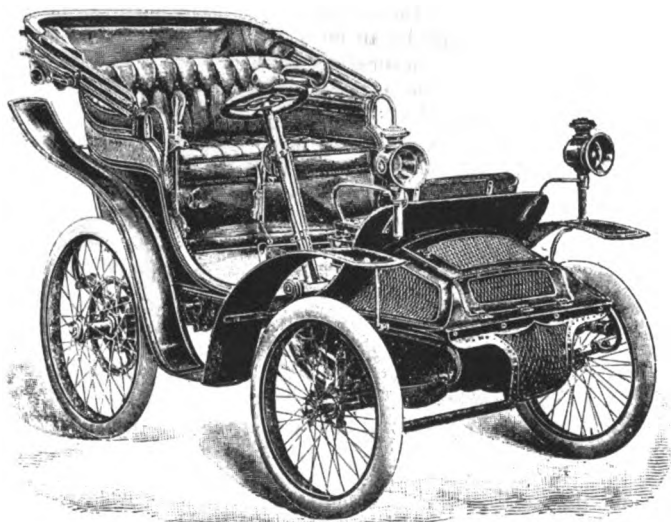
wheels were carried in forks of the cycle type, while the steering was controlled by a long lever. As to the progress which has been made since that time in the construction of German Daimler cars an excellent indication of this will be found by reference to the illustration of the 23-h.p. racing car in our issue of December 1st last.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

The Shephard Motor-Voiturette.

M. E. F. SHEPHARD, of 128, Rue du Bois, Levallois (Seine), France, has recently introduced the neat two or three-seated voiturette illustrated herewith. The motive-power is supplied by a Doré horizontal two-cylinder petrol-motor of the type illustrated in the *Motor-Car Journal* for December 8th, last. It has two cylinders, the carburetter and inlet and exhaust valves forming a bridge over the central crank-shaft. Large radiating fins are provided round the cylinders and valve chambers, the latter being also provided with a water jacket.



The motor, which is of 5 h.p., is located transversely under a perforated metal bonnet in the fore part of the frame. The power of the motor is transmitted to a countershaft by belting. This shaft is geared by spur-wheels to a differential shaft, and thence to the rear wheels by chains. Three speeds 10, 18, and 36 kilomètres per hour are available, and the car, which is claimed to be an excellent hill climber, is steered by a sloping hand-wheel. Ample brake power is provided, while the wheels are of the cycle type with pneumatic tires. The car, which, as will be seen, takes the form of a duc with hood, has an attractive appearance.

Another New Club.

THE most recently organised automobile club in France is that of Auvergne, which has commenced operations with a roll call of twenty-three members. All the same the new club has what many of the larger societies are still without, and that is a *garage* and repairing shop. The club's officials are: President, Dr. Pajolat; vice-presidents, MM. Guyot and Gendraud; secretary, L. Pestel; assistant secretary, D'Arcis; treasurer, Baisle; road captain, Dartigat; committee, Baratte, Guyot-Lafont and Rebois. This only leaves thirteen ordinary members, but under the able presidency of Dr. Pajolat the new club will doubtless grow apace, and in course of time will become a power in Auvergne. Good luck to it at any rate.

A Liege Accident.

LAST week at Liège there occurred an automobile accident, which, by reason of the singular injuries sustained by the victim, presents extraordinary features. A well known *chauffeur*, Monsieur Weefs, was driving his car at a moderate speed along the Rue des Guillemins, and when about to turn into the Avenue d'Avroy he was compelled to swerve violently in order to

avoid a couple of pedestrians, who were in the roadway. In doing so he unfortunately knocked down a third pedestrian, a certain Madame Rogister. This unfortunate lady in some unaccountable manner became entangled in the wheels and the transmission gear, and when eventually released, was found to be literally scalped. In the absence of precise details, it is difficult to understand how this came about exactly, although the necessarily exposed condition of driving chains, etc., renders such accidents only too possible.

La Coupe de Vitesse.

FOR many days after the recent Pau meeting the subject of conversation at the "A.C.F." was the extraordinary average of seventy kilomètres per hour made by M. René de Knyff in the "Circuit du Sud-Ouest," and the result of these conversations is now manifest in the challenge cup to be known as "La Coupe de Vitesse." It is due to the Baron de Dietrich that this new trophy is forthcoming, for the desire to mark his admiration of M. de Knyff's wonderful performance lead him to propose the creation of this challenge cup and to head the list of subscriptions with a donation of £20. The idea is to present M. de Knyff with the cup, which shall remain in his possession until such time as his record average speed per hour has been beaten over a route of at least the same distance as that of the "Circuit du Sud-Ouest," that is to say, a distance of 335 kilomètres, or 209½ miles. Subscriptions to the cup are being received at the "A. C. F.'s" club house.

The Race for Electric Cars.

THE competition for electric vehicles, promoted by *Le Sport Universel Illustré*, and generally known as "Le Challenge de l'Electricité," will take place on Monday, May 14th, over a route from Paris to Meulan and back. Upon finishing the *course* each competing car will be required to run round the Longchamps track until its batteries are exhausted, and special prizes will be awarded to those vehicles demonstrating the greatest endurance in this respect. This same plan was in force last year, when the race was decided over a fifty-kilometre route on July 30th. On that occasion the fastest cars were the Columbia vehicles, and a Bouquin-Garcin-Schivve proved itself to possess the best staying powers, as it ran a distance of 126 kilomètres (78½ miles) on one charge; this, too, at an average speed of 20 kilomètres per hour. I had a short spin on one of these B.-G.-S. cars only a few days ago, and was greatly struck with its easy running, the smoothness of which was greatly aided by the employment of the new pneumatic compound tire manufactured by M. Falconnet.

The late Herr Daimler.

IT was on the 7th inst. that we in Paris learnt with profound regret of the death of Herr Daimler, and many were the reminiscences exchanged by those of us who had had the privilege of knowing personally "Papa Daimler," as he was affectionately termed by French automobilists. Quite a gloom was cast over the "A. C. F.," where so many members retain vivid recollections of his charming personality, and on every side I heard expressions of deep regret at the loss of one whom automobilists will always remember as the founder of the industry. Mme. Emile Levassor, M. Sarazin, and M. Hippolyte Panhard journeyed from Paris to attend the funeral of their lamented friend, and the Automobile Club sent a wreath to Cannstatt in token of the esteem and respect with which Herr Daimler was regarded by all the members. It is thirteen years ago since the first Daimler patents were taken in France by M. Sarazin, and a couple of years elapsed before MM. Panhard and Levassor actually commenced to manufacture. It was on December 12th, 1889, that the first car constructed by them under the Daimler patents was turned out from the works, and from that time onward the progress has been one triumphal march.

Attempts on Records.

At the Parc d'Achères, on Wednesday, the 7th instant, Rigal made a series of unsuccessful efforts to beat the record for the kilomètre made by Béconnais on January 23rd last. The weather was fine and the road in capital order, but, unfortunately for him, the would-be record breaker had to battle against a strong head wind, and it was due to this cause alone that his efforts were not crowned with success. As is generally known Béconnais' record for the kilomètre with flying start is 42½sec., or at the rate of 84 kilomètres (52½ miles) per hour. Rigal's four attempts resulted as follows:—1. 46½sec.; 2. 45sec.; 3. 44sec.; 4. 43½sec. Rigal has every intention to make another attempt at the earliest favourable moment, and then, if he succeeds, we may expect to see Béconnais promptly set up new figures to his own credit again. And so the game goes on!

It is stated that a member of the Automobile Club Belge is about to attempt a record ride between Paris and Brussels.

We understand that M. Serpollet, the well-known French builder of steam vehicles, has lately constructed a light steam car, in which the weight of the boiler does not exceed 40lbs.

THE McLachlan Engine Company, 14, Holborn Viaduct E.C., are, we understand, now prepared to make steam engines to any pattern car that may be desired by intending purchasers.

THE *Daily Chronicle* states that the German Emperor has offered a prize of £4,000 for the best automobile war carriage, which is to combine all the requisites for service in the field. We have so far seen no reference to the matter in our German contemporaries.

A NORTH London firm, which is devoting much attention to automobiles is the Kingscote Cycle Company, of 202, Seven Sisters-road, Finsbury Park. We understand that they are at present engaged on the construction of a two-seated voiturette to their own designs.

THE ABBEY WORKS COMPANY, LIMITED, has been registered with a capital of £5,000 to acquire the business carried on at Tintern, Monmouthshire, as the Abbey Works Company, and to carry on the business of manufacturers of block tin,terne plates, and motor-car manufacturers, &c.

MESSRS. J. CARTER, SONS, AND CO., New Bailey Street, Salford, Manchester, have sent us a copy of a new list of tools for cycle and motor-car builders and repairers they have just issued. Any firm who is contemplating laying itself out for the repair of automobiles of all kinds would do well to procure a copy of the same, as it contains particulars of quite a number of useful tools.

MANY of the members of the Automobile Club are finding their cars of advantage in rendering them independent of the last train when in town in the evening for dinners, etc. Thus at the meeting of the club on Wednesday last it was noted that several came down in their cars ready dressed for the dinner, the vehicles being kept waiting to convey their owners home at the close of the proceedings.

WE hear that Dr. Lehwiss, of the Automobile Association, has just gone over to Paris to bring over the Vallée racing car, with which he took part in the Paris-Ostend race last year, and which was illustrated in the *Motor-Car Journal* for October 13th last. It is probable that this vehicle will be seen on the stand of the Automobile Association at the forthcoming exhibition at the Agricultural Hall.

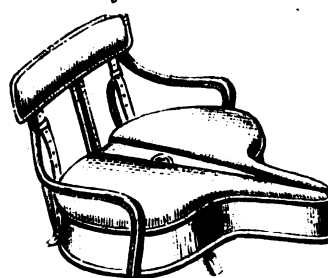
A GIGANTIC torchlight procession in aid of the Soldiers and Sailors' Widows and Orphans' Fund perambulated the streets of Brixton, S.W., on Wednesday and Thursday nights. A feature of the procession was a number of motor-cars and cycles, one of the former carrying a model of Eddystone Lighthouse. Arrangements are also in hand to hold a similar torchlight procession in Penge and vicinity on the 28th and 29th inst., in aid of the *Daily Telegraph* War Fund. The assistance of any automobilist willing to take part in the procession is invited.

THE TOURAND MOTOR-CAR.

MESSRS. TOURAND and CO., of Havre, are the builders of the two-seated petroleum-spirit motor-car depicted in the illustration on page 27. The motor is located in the fore-part of the frame under a bonnet; it is of the Crozet type, the feature being the employment of two balanced cylinders, with only one inlet and one exhaust valve. It is capable of developing 6 h.p., and is fitted with electrical ignition and water-jacketed cylinders. All the working parts of the engine run in an oil containing case. The power of the motor is transmitted through pinions to the differential shaft, and from the latter to the rear axle by the usual sprocket wheels and chains. Four speeds forward and one reverse motion are available, all controlled by one lever; a feature of the variable-speed gear, which is enclosed in an oil-case, being that the various pinions are always in mesh. The frame of the car is built up of steel angles, while the steering is controlled by an inclined hand-wheel. A clutch is interposed between the motor-shaft and the variable-gear shaft, so that the engine may be instantly cut out from the transmission. Three brakes are available, a band brake, operated by a foot-pedal, and working in conjunction with the clutch on the differential shaft, and band brakes on the hubs of the rear wheels, controlled by a hand lever at the side. The road wheels are of strong construction, and are shod with Michelin pneumatic tires. Special attention is said to have been paid to lubrication; the car, which, as will be seen, has quite a racy appearance, weighs, complete, about 14 cwt.

THE BONNEVILLE MOTOR-TRICYCLE SADDLE.

THE accompanying illustration shows a new saddle for motor-tricycles which has lately been put on the market by M. L. Bonneville, of 52, Boulevard Carnot, Toulouse, France. It is of the pneumatic type and is mounted on springs.



As will be seen, it is provided with a back and arms which give the rider a comfortable seat, while not, it is claimed, interfering with the operation of pedalling when this is necessary. The saddle is provided with a central groove, in which are ventilating holes in order to give the rider the advantage of a cool seat. The saddle is made in either pegamoid, leather or pigskin.

A MOTOR-CAR having been left at a certain inn near Tamworth last July, and since unclaimed, is about to be sold by auction, unless claimed without delay.

A MEET of the members of the Automobile Club and a club dinner is to be held at Sheen House Club, on Saturday, April 7th. On April 11th the Club will also hold a 100-mile and hill-climbing trial.

THE AUTOMOBILE ASSOCIATION, LIMITED, Princes Road, Holland Park Avenue, London, W., inform us that they have made a large contract for the delivery of De Dion voiturettes in England, and can always specify exact date of delivery.

THE Ocean Accident and Guarantee Corporation, Limited, of 27, Chancery Lane, W.C., have arranged to grant a special policy of insurance to cover the third-party risks of persons and property of those taking part in the forthcoming 1,000-mile trial from 22nd April to 13th May at a premium of two guineas—the policy to cover a total sum of £500 on the understanding that no one claim shall exceed £250, and to cover damage to the car itself up to £35.

THE MOTOR-CAR OF TO-DAY IN EUROPE AND AMERICA.



A DINNER was held at the Automobile Club on Wednesday evening. Mr. A. J. Walter was in the chair, and there was a full attendance of members. Afterwards, Mr. H. Sturney read a paper on "The Motor-Car of To-day in Europe and America," an abstract of which we print below.

The autocar has doubtless grown so closely into the lives of members of this club that they forget how young the industry really is, and that it is barely three years since the first modern commercial car was produced in Great Britain. But, although the time which has elapsed since then is not great, it can be fairly said that the advance of the industry, when the difficulties it had to encounter are remembered, has been little short of marvellous. I speak particularly of England, but the same may be said of other countries, for the demand has increased enormously in France—where the industry virtually originated—and in America, too, although a financial "boom" in motor-car companies is just now in progress, the foundations have been laid for a sound and progressive industry, which to-day is entirely unequal to supplying the demand of the public. Broadly speaking, now, as three years since, motor-cars may be classified under three main heads, according to the means adopted for their propulsion, to wit—petroleum, steam, and electricity. Undoubtedly the largest medium of success has been achieved by petroleum vehicles. Briefly petroleum cars may be treated under the following heads:—Motor-cycles, light voiturettes, light motor-cars for goods traffic, and those using the heavier or ordinary burning oils. Concerning motor-cycles, the position in England is a rapidly advancing one. In America their use is only just commencing, while in France and throughout the Continent many thousands will be found in use daily, and some idea may be gleaned of the extent of the industry on the Continent, when I say that the firm of De Dion and Bouton alone received orders last year for over 14,000 motors for use on cycles. For the most part they take the form of the ordinary pedal-propelled tricycle, but carry behind the rear axle a small motor fitted with radiating flanges around the cylinder for the purpose of cooling it. Great advance has been made in motor-cycles in the power of the engines supplied, some having gone as high as three and a-half horse-power, and even higher, but the largest size which has proved really satisfactory, and which is largely used, gives a brake horse-power of two and a-quarter. In addition to tricycles carrying one rider only, further satisfactory machines are built for two riders with four wheels, these quadricycles carrying their riders tandem fashion and being built throughout on cycle lines. Another means of carrying an additional rider or riders is found in the attachment to the rear of a tricycle of a light frame running upon two wheels and carrying a seat. Two passengers can be taken here, and it is astonishing what results can be obtained over an ordinary country in this way if the gearing speed of the drawing tricycle is kept down.

But the ideas of the public incline to something more stable than the tricycle and something more sociable than the tandem, and probably the greatest demand to-day, both in this country and on the Continent, is for a light two-seated sociable vehicle; the equivalent, if I may so liken it, to the pony and trap of the horse-driving world. A great number of makers in France are using a small De Dion motor as used upon cycles for the propulsion of small cycle-built carriages, though most of them are very crude in their construction, and not altogether satisfactory in their results. Between this type and the larger cars there are quite a large range of varieties in gradually increasing steps or stages. In England, as in France, many firms are copying the carriages of Benz and Co., of Mannheim. This is, perhaps, one of the simplest forms of motor cars on the market, and a very large number of them are already in use. But we are not confined in this country to the copies of the foreign article, and already a considerable amount of originality in ideas has made itself manifest. Thus, Aeclis, at Perry Barr, is building a neat little vehicle possessing several original ideas. Mr. J. S. Critchley, of Coventry, has produced a light and speedy car.

Perhaps the most original car which has yet made its appearance in England is the invention of a Birmingham man, Mr. F. W. Lanchester, whose car is fitted with entirely original mechanism in almost every particular. With a two-cylinder engine and use of air fans throwing a steady current of cold air upon the flanged cylinders, he is able to do without a water jacket, with a 7 h.p. engine, and by a very clever arrangement of the pistons in connection with a double fly-wheel, by which the fly-wheels are caused to revolve in opposite directions, and the thrust of the pistons divided, and the line of force so made absolutely central. In its effect upon the car an almost entire absence of vibration due to the running of the engine is secured. This and many other details make the Lanchester car a very attractive, and certainly a most comfortable vehicle. Another Birmingham firm also, the Wolseley S.S. Machine Company, have recently produced a substantial and very practical two-seated car. None of the vehicles I have mentioned, however, quite come up to the pony-trap idea which I mentioned just now, though several firms are, I believe, experimenting in this direction. Perhaps the most notable of these is Burford, Van Toll and Co., of Twickenham, who are constructing a copy of the "Vivinus," a little car of Belgian design, using an air-cooled motor on somewhat novel lines and with belt gearing and very simple two-speed gear, the car being small and light. I have myself, too, recently designed a car of this description, the first one of which is now in course of construction. The back frame is rigid, with a live or central geared axle and supported on springs in front. This frame carries all the mechanism. A motor—in this case a De Dion—is fitted to the front supported upon springs, and so placed as to get the full benefit of the air contact. The motor is geared to a countershaft, which is connected with it by a clutch gear worked from a foot lever which first throws back the sparking, then throws out the clutch, and then applies the brake. The countershaft carries a three-speed gear, and from that a single central chain carries the power back to the driving axle. The seat is supported upon a second frame—a simple loop—hinged to the first one at the back of the splash guard and supported at the rear by springs, this secondary frame having only to perform the duty of carrying the body and load and being entirely independent of any of the mechanical connections.

In America perhaps more attention has been given to this light class of vehicle than to any other so far as those machines propelled by petroleum are concerned. The carriage built by the Winton Company, in Cleveland, somewhat follows the lines of the Benz, but embodies many special features of its own. The "Columbia" car, built by the successors of the Pope Manufacturing Company, possesses many of the features of the best French vehicles. The Duryea, made "out West," in Peoria, Illinois, a machine of very simple construction, uses an engine having three parallel cylinders working on cranks set at 120 deg., fitted with a very simple two-speed and reversing gear. Mr. Duryea, the inventor, has had a great experience in motor-vehicles, and his first machine, so far back as the memorable drive to Brighton in 1896, easily distanced all the best and latest French racing cars of that date. The style of the construction of most of the American vehicles follows that known to the carriage trade in that country as the "Run-about."

The larger types of cars may chiefly be exemplified by what are known as Panhard and Daimler. These have been from the start more or less practical, and the firm of Panhard and Levassor, of Paris, have really the credit of founding the motor-car industry, and at the present time have orders to the value of over three quarters of a million in hand, which will keep them fully occupied for the next two years. The English Daimler Company work upon the same lines, and most will remember the somewhat ungainly patterns of the earlier machines of this company. Even these, however, were practical and useful vehicles capable of good work. Since that time great advances have been made, and between the Daimler Company and the Motor Manufacturing Company between 500 and 600 cars have been produced.

Needless to say there is great competition amongst French makers in big races, and appearance is sacrificed to efficiency in

the car, which is all engine and works. In order to reduce the enormous windage induced when travelling at these high speeds, many curious devices are adopted.

So far as America is concerned very little has been done in the way of large petroleum vehicles, though the Winton before-mentioned, and another very practical vehicle built by Haynes and Apperson, of Kokomo, Indiana, are almost as large as these French machines. A leading feature about the American machines may be noted, and that is, that whereas in France a wheel and gearing is used to steer, which system is rapidly coming into favour in this country, in America a hinged lever is universal, and whilst Europeans use a differential geared countershaft and drive with two chains, two driving wheels which run loose upon a fixed axle, the Americans almost universally use a live axle with central drive, and do away with chains as much as possible.

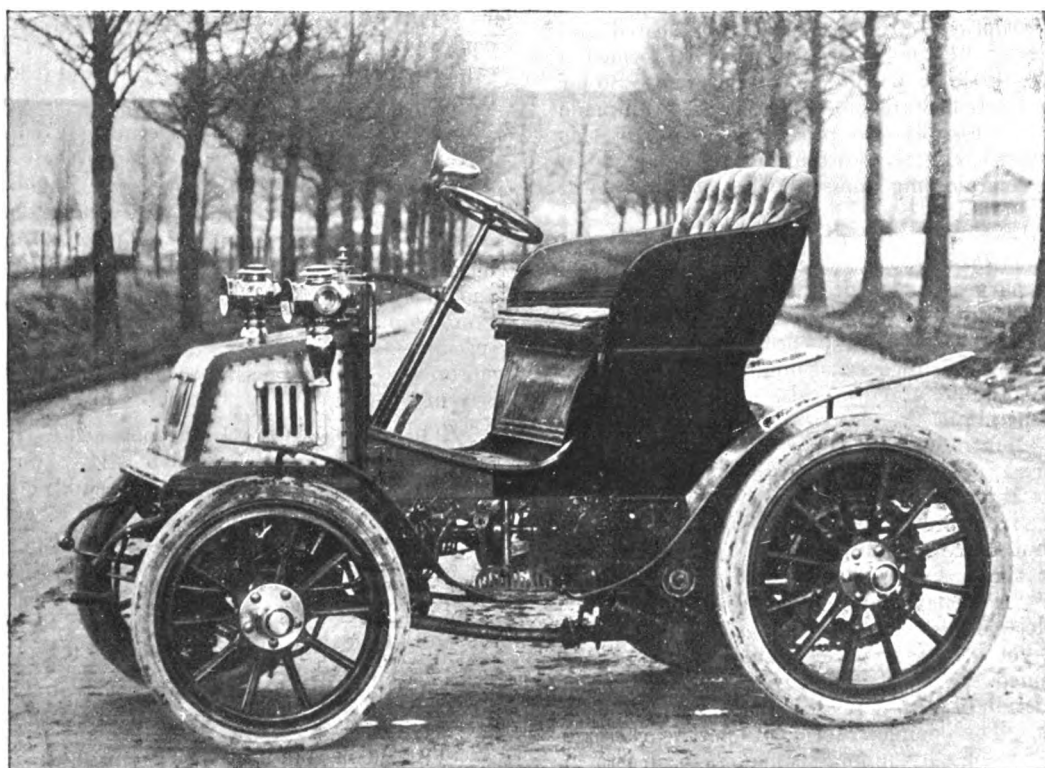
So far I have only spoken of cars used for passenger conveyance, but some attention is being given to vehicles for goods delivery. Up to the present most of this class of trade has been left to the makers of steam-cars, but Messrs. Benz and Co. supply a neat delivery wagon, which is the same as their passenger vehicle, save for the style of the body, which will carry loads up to half a ton. The Daimler Company, the Motor Manufacturing Company, and Messrs. Panhard and Levassor in Paris have also made a number of highly satisfactory wagons carrying goods up to 20 cwt. A few have been made of larger dimensions, but the 20 cwt. car is the most satisfactory. The makers of the Daimler in Germany, however, have far exceeded this, and have produced

two very satisfactory types of heavy wagons, one with 10 h.p. motor, carrying loads up to as much as 5 tons, at an average pace of between four and five miles an hour.

Many efforts have been made to produce a satisfactory vehicle which shall use the heavier, cheaper, and safer oil instead of the spirit. Roots and Venables in this country and Koch in France have both produced cars which give very passable results with this form of fuel. The chief objections to the use of heavy-oil is, however, the difficulty of starting, as the oil has first to be vapourised by heat applied externally, and this takes on an average about ten minutes. In addition to this, the smell, especially before the engine has got properly hot, is considerable, and as a rule the motor requires a larger amount of cleaning and general attention owing to the unconsumed residuals left behind as the products of combustion, so that in spite of the undoubted advantages in point of cheapness, in working and greater safety from fire, with the greater readiness with which a suitable oil can be obtained, they have not made any great progress, and undoubtedly a large field for experiments exists in this direction.

Passing from oil to steam. This is a power which, owing to the universal knowledge of its capabilities and the great experience which English people have had of its uses, the British public naturally first turns to as the particular power which appeals to it as best adaptable for automobile vehicles. No one, however, knows the difficulties of this so well as those actually engaged in the manufacture of steam outfits, and in England this power has practically been relegated entirely to the requirements of the heavier types of vehicles for the conveyance of heavy goods and large passenger loads. Mr Carr, of Carlisle, some three years ago built a steam-tricycle on the lines of the Bollée, with which he carried out a successful tour in the Highlands, and one or two other amateurs have produced specimens of steam cars, of which we have, however, hitherto heard nothing commercially. But the matter has been by no means dropped by English investigators, and Mr. Gooch, of Brighton, will be running an English steam carriage of new design in the 1,000-miles tour. I am also hopeful that I, too, may be driving in that tour another new vehicle propelled by steam, in the construction of which I am at present engaged in conjunction with Messrs. Makins,

Limited, of Manchester. As the car drawings were only completed a week ago there is some probability that it may not be ready in time, but as the car itself is exceedingly simple in design, and as the boiler and engine, which are the most important parts, are partly built, we are hoping for success. This car will embody several new features. In the first place, it will obtain steam from a boiler invented by Mr. J. G. A. Kitchin, of Manchester; it is on the same principle as that of Serpollet, though weighing but 40lbs. as



THE TOURAND MOTOR-CAR. (For description, see page 25.)

Cliché de

(La France Automobile.

against Serpollet's 400lbs., the water and oil tanks, boiler, and condensers all being arranged in front of the dashboard, so that no one will sit over the boiler, as is the case with most other steam cars, and with all the Americans. In the boiler and condensers the system of the cone which provides the greatest amount of effective atmospheric surface is used, and it is hoped that the entirely novel condensers will condense all the steam used. The engine, too, possesses several new features. It consists of three high pressure cylinders 2½ in. bore by 4 in. stroke, with a rotary slide valve and a crank shaft set at 120 deg., and the engine which, it is anticipated, when forced will develop 10 h.p., weighs but 82lbs.

In the design of the new car I am adopting a principle in which I think other cars would be improved, that is to say the use of a long wheel base; thus with four 30 in. wheels I shall have a wheel base of 7 ft. as against 5 ft. 6 in. on the Daimler cars, and I fancy I shall get greater comfort and greater steadiness of running. When I add that the boiler is fired with ordinary kerosene, it will be seen that there are many points of interest in the new vehicle.

In France, too, little attention has been given to steam. Serpollet has certainly produced a boiler, which for the uses of the motor-car possesses a great many advantages, though these are almost entirely discounted by the drawback of excessive weight. Serpollet is meeting with success with his system in the construction of tram-cars, and he has recently produced a light passenger vehicle, but the utmost he has been able to do is to reduce the weight to 1,500 lbs. with a 400 lb. boiler. The Americans, on the other hand, have taken hold of the light steam pleasure carriage in a thoroughly American way, and have undoubtedly produced vehicles of this type far and away in advance of anything which Europe has yet commercially seen. They have taken the cycle as their model for car construction, and whilst using oil, or rather petroleum spirit—stove gasoline—as the fuel, they have reduced their boiler capacity to the smallest dimensions, using boilers of the fire-tube variety, in which the heat passing up through from three to five hundred half-inch tubes, quickly raises steam from the water surrounding them, and with a light seating arrangement for two persons produce a complete carriage weighing under 500 lbs.

So far as the heavier types of steam vehicle are concerned England is undoubtedly a long way ahead of all her competitors. In France, with the exception of a somewhat complicated and very heavy carriage built by De Dion, and what is termed a "road train" by Scotte, little or nothing has been done. So far as I am aware, in the United States no effort has yet been made—at any rate, none successfully—to produce a wagon of this character, but the matter has received attention in England from some of our leading engineering houses, who have achieved distinctly successful results.

So far as electrical cars are concerned there can be no doubt that the electrical vehicle is *par excellence* the ideal carriage, especially for pleasure purposes. Its drawback will be found in the comparatively short distances to which its journeys are limited, the time necessary to recharge its accumulators, and the expense of renewal of these. However, as might not unnaturally be expected, America here undoubtedly leads. England has done but little in the construction of the electrical vehicle, although it was the first country to introduce a regular service of electrical carriages. Mr. Opperman in the way of private carriages has produced some practical vehicles, and one or two others have dabbled with them in a more or less experimental fashion. France, likewise, has given but little attention to the electrical vehicle, at any rate so far as the ordinary pleasure carriage or delivery wagon are concerned. Although Paris has recently made fresh efforts to utilise the electric cab, built on much the same lines as the London vehicle, it yet remains to be seen whether any greater success will be attained. America, however, has given her attention to the production of commercial electric vehicles with assiduity and success. The simplest form of electric carriage made there—and this is done by numerous makers—consists in taking an ordinary American buggy, putting accumulators in the body, a couple of motors on the wheels, and fitting a steering arrangement to the front. Other firms, however, have done the thing more thoroughly, and some specially designed vehicles of very high merit have been introduced, whilst in New York and most of the principle Eastern cities electric cab companies have been established, with a specially-designed vehicle totally different from the English style, looking more like a very clumsy and heavy hansom cab without the horse.

Broadly speaking, it will be seen from the above that, whilst America undoubtedly leads in the electrical vehicle and at present also in the light steam pleasure carriage, England is positively in front, and a long way in front, in connection with steam wagons for the conveyance of heavy goods, and is making good headway with petroleum vehicles, whilst France in the latter class of car undoubtedly leads the world. I think, however, I can safely say, that before five years are out, England and America will be in the lead. I think it most probable that in steam carriages of all classes, the English makers will eventually be in front, whilst in petroleum vehicles they will at least equal the French, and America will probably retain its lead in electric matters. To the people who are continually saying "Where are the motor-cars—for we never see them?" it may be instructive to

say that a careful estimate taken recently showed that during the year 1899, an aggregate of about 2,000 self-propelled vehicles of all kinds have been made in or imported into and sold in England, this number being about equally divided between cars and motor-cycles. That the automobile has "come to stay," I think no one—at any rate no member of this Club—will now doubt, and as we get more accustomed to their appearance and behaviour, most of our preconceived prejudices must disappear.

An interesting discussion, in which Mr. W. Worby Beaumont, Mr. Shrapnell Smith, Mr. R. W. Buttemer and Mr. J. J. Mann took part, followed the reading of the paper.

A MEETING of automobiles at the Pan-American exhibition to be held at Buffalo next year has been suggested.

A NEW West Virginia corporation is the American Vehicle Company, with a capital of £200,000, to utilize compressed air as a motive power for vehicles.

A NEW corporation under Virginia laws is the Autocarette Company with a capital of £40,000, organised to build and operate motor vehicles in Washington, U.S.A.

THE Automobile Street Sweeping Company is the title of a company which has just been formed in Boston, Mass, with a capital of £600,000, to manufacture and deal in vehicles, automobiles, etc.

THE C. H. Black Manufacturing Company of Indianapolis, Ind., U.S.A., have sent us a copy of their automobile catalogue, which includes light two-seated cars, wagonettes, small delivery vans, etc. The vehicles appear to follow Benz lines throughout.

WE learn that Mr. H. F. Mulliner has acquired the London business of Messrs. Mulliner, Limited, at 28, Brook Street, W., and that he will in future confine his attention to the construction of automobile bodies, of which this firm have made a speciality. Arrangements are also in hand for the storage of motor-cars for those *chauffeurs* who have not the necessary accommodation.

THE United Motor Industries, of 64, Holborn Viaduct, E.C., have sent us a sample of their "D" lubricating oil, which has been specially prepared for De Dion and other small high-speed engines. In addition to being in itself a very good lubricant for such engines, a thick oil tends to keep the compression better, a no small matter in itself. Another advantage claimed for this oil is that it does not from the effect of great heat assume a liquid form as is the case with many oils, there being consequently much less liability for the oil to penetrate to parts of the motor where it is not required and where its presence is injurious. We understand that Messrs. De Dion, Bouton, and Co. have decided to use this oil exclusively in their motors.

THE Quick Manufacturing Company, of Paterson, N.J., U.S.A., have sent us particulars of a petrol motor they have lately introduced for automobile purposes. It is a four-cycle horizontal engine with two cylinders. The crank shaft is in one piece of open hearth forged steel. The connecting rods are of malleable iron, with bronze bushings. The pistons are cast-iron, with packing rings and wrist pin of hardened steel. Electric ignition is used. The valves are operated from a shaft across the cylinder ends driven by chain from sprocket wheel on crank shaft. All bearings are fitted with bronze bushings. The motor is 27½ in. long, 18 in. wide, and 14 in. high: it weighs 249 lbs., and at a normal speed of 700 revolutions per minute will develop 4 h.p.

AN American writer remarks that "The development of the electrical industry has been the wonder of the past few years, and it now appears as if the automobile industry would see a like increase in volume in the immediate future. At present there are hundreds of automobiles of every conceivable pattern, from the motor-bicycle to the heavy dray, in operation in the city of New York alone—and the number thus operated is constantly increasing. Already the large department stores are arranging to deliver their goods by automobiles instead of with the usual horse-drawn vehicle, and the undertaking seems to be a success. In fact, the automobile is well received wherever it appears, and lends itself very readily to the conditions of practice."

THE CANELLO-DURKOPP MOTOR-CARRIAGES.

WE have already (see issue of February 23rd last) published particulars of several of the details of the motor-vehicles of the Société des Automobiles Canello-Durkopp, of Courbevoie, France. We are now able to complete the information then given by detail illustrations of the variable speed gear and steering mechanism. A section of the variable gear is given in Fig. 2, in which *N* is the motor shaft extending from the friction clutch, which may be imagined to be at the left. Upon this shaft are the gears *G*, *H*, *I*, *J*, and *J*. Upon a parallel shaft,



FIG. 1.—VIEW OF CANELLO-DURKOPP SPORTING CAR.

A, situated above *N* and in the same plane, are the corresponding gear wheels running loose, engaging with those below of the same denomination, so that *H* gives the first speed, *I* the second, *J* the third, and *J* *Y* the fourth. It will be noticed that *G* does not engage with the pinion *G* *H*, but is commanded by an intermediate pinion not represented in the illustration, which gives the reverse motion. All the gear wheels on the shaft *N* and *A* are constantly in mesh and are enclosed in an oil-containing case. In order that the car may be driven at a certain speed, it is sufficient to make one of the upper row of gear wheels rigid with the shaft *A*. This is done by the inner eccentric joined with the sleeve *B*, which moves along the shaft *A* under the action of a fork working in the collar *K*, this fork being

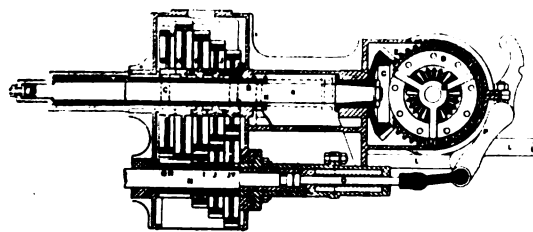


FIG. 2.—SECTIONAL VIEW OF VARIABLE-SPEED GEAR.

controlled by the lever at the side of the driver. If then, by means of this lever, the sleeve *B* is moved so as to make rigid connection between the wheel *G* and the shaft *G* *A*, the pinion *G* *H* will set *G* in motion through the intermediate pinion (not represented) and a reverse motion will be obtained. If the eccentric comes to the right of *H* the pinion *G* *H* will set in motion the pinion *H*, with which it is always in engagement, *H* will turn *A*, giving the first speed, and so on. The speeds provided for are 5, 9, 12, and 21 miles an hour, with a slow reverse motion. The shaft *A* terminates in the pinion *C* of the differential *D*, which is located centrally of the countershaft carrying the chain pinions. Moreover, *P* is an arm, with lever operating the rod *O*, which draws the male portion of the friction clutch away from the fly wheel and thus disconnects the motor, the arm and levers *P* being operated by a foot pedal and the brake levers. One of the

most interesting parts of the Canello-Durkopp cars is the steering mechanism. The front wheels are pivoted, as usual, and are controlled by a sloping hand-wheel and sector or bar, as desired, but with the interposition of a screw whose object is to relieve the rod of the shocks caused by the inequalities of the road traversed. The rod *A*, Fig. 3, commands the sector *F*, gearing with the pinion *E*, forming part of the screw *G*. Along *G* rises and falls the nut *H* supported by the lever *K*, attached by the arm *M* to the steering head *N*, commanding the front wheels. The

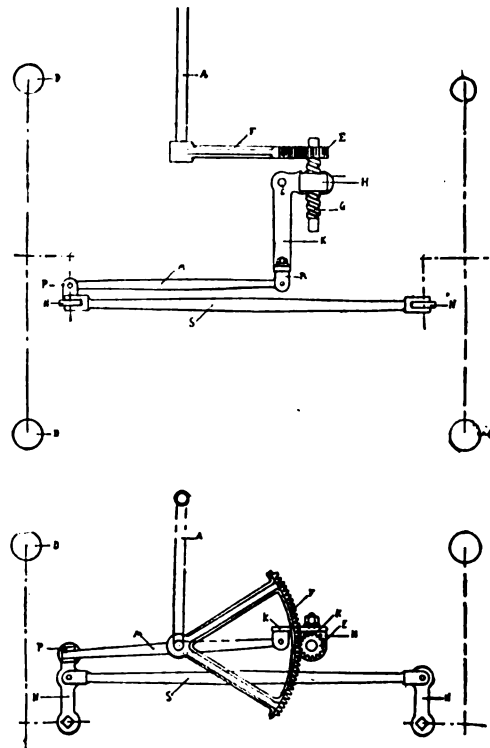


FIG. 3.—DETAILS OF STEERING GEAR.

joints *P* and *R*, at the extremities of the arm *M*, are pivoted, relieving the shocks of the wheels. If one of the wheels encounters an obstacle, the screw *G* prevents the lever *K* from communicating the shock to the steering handle. The pinion *E* will rise and fall in the teeth of the sector *F*, but will not unmesh. For the same reason the wheels will, it is claimed, never deviate so much that the rod will not displace the sector *F*, thus permitting the hand to be temporarily removed from the steering wheel or lever without fear of accident. Fig. 1 illustrates a Canello-Durkopp two-seater racing car of which the body is largely constructed of aluminium.

FURIOUS DRIVING CASE.

IN Edinburgh Police Court last week James Gillon (19), motor-car driver, denied a charge of having driven a motor car in Princes Street in a reckless and careless manner, whereby he came in contact with another motor-car, and caused £2 damage. Accused was driving eastwards behind a cable car, which stood when near Castle Street, and he suddenly took to the right or offside, and, shooting from behind the cable car, ran into another motor-car coming from the opposite direction. The Sheriff found the charge proven, and said that what accused had done was exactly the thing done frequently by motor-car drivers, and exactly the thing that they should not do. He imposed a fine of £1, or seven days.

THE MOTOR MANUFACTURING COMPANY.

AN extraordinary general meeting of the Motor Manufacturing Company, Limited, was held at Winchester House, E.C., on Tuesday. Mr. John H. Gretton (the chairman), who presided, said he would at once proceed to lay before the meeting the reasons which had induced the committee and the board to place before the shareholders the resolutions of which notice had been given. At the last meeting he stated that the company could not carry on the business upon the present basis without further capital, and that unless they obtained further capital they would have to wind up the company and sell what they possessed.

If this concern were broken up and sold for what it was worth, he very much doubted if, after paying their liabilities, they would realise more than 1s. 6d. per share. Then they had carefully considered whether they could raise the required capital by any other means. They soon came to the conclusion that it would be very difficult, if not impossible, to obtain money upon debentures; and, further, that if even they succeeded in issuing preference shares they would have to give such advantages to such shares that they would make the interests of the other shareholders so deferred that they would not be worth having. They then put to themselves the question, "Is this business in a condition that justifies us in supporting it with a little more money?" He and his colleagues did their best to show the members of the committee what the nature of the business was at the present time. He wished now to contrast the position that the business occupied at the present time with its position when the company was formed. At the time of the formation of the company they had practically no business established, and they had to start one. To-day they were doing a large trade. Within the last fortnight or three weeks they had taken orders for cars to the amount of nearly £7,000, and this, he would remind them, was not the best season of the year. Then with regard to the works. At the present time they had a factory which, from the point of view of efficiency, would turn out all the work they wanted to do. It would, of course, be an advantage to add somewhat to the factory for the purpose of increasing the output. The directors therefore considered they were justified in advising the shareholders to put more money into it. No one could doubt that the motor vehicle industry was bound to be a very large industry. It was not like a business that had arrived at its full development; but it was on the up-grade, and therefore a business which business men might well consider it would be a good thing to put money into. He was glad to say the proposal now submitted had received a good deal of support; for the directors had received nearly 600 proxies in its favour. Having urged shareholders to do their best to extend the business of the company, by recommending its vehicles to their friends, the chairman proceeded to say that when it had been reconstructed this company would be the leading manufacturing company in the country for motor-vehicles. They would have an established business and sufficient working capital for all purposes; in fact, the capital which they would have at their command, but which would not be called up unless it were actually required, would place them in a very powerful position.

They were prepared to supply a 3 or 3½ h.p. De Dion motor with water jacket, which was thoroughly equal, if not superior, to anything they could get from France, and they were prepared to sell it, if not at a less price, certainly at the same price. They were convinced that if they produced these motors in large quantities they could sell them at the same price as they were sold at on the other side of the water, or even cheaper. Then there was a criticism about the Iden patents, and it was asked why they should bother about them when there were other systems that were well known and accepted. Well, they had the monopoly of the Iden patents, and under them they could manufacture a two-seated car which they could sell at about 220 guineas, but in France they would not, or did not, supply a similar vehicle at that price. Under the Iden patents they had a 10 h.p. char-à-banc or wagonette, which would carry up to 20 people. They called this a 10 h.p. carriage; but it really developed up to 13 h.p. There was no such carriage produced in France under any of the established systems. This company could sell that car for £650 and make a profit for the shareholders, whereas in France they would charge at least £1,200 for such a car. The directors considered their endeavours ought to be to produce on a large scale and on an economical basis in order to be able to meet a large demand. They did not want simply to cater for those who could afford the luxury of a very smart motor-carriage; they wanted rather to provide for the public service, and to get people to give them orders for six or twelve cars at a time. They were arranging their workshops accordingly, and would be able to turn out these cars at the lowest possible prices. The chairman concluded by moving the resolutions of which notice had been given, remarking that he felt sure that if the shareholders followed the advice given them in regard to the matter they would find they had done the right thing, and that the business would become prosperous.

Mr. J. Glass (chairman of the committee) seconded the resolutions. He was satisfied that the business was a good one, and that it was worth finding more capital for. If, however, they went into liquidation the bulk of the business would go abroad.

Mr. Tinne said he considered the present directors had done a great deal in getting rid of old incubuses and putting the company in a better position, and he thought that if the company were reconstructed it would do a fairly prosperous business. He had no hesitation whatever in putting more money into the concern. There were, however, two questions which he wished to put: First, what would become of the £18,000 standing to the debit of profit and loss accounts when the company was reconstructed? and, secondly, what amount of profit would the company require to make in order to justify it in paying a dividend, bearing in mind the fact that the patents had only about ten years to run, and that the £200,000 appearing under that head in the accounts would have to be written off during that period?

The Chairman, in reply, said it was proposed that the secretary should act as liquidator, and therefore the usual expenses incidental to reconstruction would be greatly reduced. It was with great reluctance that they had come to the decision that additional capital was required; but, as practical business men, they were bound to face the position. With regard to the question raised about wiping off the value of the patents, he would point out that as they went on they formed a business, and when a company's patents had expired it was very often found that

it had built up a goodwill which was equal in value to the figure at which the patents stood. It was hoped, therefore, that there would be no necessity in the case of this company to write off any such amount as had been referred to. The interest of any shareholders who dissented from the reconstruction scheme would be disposed of by the liquidator for what it would fetch, and as regarded those who were in arrear at the present time, they would have to pay up their calls before they could exercise any right respecting the new company. The balance to the debit of profit and loss accounts would, of course, be extinguished under the reconstruction; in fact, one of their very objects was to start with a clean slate, and not to be associated with the faults of those who had preceded them. In his opinion the reconstruction would be a financial advantage to the shareholders. He believed the market price would increase to a much larger extent than the amount of money they were asked to subscribe.

After some further discussion, the resolutions were put and carried unanimously. The Chairman then moved that the committee of conference remain as a consultative committee to consider, with the board of directors, the arrangements for administration in connection with the new company. Mr. Hoffmann seconded the motion, which was agreed to, and a vote of thanks to and confidence in the chairman and directors closed the proceedings.

THE LONDON MOTOR-VAN AND WAGON COMPANY.

—8—

THE ordinary general meeting of this company was held in London on Monday. Mr. Sidney St. J. Steadman, who presided, formally moved the adoption of the report, remarking that he was prepared to answer any questions relating to the accounts. Mr. D. E. Cardinal seconded the motion. Mr. Worthington referred to the statement in the auditors' certificate that "no depreciation has been charged on stock of vehicles and motors," and inquired what the position would have been had such provision been made. The Chairman said that he did not know whether a single director would be justified in answering such a question without consultation with his colleagues. Speaking solely for himself, however, he thought that the depreciation for the past three and a-half years would be fairly represented by £800. Mr. Worthington asked what portion of that sum appertained to the accounts submitted, which showed an apparent profit of £392. The Chairman:—£250 at the most. Mr. G. H. Sprules remarked that £24,000 of capital had been received from the shareholders. Was the difference between that amount and the figure at which the stock stood, together with cash in hand, the extent of the company's losses? The Chairman replied that all the assets were set out in the balance-sheet. He could not answer the question in the form in which it was put. Another shareholder reminded the meeting that £12,000 had been paid in cash to the vendors. The motion was agreed to. An extraordinary general meeting was afterwards held to consider resolutions for the voluntary liquidation of the company, with a view to reconstruction. The secretary (Mr. W. M. Hodges) read the agreement embodying the scheme. It provided for the formation of a new company, the London Motor Company, Limited, to take over the general assets of the existing company. Each shareholder, with the exception of the holders of vendors' shares, was to be entitled, in respect of every fully-paid £5 share, to claim an allotment of four shares of 10s. each in the new company, with the sum of 7s. per share credited as paid up, leaving a liability of 3s. per share. The Chairman, in moving resolutions in accordance with the object of the meeting, mentioned that the circumstances rendering reconstruction necessary had been explained in a circular to the shareholders. All the old members of the board supported the scheme, and had agreed to their deferred or vendors' shares being extinguished for the benefit of the cash shareholders. The same observation applied to a considerable number of other gentlemen who held vendors' shares. Should 1,000 of those shares remain outstanding, the agreement would not be carried out, and the directors would communicate with a committee of the cash shareholders with a view to presenting a petition for compulsorily winding up the company. Absolute refusal to allow the vendors' shares to be extinguished had been received from only one holder. Mr. Cardinal seconded the resolutions. Mr. Worthington inquired what the position would be if any shareholders declined to pay the 3s. liability on the shares in the new company. The Chairman replied that the practical effect would be that the shares of any such person would be forfeited. A shareholder, referring to the provision that this company should surrender the licence granted by the British Motor Company, under conditions set out in the agreement, inquired if the new company would have to pay any royalty to the British Motor Company. The Chairman replied that they would have to do so only in the event of their using a motor which infringed any of the British Motor Company's patents. They would have to pay 5 per cent. royalty in case of infringement. Mr. Samuel said that his client, Mrs. Leach, was a cash shareholder to the extent of £2,000. The agreement which had been read was rather complicated, and he doubted whether those who had heard it for the first time fully understood its provisions. He suggested, therefore, that the meeting should be adjourned and the agreement printed and sent to the shareholders. Mrs. Leach moved and Mr. Worthington seconded an amendment to that effect. The Chairman took a show of hands and declared the amendment lost. Mr. Dangerfield pointed out that if the company were placed in permanent liquidation the assets would not realise a sum sufficient to return more than about 1s. a share on all the existing shares. In the new company the assets would cover the whole of the liabilities, including the cash capital. After further discussion the resolutions were declared carried.

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COMMENTS.



seated Benz car by Mrs. Bazalgette. On another page we print an outline map, showing the principal towns to be passed through during the course of the forthcoming event, and giving also the distances between the same.

Police Authorities and Provincial Surveyors Assisting.

THE chief constable of every county through which the route of the Trial passes has had all the particulars of the contest laid before him, and has been asked for his co-operation. The replies received are of the most satisfactory character, the police force throughout the kingdom showing a disposition to do all in its power to make the Trial a success, provided the drivers of the vehicles will moderate speed in towns and villages, and will show consideration towards other users of the highway. The one exception is the Chief Constable for Lincolnshire, who has given orders to the police under his control to take particular precautions to prevent any vehicle travelling in Lincolnshire above the speed permitted by the Local Government Board regulations. The portion of the route controlled by the Chief Constable for Lincolnshire is from Dunham Bridge to Lincoln and from Lincoln almost as far as Newark. A letter has also been sent by the club to the surveyor of every county and the borough surveyors through which the route passes expressing the hope that, in the interests of the motor industry, they may see their way to give instructions that any stones which it may be necessary to put down may only be laid over a portion of the width of the roads in question at the time of the trial. A large number of replies have been received, and in almost every case they express a great anxiety to secure that the roads over which they have control shall be in good condition. In some cases in which they had intended repairing the roads at the time of the trial, they have either issued instructions for the work not to be done until later, or for the stones to be laid down at once, and state that the stones will be well rolled in before the date of the trial.

The Speed of Motor-Vehicles.

THE essay by "Precursor" on the speed of motor-vehicles published in our last issue has brought forth a long letter on the subject from a correspondent, in which some new ideas on the subject of the restrictions in the speed of motor-vehicles on roads are brought forward. We fear it will be a long time ere we are able to induce the local authorities throughout

the country, many of whom have so far shown themselves anything but friendly to the automobile, to view the matter in the same light. Unfortunately, too, there have been cases of automobilists who have done considerable harm to the movement by their actions, who have thought themselves "entitled to drive at the legal twelve miles an hour through a crowded street." The points raised by our correspondent are, however, interesting, and we should be glad to have the opinions of our readers on the subject.

A Race from Dieppe to Rouen and back for British "Chauffeurs."

WE learn from Mr. J. S. Harvey that he has been able to arrange a handicap race over excellent roads for English *chauffeurs*, in connection with the International Automobile Festival, which is to be held at Dieppe on June 17, 18, and 19. The race will be held on Monday, 19th June, from Dieppe *via* Rouen and Beauvais, and back to Dieppe; it will be open only to English drivers registered at the Automobile Club of Great Britain and Ireland. In order to secure the establishment of this interesting event, Mr. Harvey has pledged himself to obtain a minimum of fifteen entries. The distance is, roughly, 225 kilometres, over excellent roads.

Motor-Cars in the Colonies.

SEEING that British makers are acknowledged to be ahead of those of other countries, so far as motor-vehicles for heavy traffic are concerned, it is gratifying to observe signs that some of our Colonies are about to experiment with a view to their adoption. The road authorities of the Straits Settlements have decided to purchase a motor-vehicle for the transport of stone, granite, and other road materials. During recent years there has been an increasing drain upon the bullocks of the colony, and last year there was an outbreak of rinderpest, which threatened at one time to stop the scavenging of some of the main thoroughfares. Having heard of the progress made in connection with motor-vans for municipal purposes in England the authorities have decided to purchase one by way of experiment. Such enterprise is worthy of imitation by British municipalities generally.

Tests for Automobilists.

HOLDERS of licenses to drive automobiles in the United States must have many qualifications, and in Chicago capacity to drive is supplemented by some exacting requirements as to the physical capabilities. Among other things, applicants must have good use of both hands and arms; also both legs and feet. They must be able to pass a satisfactory test for colour blindness, have good hearing and be free from epilepsy. The suggestion that a motor-car driver should be an expert in the use of both legs and feet is probably due to a fear on the part of the local authorities that he may fall off his car. In such a situation it would, of course, be desirable he should alight on his feet and not under the vehicle.

The Demand for Greater Speed.

Two resolutions of interest to automobilists have been before the Associated Chambers of Commerce at their annual meeting. The first urged the Board of Trade to enforce the marking of all foreign-made carriages imported into this country for sale, and after some discussion was withdrawn. The second was of more particular interest and importance, a motion, proposed by Mr. Plummer, of Newcastle-on-Tyne, being carried, urging the desirability, for the purpose of securing the full advantages obtainable from vehicles propelled by mechanical power on highways, of revising the present regulations which limit the speed of such vehicles, and agreeing to memorialise the President of the Local Government Board on the subject. Last week we published the views of a religious newspaper on the subject of the speed of motor-cars, and now that the commercial men of the country are moving in a similar direction it would seem that the motorists will either be left behind or have to quicken their speed at the bidding of others. It certainly is an interesting position, for while the Automobile Club is issuing warnings against those who exceed the legal limit—once facetiously described as the distance beyond reach of the police—outsiders are attempting to secure privileges and concessions which automobilists hardly dare urge on their own behalf—for which attention they should be thankful.

A Coming Race Meeting in the Midlands.

AN International cycle tournament is being organised by our Midland contemporary, *Bicycling News*, to be held at Aston Villa ground, near Birmingham, on Easter Tuesday and Wednesday, April 17 and 18. The programme for the first day includes a ten-mile motor quadricycle match between S. F. Edge and another, and J. W. Stocks and another; a one-mile motor-tricycle handicap; a five miles ditto; and a ten-miles motor-tricycle scratch race. On Wednesday the events to be run off are:—A one-hour motor-tricycle match between S. F. Edge and J. W. Stocks; a one-mile motor-tricycle handicap, a five-miles ditto; and a ten miles motor-tricycle scratch race. Entries for the races will be received until Saturday, April 7th. We understand that a special feature of the races will be that all competitors will start from given distances behind the scratch mark—in the handicaps, of course, these distances will vary according to the start. Up to the scratch mark the motorists will be permitted to pedal, but beyond the machines will have to travel entirely unaided, any infringement of this rule being attended with disqualification.

Touring in France.

THE recently-formed Touring Committee of the Automobile Club of France has quickly got to work, and has already issued particulars of the first two events specially organised for the participation of touring automobilists. The first of these is fixed to take place on Sunday next, the 25th inst., and will consist of a drive from Paris to Robinson and back, the route to be followed being by way of Suresnes, Ville-d'Avray, Versailles, Chatenay, and Sceaux. The start will be effected from the club at 9 a.m., and lunch will be partaken of at Robinson. On the following Sunday week, April 8th, a paper-chase will take place in the forest of Saint-Germain, the start being made from Chatou at 8.30 a.m., and the arrival fixed at a spot on the magnificent terrace of Saint-Germain. The committee has very wisely abstained from formulating a mass of regulations, but it prohibits the participators in club excursions to pass one another while descending hills, a ruling which cannot be too highly commended. The committee proposes to establish an office in the club where automobilists will be able to find all details pertaining to touring, and so enable them to plan their excursions with the minimum of trouble. Very probably, too, touring competitions will be organised, that is to say, competitions of endurance, which to the ordinary automobilists are of infinitely more importance than all the races in the world. It is evident that this new committee,

of which the Comte de la Vaulx is the president, will do much good work both for Automobilism and for the Club.

A Wail from Cheshire.

A SPECIAL correspondent of the *Cheshire Observer* has written a long tirade against "such dangerous vehicles" as motor-cars. According to this wise person whose lugubrious remonstrances find prominence in our contemporary, light locomotives have "introduced a new danger on these already crowded thoroughfares, the country roads." And then he proceeds to enlighten his readers with the case of Mr. Gretton and Mrs. Hanbury as lately heard in the Law Courts. If innovations are to be prohibited because they are not quite so tame as our normal ideas, invention may as well stop and Noah's Ark be substituted for ocean greyhounds. When old travellers first saw the locomotive and when the field labourers saw the bicycle they were scared. So must the early inhabitants of the earth have been terrified when bullocks were yoked to carts for the first time. Every useful advance has alarmed somebody or other, and we can only hope the Special Correspondent of the *Cheshire Observer* will soon resume his equanimity.

Automobile Ambulances.

THE fact that a New York hospital has adopted an automobile ambulance is regarded by an American contemporary as "another proof that in humane tendencies our people lead the world." Not only is that declaration proudly, if not modestly, made, but London is held up to scorn, and a picture drawn of the victim of a street accident in "that boasted centre of civilisation" being at the mercy of a gaping crowd until a London "four-wheeler" is requisitioned to jolt the injured man or woman to the hospital. "Contrast such treatment as this," continues our humanitarian contemporary, "with that accorded to the patient who is overcome in the streets of our American city. The instant that an accident occurs a rush is made for the nearest ambulance call. The alarm reaches the hospital, and with unequalled celerity the horseless ambulance is on its way to the help of the sufferer. No horses to be hitched up; not a second's delay. The driver mounts to his place; the doctor swings up behind; a twist of the lever and the automobile ambulance passes through the hospital gates and speeds on its mission of mercy, with the warning bell heralding to the injured one the fact that help is coming by the quickest means that science has so far provided. The pneumatic tires of the automobile ambulance pass smoothly over the poorest paved street." Several hospitals in New York now possess motor-ambulances.

Wants Encouragement (I)

SINCE the modern movement towards automobilism developed inventors have devoted much thought to the perfection of mechanically-propelled vehicles. In addition to those who have the necessary skill and knowledge, many eccentric persons have endeavoured to become identified with the industry and in the following letter from an American contemporary, many readers will recognise a class of genius not wholly unknown in this country:—I have invented a machine that will drive any machine from a tennent toy to a train of cars, or the largest ocean vesail that eve sailed with out the aid of steam or lectricisity or any other power atatched it done by waits and leaver I yose a balansed leaver so you can run the largest machine on earth with your little finger it will run anything great or small moving or stationary it will run wagons on the road or cars on the track as you are fixed to doo anything I would like for yo to take a shair and doo the manufatering for I have no money to put through the patent office and get before the people it will aply to all kind of youse that any other power will thare is no power that will excell it in power or spead theare neave was a power that will sell qick on the marke it is worth millions the cost of manufatering is

nothing to what any other power costs you can throw 20 inches of with one finger now as you have for the machinery and tools to do any kind of work I think that you will be the very one to take hold of it I am so old and paralysed that I cannot do anything and I will give you a good show for that is enough in it for five hundred so that is no use of one man making a hog of himself I would like to put up a light road wagon that will run without steam I will send you a rough drawing of my power and if you have any idea taking hold of it please inform me at once and I will come down and help you through with it as it is too good to let die without giving it a trial I cannot do it for the want of money if it is possible for you to do so from yours respectfully.

The Exhaust Box in France.

THE crusade against those *chauffeurs*, who for racing purposes are in the habit of dispensing with their exhaust boxes, appears to be gaining ground, for the Special Committee of the Automobile Club of Nice, charged with the organization of this season's *courses*, have just recently published an excellent ruling on this point. Their decision is to the effect that in view of the intention of certain racers to suppress the exhaust box of their vehicle in automobile races, and in view of the seriousness of the inconvenience of this suppression which would injure the development of automobile road races, they have decided to prohibit the starting of any vehicle (car, voiturette, or cycle) of which the exhaust box or silencer has been suppressed or does not act in a normal manner. The committee expresses its intention of eliminating from the *courses* all those racers who do not conform to this decision. This is a very excellent regulation, for nothing does greater harm to the cause of automobilism than this suppression of exhaust boxes and silencers. It is bad enough in races, and unfortunately it does not end there, for the *coureurs*, more particularly the motor-cyclists, having dispensed with their exhaust box for a race, do not trouble to replace it, and make their pleasure or business runs on a machine resembling an infuriated Maxim gun. If the removal of exhaust boxes and silencers is absolutely prohibited in races then the racing *chauffeur* will be compelled to retain these parts of his engine, and will have no excuse for making his pleasure trips without them. At present, on such occasions as the recent voiturette race from Paris to Rouen and back, the gathering of motor-men who assemble to witness the start or finish of the *course* includes many well-known racing men the progress of whose vehicles through the crowd is marked by a perfectly deafening row, and one is not surprised that horses are terrorised at meeting such automobiles. It is to be sincerely hoped that other race promoters will follow the example set by the Automobile Club of Nice, and endeavour to put a stop to this evil.

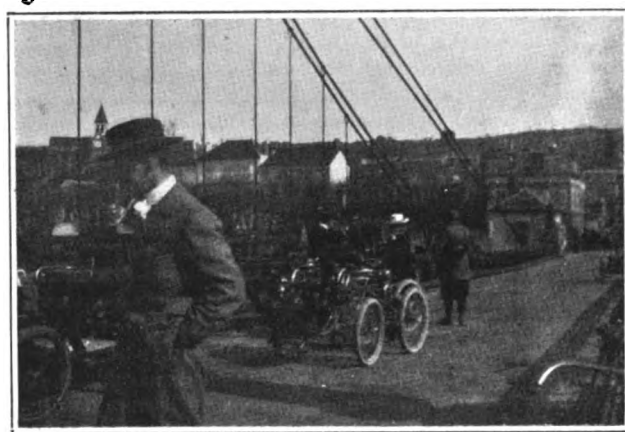
Petrol-Motor Building in America.

IN regard to present tendencies among petrol motor-vehicle manufacturers in the United States, the general drift, remarks the *Horseless Age*, is toward variable speed motors of higher power, simplifying transmission and reducing weight to a minimum. "Many prefer the single-cylinder engine, arguing that the ignition and valve mechanism are simpler, and that, with proper construction, the vibration is little greater than in the two-cylinder balanced type. Several good makers, however, have adopted two or even three cylinders in higher horse-powers in order to lessen vibration and facilitate the cooling of the cylinders. Attempts to dispense with the water jacket altogether in carriage motors—as distinguished from tricycle motors—have so far proved unsuccessful, but the employment of condensers so placed as to be exposed to a constant current of air has greatly reduced the supply of cooling water carried. There is still a deplorable exaggeration of horse-powers on the part of some makers of limited mechanical experience, and a foolish tendency to strive for lightness at the expense of strength and durability. Horse-powers calculated theoretically in the shop at top speed do not materialise upon the road, and when to the shocks of the explosions are added the strains of the road, the necessity for

sturdy construction must be apparent even to the novice. Road vehicle service is the most exacting to which a motor may be put."

A Useful Work for Motor-Car Builders.

QUITE a number of new works on the subjects of the automobile and automobilism have made their appearance in France during the past year or so, and additions are constantly being made. The latest is the "*Manuel Théorique et Pratique de l'Automobile sur Route*," by Gerard Lavergne, Ingénieur Civil des Mines (Paris: Librairie Polytechnique Ch. Béranger). The first part of the work is devoted to a brief reference to the early history of the automobile, commencing with Cugnot's steam vehicle, and to a consideration of the different powers available—steam, petroleum, and electricity—for the propulsion of vehicles on common roads. The component parts or elements of motor-vehicles are dealt with in Part II., boilers and motors claiming first attention. The author gives illustrations and particulars of several well-known French and English types of boilers as used in steam motor-vehicles and concludes the chapter with the remark that he looks to the production of a practical rotary steam engine to give an impulse to the construction and use of steam-driven vehicles. Petrol motors and carburettors used with the same are dealt with at great length, no less than about 130 pages being devoted to their description. This part of the



THE RECENT "COUPE DES VOITURETTES" RACE—OUR CORRESPONDENT'S PARTY ON THE BRIDGE AT TRIEL.

work should prove exceedingly useful to those who are devoting their attention to the subject of petrol motors, for practically all the leading types in use on the Continent are here illustrated by sectional drawings. Passing over a chapter on accumulators and electromotors we come to one which should be of interest to many who are just now grappling with the very question, viz., the necessary horse power of the motor for an automobile. The author devotes considerable space to a solution of the question, and his remarks are well worthy of close study. The transmission of the power of the motor to the road axle, the suspension of the frame, bodies, wheels, tyres, axles, brakes, lubrication, etc., are all subjects which are treated at length in subsequent chapters. Part III. extends to over 140 pages, and comprises descriptions of all the principal steam, petrol, and electric vehicles at present on the market, not only of French, but of English, German, Belgian, and American construction. The fourth and final part is devoted to a summary of the results obtained in the various motor-car races and trials that have been held in France and elsewhere since 1894, the work concluding with a short outline as to the parts of the present automobile in which, in the author's opinion, there is room for improvement. Altogether, M. Lavergne's book can be recommended to all engaged in motor-car construction; the work, which extends to over 700 pages, is illustrated by 329 figures, and, what is of great advantage, is provided with a useful index.

AUTOMOBILE RACING.



THE popular idea upon which the speed of an automobile depends is, like most popular ideas, entirely wrong. By some it is held that a certain automobile is faster than another merely because its motor develops a greater number of horse-powers. Others maintain that the speed of the carriage is governed by the size of the wheels, and support their statement by comparing the automobile with the high-speed locomotive, which, with its huge drivers, is speedier than the small-wheeled freight engine. Undoubtedly there is a grain of truth in the assertion that a relationship exists between speed and horse-power; but if the subject be critically studied it will be found that the factor of speed in motor-carriages depends not upon one condition alone, but upon five—(1) the horse-power of the motor; (2) the number of revolutions made by that motor; (3) the weight of the vehicle; (4) the gearing; (5) construction of the moving parts as well as of the entire carriage, to reduce friction as much as possible.

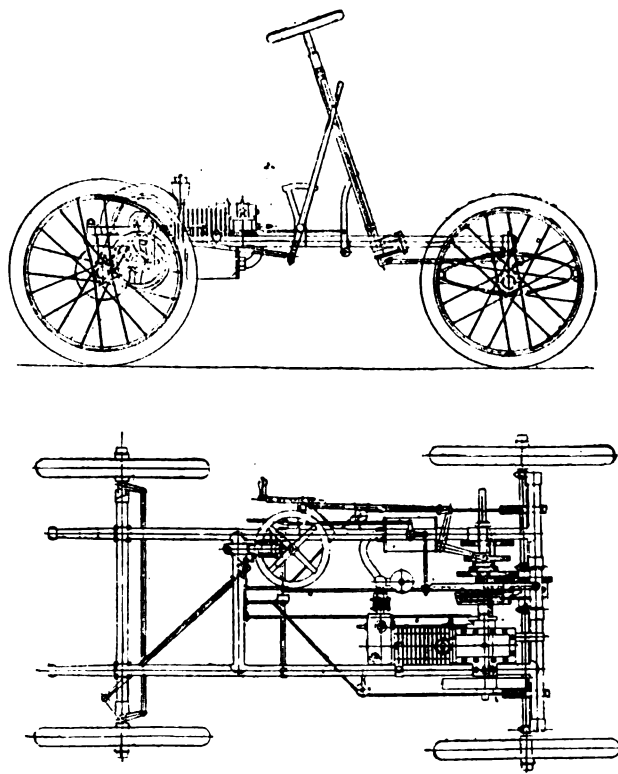
If the other four conditions be the same, it cannot be denied that, of two carriages, the faster will be the one having the more powerful motor. But the speed of a motor has also an effect upon the speed of the carriage; for the greater the number of revolutions made per minute by the fly-wheel, the more swiftly will the driving-wheels of the carriage be turned by the intermediate gearing, and the greater will be the distance covered in a given time. The number of revolutions made by automobile motors varies between 600 and 1,200 per minute; the average motor makes between 800 and 900 revolutions. In all modern automobiles the number of revolutions can be increased by means of an "accelerator." If the motor were constantly run at maximum speed it would very evidently soon deteriorate, for which reason the careful automobilist will push his carriage to the utmost only when he is ascending exceedingly steep grades, or when it is necessary for him to cover a given distance in the shortest possible time. As a general rule, high-speed motors are used only on pleasure vehicles; heavy trucks, in which tractive force is the main consideration, are usually driven by engines which make comparatively few revolutions per minute.

Weight is also an important condition upon which the speed of the carriage depends. Often enough it has happened that in ascending a grade one of the occupants of a vehicle has been compelled to alight in order that the motor, already running at its highest speed, might drive the carriage to the summit. Indeed, the motor is sometimes capable of driving only the vehicle up a hill, and the driver himself must perforce walk beside his carriage. It is plain enough that a 12-horse-power carriage weighing only 1,500 pounds will make better time than if it weighed 3,500 pounds, and that a light, two-seated car will be speedier than a heavier, four-seated vehicle. As an example, heavy autotrucks may be cited, which, although provided with powerful motors, run at very low speeds but develop considerable tractive force. These trucks can transport loads varying from five to ten tons, depending upon the horse-power of the motor. For this reason, French manufacturers are beginning to build wagon bodies of partinium, an aluminium-tungsten alloy of very nearly the same specific gravity as pure aluminium, but of far greater strength.—Extract from an article by Edwin Emerson, jun., in the *Automobile Magazine*.

THE Sporting Commission of the French Automobile Club has decided that British automobilists who are not permitted to take part in the competitions organised by the Automobile Club of Great Britain will not be permitted to take part in the races and competitions organised by the A.C.F.; and, reciprocally, French competitors who are not permitted to take part in the races in France will not be allowed to take part in the competitions of the A.C.G.B.I.

THE BRIERRE MOTOR-VOITURETTE.

OF the making of light two-seated motor-voiturettes in France there seems to be no end. One of the smartest-looking cars of this type which have come under our notice lately is that which has just been put on the market by M. E. J. Briere, of 239, Boulevard Péreire, Paris, and of which illustrations are given herewith. As will be seen from the plan, Fig. 2, the motor is located at one side of the rear of the frame; it is of the horizontal single-cylinder type of $3\frac{1}{2}$ h.p. The normal speed of the engine, which is of the "Morisse" type, is 850 revolutions, the diameter of the cylinder being 90mm., and the stroke 120mm. The ignition is electrical, while for cooling purposes the cylinder is provided with radial fins and the combustion and valve chambers with a water-jacket, the circulation being maintained by a thermo-siphon arrangement. The carburettor is of the Longuemarc type. Three forward speeds—12, 20, and 35 kilomètres per hour—are available; a friction-clutch controlled by a foot-pedal is provided, the female portion of which is fast on the motor shaft, while the male portion is connected

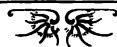


FIGS. 1 AND 2.—ELEVATION AND PLAN OF BRIERRE VOITURETTE.

with the variable speed gear. The latter consists of a series of spur wheels, any one of which can be brought into gear with corresponding pinions on an intermediary shaft below. From the latter, the power is transmitted by a centrally-located pinion to a spur wheel on the rear axle, no chains or belts being thus employed. The frame is of tubular construction, and is suspended on the axles by springs both at front and rear. The body is built up of wood and aluminium, while the wheels are of the cycle type, shod with Michelin pneumatic tires. Steering is controlled by an inclined hand-wheel, while there are band brakes on the differential and on drums on the rear axle. The petrol tank is located in the fore-part of the car, that for the water being under the seat. The car measures, over all, 8ft. 2in. by 5ft., and weighs only about $4\frac{1}{2}$ cwt. It will, it is claimed, mount any ordinary gradient, and in view of its relatively low price—3,200 fr. (£128) in France—should quickly meet with a large adoption.

THE charging station, with the machinery, plant, licenses, cabs, and premises of the London Electrical Cab Company, Limited, at Juxon-street, Lambeth, S.E., are being offered for sale by tender.

The Brierre Motor-Voiturette.



(For description see page 34.)

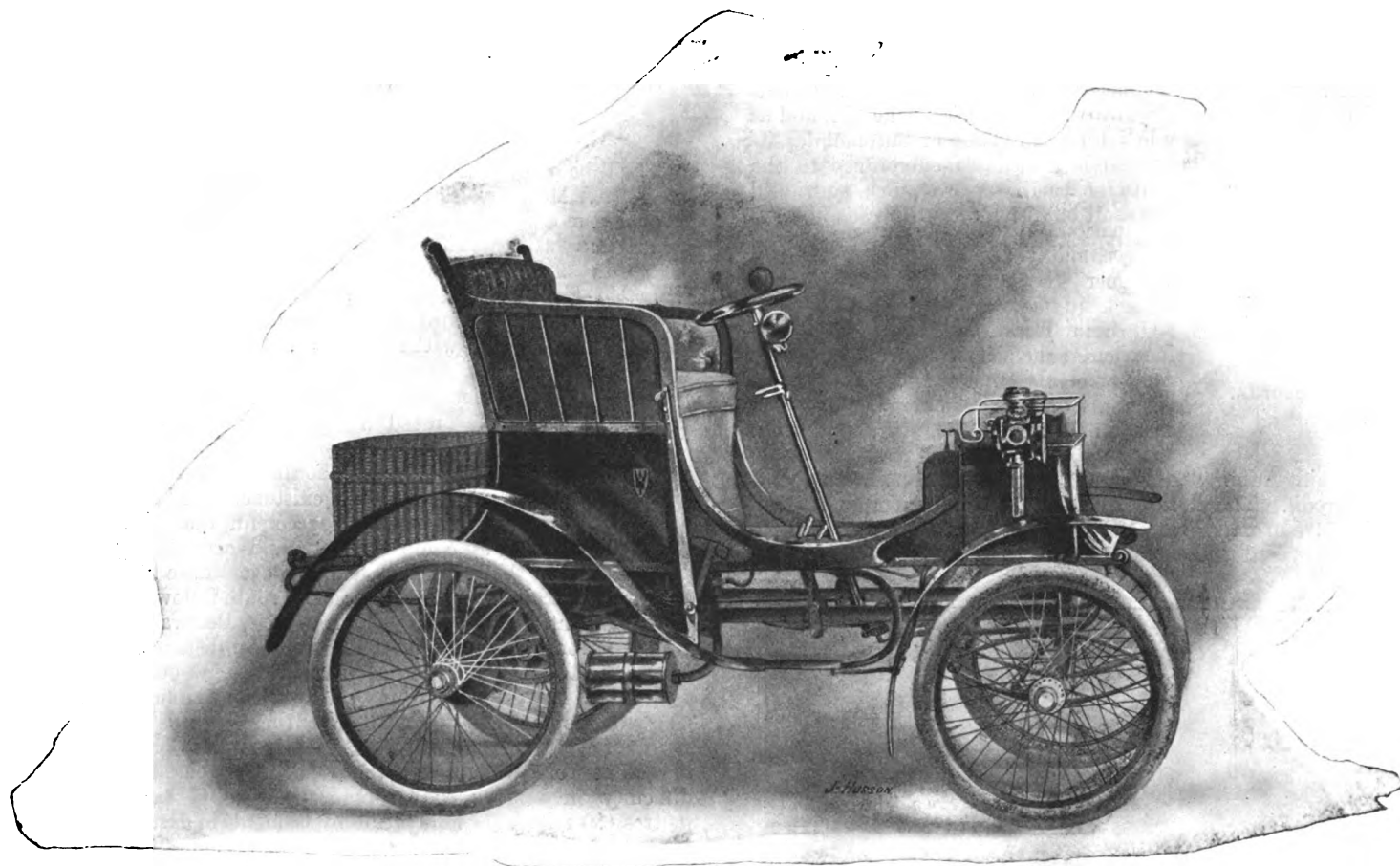


FIG. 3.—GENERAL VIEW.

MOTOR-CARS ON THE CONTINENT.



(From Our Own Correspondent.)

The Italian Party for Nice.

THE party of Italian *chauffeurs* bound for Nice will leave Turin at eight o'clock on Sunday morning next, and during the day will travel as far as Tende. There they will spend the night, and make a fresh start for Nice early the following morning. As is almost invariably the case in trips of this description the number of actual participants is considerably less than the number of names inscribed, and the certain starters in this instance have now been reduced to seven. These are the Count Biscaretti di Ruffia and his son, Messrs. Charles Agnelli and Gorio-Gatti, Count Cacherano di Bricherasio and Count G. de Mirafiori. Their presence at Nice will add greatly to the international character of the meet, and they will assuredly be accorded a warm and hearty welcome by the members of the "A.C.N."

At the "A.C.F."

known as the "Course de l'Éventail." The voiturette and motor-cycle classes will be open, however, to all competitors.

The club committee have also decided to manage the Paris-Brest race, which is being organised by *Le Matin* for July 5th, 6th, and 7th. The official timekeeper for the year is M. Ch. Saloman, the committee having made the appointment at a recent meeting.

Accidents in France.

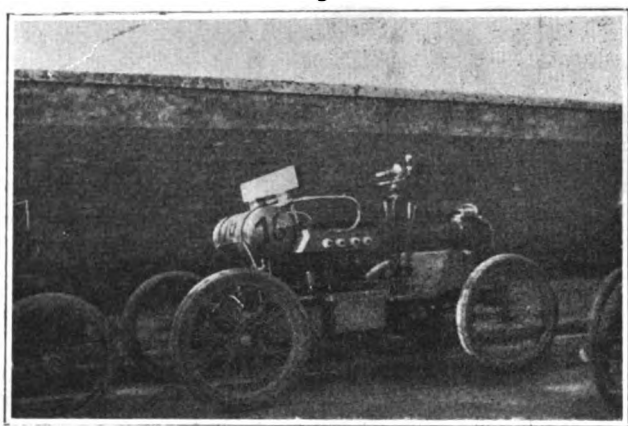
THREE most regrettable accidents caused by automobiles have occurred during the last week or so, two of them being reported from the Mantes district. In the one case a little girl of eleven years, named Angèle Lemenu, was returning to her home at Saint Illiers-le-Bois, when she was knocked down and instantly killed by a car coming up behind her. The affair has caused a painful sensation in the neighbourhood, where the child's family are well known, her father being mayor of Saint Illiers. In the other instance the mishap occurred to a waggoner while leading a horse and cart at Saint Martin-la-Garonne. A passing automobile frightened the horse, which promptly bolted, dragging the conductor off his feet. The cart passed over the unfortunate man, causing injuries from which he is not likely to recover. The third accident happened to a *mécanicien*, who was driving his master's car to Blois. When close to Montrichard a punctured tire caused the vehicle to upset, burying the driver under it. There he stayed from 11 p.m. until 3 a.m., and when discovered by the local postman and conveyed to a neighbouring hotel he was in a pitiable state. He is, however, making satisfactory progress towards recovery.

Belgian Number Plates.

FOR some time past Belgian automobilists have been awaiting with anxiety the appearance of the number plate which the authorities recently decreed should be attached to the fore-carriage of every motor-vehicle. This plate has now been issued, and its aspect excites much discontent in automobile circles, for it is heavy and cumbersome in appearance. The number appears in large figures in the centre, and is surmounted by the word "Belgique," while a number of holes are pierced in the plate to permit of attachment to the vehicle. The dimensions are 25 centimètres in length by 10 centimètres in height, and as the same size will be employed for all types of automobiles its attachment to motor-cycles will be a serious incumbrance to the rider. The owners of handsome carriages are much aggrieved that their beautiful vehicles shall be disfigured with this hideous plate, but they have no remedy, and must forthwith display the number.

Gasté's Records.

ON Sunday last, the 18th inst., a continuation of the attempts on records took place, and this time Gasté was the performer. Forsaking the famous Achères track in favour of the main road from Paris to Toulouse, Gasté made his trials at Ferté-Saint-Aubin, and was timed by MM. Gaudichard and E. de Perrodil. The attempt on Béconnais' figures of 59 $\frac{1}{2}$ sec. for the kilomètre from a stationary start proved entirely successful, as Gasté covered the distance in 56 $\frac{3}{4}$ sec., an improvement of



THE RECENT "COUPE DES VOITURETTES" RACE—THE DECAUVILLE CAR WITH WATER-COOLED MOTOR.

2 $\frac{1}{2}$ sec. The kilomètre with flying start was only made in 46 $\frac{3}{4}$ sec., as against Béconnais' record of 42 $\frac{1}{2}$ sec., and the attempt on the latter's figures of 1min. 42 $\frac{1}{2}$ sec. for the two kilomètres from a stationary start was also a failure. The other attempts made were successful, these being: 1 mile (stationary start), 1min. 23 $\frac{1}{2}$ sec.; 1 mile (flying start), 1min. 15 $\frac{1}{2}$ sec.; 2 kilomètres (flying start), 1min. 32sec. Gasté announces his intention to attempt to lower the existing figures for 10 and 100 kilomètres at an early date.

Paris Cabdrivers.

BETTER counsels have prevailed, and the professional automobile drivers of Paris have banded themselves together, not as a syndicate on aggressive lines, but as a peaceful mutual-help society, under the title of "The Union of Automobile Conductors." This wise decision was arrived at on the 10th instant, when a fair number of drivers met at 47, Avenue de Wagram, under the presidency of M. Le Lorrain, a well-known trade councillor. At this meeting the articles of association were submitted and passed, the principal objects of the society being:—(1) Defence of the members' professional interests; (2) Formation of an employment office; (3) Distribution of help to

members impoverished by accidents or by lack of employment; (4) Technical and practical instruction in mechanism relating to automobiles. The annual subscription was fixed at 12 francs, or 1 franc per month, and the entrance fee at 50 centimes. The officers for the year were also elected, and upwards of a hundred drivers were enrolled on the membership list.

A Maiden Race.

THE well-known paper, *La Vie au Grand Air*, has announced its intention to organise an automobile race for Friday, April 20th, of which the special feature will be that only those *chauffeurs* who have never participated in an automobile race will be eligible to compete. The categories in this course are:—(A.) Motor-cycles of one seat; (B.) Quadricycles of two seats and motor-cycles with trailing-car; (C.) Voiturettes of four wheels and two seats side by side, weighing from 250 to 400 kilos; (D.) Cars of at least two seats, exceeding 400 kilos in weight. Valuable *objets d'art* will be awarded to the successful competitors, and the race should afford a capital opportunity for some of the amateur drivers to show their prowess.

The Paris-Roubaix Race.

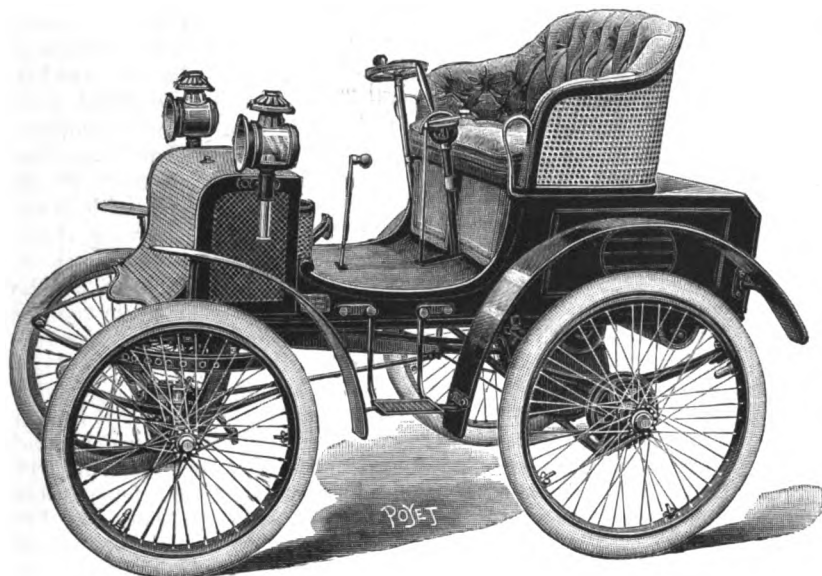
IT was in 1898 that *Le Vêlo* inaugurated a class for motor-cycles in the annual bicycle race from Paris to Roubaix, and which at that period was in its third year of existence. The experiment proved so successful that the promoters decided to make it an annual fixture, and accordingly we are to see the third of the series this year, the exact date being Sunday, 15th April. Starting from Chatou the route followed will be by way of Saint-Germain, Conflans, Pontoise, Beauvais, Breteuil, or Amiens, Montdicourt, Arras, and Lesquin, a distance of 228 kilomètres, or 165 miles. The prizes which *Le Vêlo* offers amount to 1,050 fr. (£42), of which 500 fr. (20) go to the first man home. The winners have the option to take their awards in money or *objets d'art*. This race is sure to bring out a great number of competitors, several of whom should experience no great difficulty in beating the average speed of 47 kilomètres 928 mètres (30 miles) per hour made by Osmont in last year's event. Intending competitors should send in their names, together with fee of 5 fr., to the office *Le Vêlo*, Paris, on or before 9th April next. Among the motor-cyclists who have already entered are Myer, Béconnais, Rigal, Marcellin, Osmont, Faiteau, Lerod, Baras, Grandclaude, Tart, L. Willaume, Bathiat, Martin, Rivierre, and Champoiseau.

Departures for Nice.

THE hero-worshipper of the Avenue de la Grande Armée in Paris has, alas! but little to worship at the present moment, for a wholesale exodus of automobile celebrities *en route* for Nice has recently taken place, and no longer do the De Knyffs and Charrons come and go in the famous avenue. But the small boy was afforded a moment of supreme happiness last Saturday morning, when the first and largest contingent of *coureurs* took its departure from Charron's. What a babel there was, to be sure! The tooting of horns, the beat of powerful motors, the farewell cries from friends, and the yells of encouragement from the crowd dinned in one's ears long after the last of the fourteen cars had passed the Porte Maillot. Among the drivers were MM. René de Knyff, Pinson, Lemoine, Gilles Hourgières, Lavertujon, Clément, and Holtzer. The squadron lunched at Montargis, and then proceeded to Saint-Etienne, where they spent a couple of days. The famous Jacob Holtzer mines and rolling mills were visited; and then, after their rest, a fresh start was made for the "Côte d'Azur," the party being strengthened by the inclusion of M. Etienne Giraud, who had left Paris on the Sunday. Last Monday witnessed the departure of MM. Bozon de Périgord, Mors, Velghe, and Voigt, while a couple of days later M. Charron left the capital, M. Girardot following suit next day. The racing at Nice will undoubtedly be very keen, for the list of entries is excellent, both as regards quantity and quality, and all are anxious to score during the famous week.

M. Krieger's Case.

THE latest figurant in the Paris courts is no less a personage than Monsieur Krieger, who last week appeared before the Eleventh Chamber of the Tribunal de la Seine, charged with having driven his car in a negligent manner on the night of November 28th last, thereby colliding with a cab and causing



NEW PATTERN OF TURGAN-FOY VOITURETTE.—(For description see issue of October 6th last.)

rather serious injuries to the driver. From the evidence given before the court it appears that at 11.30 in the evening of November 28th M. Krieger was driving his car in the Avenue Duquesne, and was in the act of turning into the Avenue Lowendal when he came into violent collision with a cab. As might be expected, this came off second best, and the cabby was thrown from his seat. It was conclusively proved that M. Krieger had held to his proper side of the road, and that the *cocher* had been driving to the left, and not to the right as is the rule in France, but on the other hand, witnesses of the accident stated that the car was travelling at the rate of twenty-two miles per hour, and that M. Krieger had not sounded his horn in turning the corner. After a long and lively hearing the court condemned the *chauffeur* to pay a fine of £4, and to make the cabby a provisional allowance of £40 pending the presentation of a doctor's report as to his injuries. Upon the nature of this report will depend the sum to be awarded as compensation and damages.

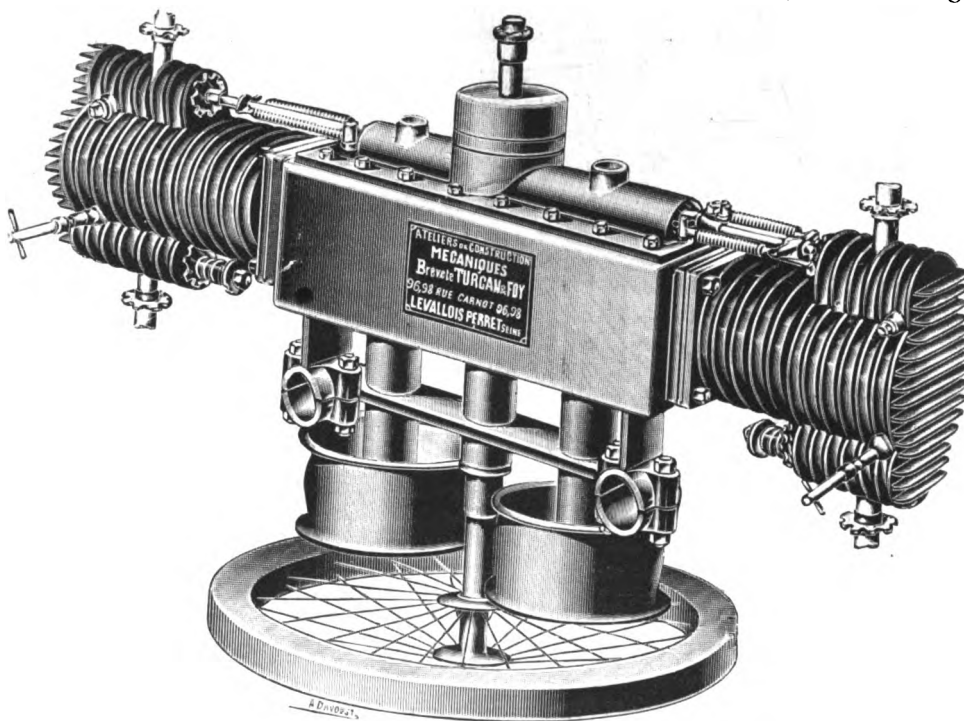
The Nice Week.

It is on Sunday next, the 25th instant, that the round of automobile *fêtes* and races, known as the Nice week, commences, and reports to hand state that such a gathering of *chauffeurs* has never been witnessed before in the town. They arrive from all quarters, racers and tourists mounted on all manner of vehicles and cycles. What a sight to gladden the heart of the motor-man! A little amusement in the form of a *corso fleuri* is set down for decision on Sunday, a kind of *aperitive* to whet the automobile appetite for the more exciting events to follow. All the same everyone enjoys this floral sport, and last year it was voted a greater success than the battle of flowers in which the horses and ordinary carriages figured. On Monday, the 26th instant, the first stage of the Nice-Marseilles-Nice race will be run off. An early start—at 7 a.m.—will be made, and a

route of 230 kilomètres to Marseilles via Cannes, Fréjus, Le Luc, Brignoles, Saint-Maximin, Trets, and Gardanne will probably be followed. At 10 o'clock on the following morning the second stage will be commenced, the route to Nice being by way of Aubagne, Ollioules, Toulon, La Garde, La Pauline, Hyères, Sainte-Maxime, Fréjus, and Cannes. The entries for this event include the names of very many of the most prominent *coureurs* of the day, among whom I may cite—Albert Lemaitre, Charron, Girardot, R. de Knyff, Gilles Hourgières, Levegh, Bozon de Périgord, Pinson, Marcellin, Gasté, Béconnais, Rigal, Baras, and Gleizes. While the racing automobiles are completing the return journey to Nice on Monday, the tourists will be contesting the first stage of the Nice-Draguignan-Nice course. The distance to be covered is 98 kilomètres. The competitors will pass the night at Draguignan and race back to Nice over the same route the following day. Wednesday, the 28th inst., will be devoted to an exhibition of the vehicles of competitors, who have completed one or other of the two courses. The cars will be shown in the Automobile Club's garage on the Boulevard Gambetta. The *course du mille* will be the feature of Thursday, the first of the heats being run off at two o'clock in the afternoon on the Promenade des Anglais. The last of the races will take place on Friday, March 30th, and will be decided over the well-known Nice-La Turbie route. This hill climbing course of 17 kilomètres will be opened to all those cars who shall have completed the race for which they were engaged. The "week" at Nice terminates with this race, but the other events which will be held on the Riviera will keep racing men full of engagements until April 4th, after which date the scene of operations will be changed to Paris.

The Grosse-Boubault Motor-Tricycle and Two-Speed Gear.

MESSRS. GROSSE AND BOUBAULT, of 97, Boulevard de Montparnesse, Paris, have lately brought out a new motor-tricycle, for which they claim several advantages. The machine is chiefly noticeable for its motor, which, although



GENERAL VIEW OF TURGAN-FOY MOTOR.—(For description see issue of February 2nd last.)

its weight and size are small, develops two and one-half horse-power. The *culasse* or cylinder top, which, viewed from the exterior, is of considerable size, contains a chamber for the detention of the gases, which are allowed to escape through the top. This arrangement, in addition to the spiral-radiating flange running from the base to the top of the cylinder, completely pre-

vents, it is claimed, over-heating. The expansion-chamber is integrally formed with the compression-chamber, the two being separated by a partition, which provides a seat for the exhaust-valve. Oxidation of the valve-stem is prevented by a metal tube, which operates in conjunction with the valve so as to prevent a binding of the stem and to insure perfect operation. A forced circulation of air about the helicoidal flange of the cylinder is obtained by the employment of a casing, so arranged as to utilise the current of air generated when the vehicle is in motion. The efficiency of the motor's operation is still further increased by the employment of a special carburettor, which is said to be regular in its operation, irrespective of the character of the road over which the vehicle may be running. A special two-speed gear, devised by Messrs. Grosse and Boubault, can be applied to the tricycles. The mechanism employed comprises an auto-

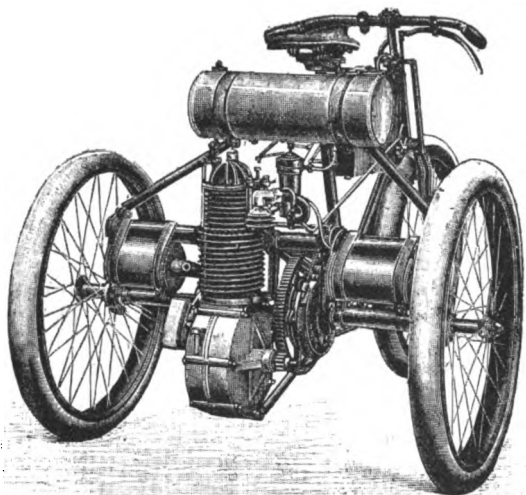


FIG. 1.—REAR VIEW OF TRICYCLE.

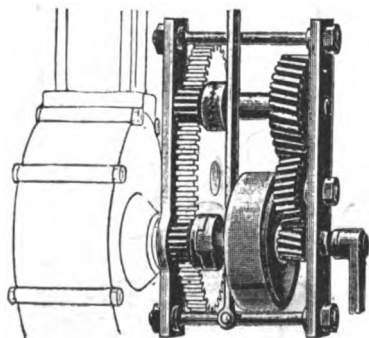


FIG. 2.—VIEW OF TWO-SPEED GEAR.

matic friction-clutch, by means of which the machine can be gently started, and a crank-operated driving-gear.

An Exhibition in Holland.

A CYCLE and motor-car show was held in the Paleis voor Volksvlijt, Amsterdam, from the 9th to the 18th inst. Altogether there were about fifty exhibitors, motor-cars and cycles being present in much larger numbers than a year ago. Willem Gerth, Utrecht, displayed a 1½ h.p. Dumond motor-quadricycle, a two-seated 2½ h.p. "Bella" voiturette, a 3 h.p. "Ideal" voiturette, and a four-seated 5 h.p. Vallée car. In addition to a Comiot-Eadie motor-tricycle, Messrs. Verweij and Lugard, of 17, Nassau-Dillenburgstraat, The Hague, had a big display of Peugeot automobiles, ranging from the two-seated voiturette up to a twelve-seated 12 h.p. omnibus. Benz cars of several types were shown by M. W. Aertnys, of Nimegen, who also had a Mors dog-cart on view. Messrs. R. S. Stokvis and Zonen, of Rotterdam, exhibited a couple of Pieper cars, one propelled by a 3½ h.p. petrol motor and one a combination electro-petrol vehicle.

Half-a-dozen De Dietrich (Amédée Bollée) cars, including an example of the "Vivinus" voiturette, were to be seen at the stand of B. J. Rubens, of Amsterdam, while W. J. Stokvis, of Arnhem, displayed three Daimler cars, a De Dion voiturette, a tricycle and a quad. Three Decauville cars—two with 3 h.p. air-cooled motors, and one with a 5 h.p. water-jacketed motor—formed the exhibit of H. J. Van Ewijk, of Amsterdam. In addition to a number of Benz cars, Die Industrielle Maatschappij Trompenburg, of Amsterdam, showed a car fitted with a new motor, known as Spijkers. It is a double-cylinder balanced motor of 5 h.p., with water-jacketed cylinders and electric ignition. Messrs. Willem Remmers, and Co., Amsterdam, confined their exhibit to a large ten-seated 10 h.p. German Daimler omnibus. John D. Diehle, jun., of 98, Jan Van Riebeckstraat, The Hague, had quite a large stand, on which were shown a "Perfecta" tricycle and quadricycle, a De Dion motor, a racing tricycle with Aster motor, a three-seated Benz car, a four-seated Darracq (Leon Bollée) car, and a three-seated Bollée car. Two cars—a three-seated Duc and a four-seated Dos-à-Dos—were shown by the "Gelria" Machine en Motorenfabriek, of Arnhem. The vehicles were fitted with 4 h.p. vertical two-cylinder motors, provided with a special system of magneto-electrical ignition. The Algemeene Nederlandsche Autocar-Maatschappij, of The Hague, displayed a six-seated 7 h.p. Delahaye car, as also a couple of French (Bouquin-Garcin-Schivre) electrical vehicles. Motor-vehicles and cycles were also shown by the Automobielenfabrik Duisburg (D. Siem, jun., Amsterdam), the Erste Nederl. Rijwielenfabriek (Burgers), of Deventer, and the Simplex Rijwielenfabriek.

CORRESPONDENCE.

A LONG "NON-STOP" RUN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having just accomplished a run of 221 miles, viz., from Edinburgh to Selby on my 6-B.H.P. Daimler car without once stopping, I shall be indebted to you if I can learn through your columns if this distance has ever been exceeded in this country. I left Edinburgh at 9 p.m. on Wednesday night, and passed Berwick, Newcastle, and York at 12.30 a.m., 5.30 a.m., and 12 noon respectively, reaching Selby at 2 p.m. on Thursday, thus running sixteen hours consecutively. The car consumed eleven gallons of petrol, and one gallon of water. Had it not been for wind and rain I see no reason why the car should not have run nearly as far again, as I had nine gallons of oil unused and as both the motor and all the bearings were perfectly cool, although the latter are only fitted with the standard small-size lubricators. Trusting some of your readers who own powerful racing cars will favour me with a reply.—I am, etc.,

Edinburgh, March 17, 1900.

T. ROLAND OUTHWAITE.

MOTOR-CAR SERVICES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am not a practical motorist—merely an interested person who regards the motor-car as the vehicle of the future but who cannot afford the means of purchasing a vehicle.

But having enjoyed some very pleasant trips on motor-vehicles I am anxious to indulge in such enjoyment during the coming summer. Unfortunately, the vehicles in use at sea-side resorts are too often uncared for by their proprietors and do not exhibit automobilism in a very favourable light. My object in writing is to urge all those responsible for motor-car services to pay attention to the appearance of the vehicles, never to send them out dusty and dirty, and to see that the drivers are not only efficient in their special department but respectful in their general demeanour. This latter feature would be quite a novelty at many sea-side places.

Birmingham, March 19th, 1900.

Yours truly,
A MIDLANDER.

A GOOD RUN ON A DAIMLER CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—The following particulars of a run from Coventry to London on my old car—one of the first turned out by the Daimler Company—may be interesting. If some of the owners of

French cars of equal power could give us particulars of any better runs, or even one equalling it, it would tend to show us where the great improvement and superiority of the French cars are. In my opinion they exist only in the fancy of the owners, who have paid "a long price" for the name. Of course, if a car were fitted with pneumatic tires they would add quite two miles an hour to the speed. My car is fitted with solid tires, and is not high geared; yet the other day I ran through from the Daimler Company's works in Coventry to Hampstead (inside the four-mile circle), a distance of about 90 miles, in 4h. 50min. The motor was not stopped once on the road; under a quart of water was used, and only 3½ gallons of petrol. The average speed for the whole journey was 19 miles per hour.

Yours truly,
E. ESTCOURT.

1, Ellesmere Mansions, Canfield Gardens,
Hampstead, March 19th, 1900.

THE DE DION AND BOUTON PATENTS.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—With reference to the De Dion and Bouton patents I desire to point out to you that there seems to be some error as to the steps Messrs. De Dion and Bouton have really taken in France to protect their patents, and it may be of interest to your readers if I explained the position. At the last Salon de Cycle you reported that Messrs. De Dion and Bouton have made a *seizi*, and without an explanation of this term your readers may fall into the error that they have made a seizure. It is nothing of the kind, a *seizi* in France is nothing more nor less than a slightly more legal form of a solicitor's letter. In other words, Messrs. De Dion and Bouton wrote solicitors' letters to people they alleged had infringed their patents, which infringement, by the way, they put down merely to the four posts on the air-cooled motor. Apart from this, Messrs. De Dion and Bouton have never taken any action against any person or persons, with the exception of one firm, which had gone into liquidation, Messrs. De Dion obtaining a judgment on account of the action being undefended. Apart from this action, Messrs. De Dion and Bouton have made no movement whatsoever, nor are they likely to do so, against any firm in France.

It might also interest your readers if I mention that the famous trembler over which many people came to great differences as to its value as a *bona fide* patent has now been found, or at least I should say the anticipation has been found. It is published in a French book under the name of the trembler Gauthier, which book was published many months previous to the dates of Messrs. De Dion's patent. The design of the trembler Gauthier is given, and it is in every way similar to De Dion's patent, showing as well as the trembler the same cam containing the identical slot. I should be pleased to give any of your readers the name and date of this book, if it interests them.

Yours faithfully,
The Automobile Association, Ltd.,
D. M. WEIGEL.

Prince's Road, W., 17th March, 1900.

THE SPEED OF MOTOR-VEHICLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A great objection to such a modification of the legal limit as is suggested by "Precursor"—i.e., the prescribing of one limit for the country and another for town—is, that it would lead to endless disputes as to the meaning of "town." On the other hand, I venture to say that the present limit, being applicable to all places, and confined to one type of vehicle, is useless, if not mischievous. For a regulation which is practically ignored, and that without causing any disaster, by most of those to whom it applies—from one of Her Majesty's judges downwards—is worse than useless, since it brings law into contempt.

What is the object of a legal speed limit? It is not, as certain people—who seem to take a pride in displaying their ignorance of the subject—seem to think, intended to provide a

means of bullying, and, if possible, suppressing a means of locomotion against which they are prejudiced, but merely to promote the public safety. But this is already sufficiently safeguarded by the furious driving clause of the Highway Act, and further legislation on the point would seem superfluous.

Moreover, seeing that the public safety is the only condition to be observed, there is no reason, other than the legal limit, why a motor-man should not on a deserted and open road drive as fast as he thinks desirable—indeed, I believe it is proper that he should do so; while the most reckless will hardly conceive himself entitled to drive at the legal twelve miles an hour through a crowded street. It will be seen, therefore, that speed is really regulated by the discretion of the motor-man, and that any legal limit is unnecessary.

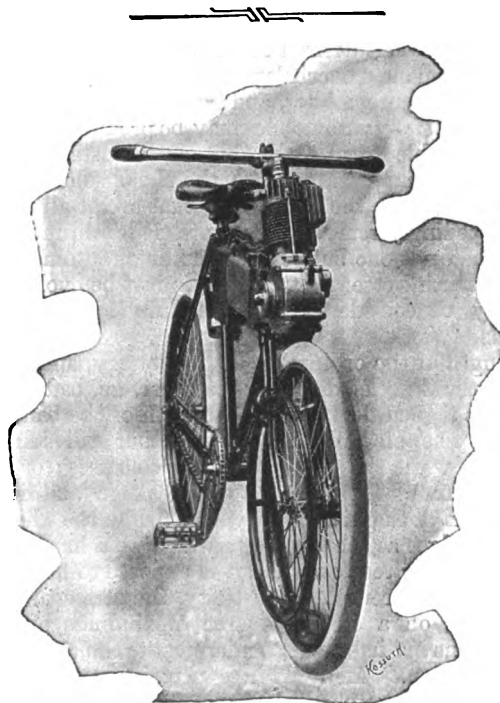
There is, however, one form of it which may be advisable, which is adopted by railway companies, and which consists in displaying notices at suitable points, limiting the speed at those spots. Of course, too, this should apply to all vehicles, for, "except for the honour of the thing," it makes little difference to the victim of an accident whether he was run over by a horse-van or a motor-car. Free and rapid locomotion, as all students of history will admit, is a potent factor in the well-being of a nation; it is, indeed, a necessary adjunct to Free Trade, and any improvement therein should be fostered and encouraged instead of, as is usually the case, penalised and taxed.

Automobilism is such an improvement; one, too, that will probably prove of greater benefit to the country at large than even the introduction of railways; for it will enable the streams of rapid traffic to be distributed widely over the country, instead of their being confined to a comparatively few channels. There is no doubt that in the coming years the average speed of traffic, hitherto limited by the power of the horse, will be largely increased; for as the pedestrian has trebled his pace by the use of the bicycle, so will the driver by means of the motor.

I believe, therefore, that it would be for the public good that as high a speed as is consistent with the public safety should be permitted, if not encouraged, and that there should be no taxes on locomotion.

March 20, 1900.

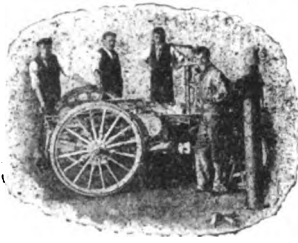
Yours truly,
"JANUS."



THE NEW WERNER MOTOR-BICYCLE.—For description see issue of March 2nd, page 816.)

IN addition to their bicycle business, the Keating Wheel and Automobile Company, of Middletown, Conn., expect to be fully equipped for the manufacture of automobiles in about a month. It is also reported that they will take up the manufacture of motor tri-cycles.

THE DESIGN OF AUTOMOBILES.



ACCORDING to the plan almost universally adopted for motor-vehicles, the weight of the power source and motor is supported by the same axles and wheels that support the weight of the driver, passengers, and load; the rear axle is rotated by the motor power through gearing or belt, and the propelling power is transmitted through the wheels

and applied against the surface of the road. Steering is effected by the driver using main force to turn the front wheels around vertical pivots that carry horizontal stub axles for the wheels.

These are points of radical difference between the automobile and horse-drawn vehicles, but it is safe to say that they do not exist by express intention of automobile constructors, but have merely followed from a natural inclination to make the automobile conform as nearly as possible to the customary outlines of an ordinary vehicle. If they serve the purposes of an automobile, it is by accident. It is interesting to note how many important chances for errors in other constructional details spring from these differences alone, and how few of them have been considered in relation to road and street conditions and the requirements of the public.

These simple points go far to explain the many breakdowns of automobiles that have been noted during the past year, and are therefore of special interest, although automobile constructors as a rule have considered them as of inferior interest compared to the problems of the motor and the transmission gear between the motor shaft and the wheel axle. And in reality these latter problems are perhaps of superior importance where the roads are uniformly excellent.

I do not agree with the commonly prevailing opinion that the proper construction of an automobile is a matter of ordinary mechanical engineering and machine design, and may be accomplished through the mere application of already acquired knowledge. In place of this supposition, according to which perfect automobiles might make their appearance any day, it is desired to show that experience in the art of building them must overbalance science in importance when it comes to building automobiles, and that therefore a considerable time must elapse before automobiles may be produced that will be thoroughly acceptable to anybody but enthusiasts, unless some phenomenal genius happens to strike the right solution by one miraculous stroke; and the chances for that are at all times and in all cases exceedingly remote. They are made still more remote by the fact that not one but several dozens of automobile types of vehicles, presenting essential variations, must be evolved before the horse may be considered as successfully supplanted in its principal fields of work.

The strength of the ordinary carriage, buggy, spring wagon, etc., to resist the knocks dealt by bad drivers, bad roads, and unruly horses is a good deal like the strength of the bamboo hut, which sways to the blow of the hurricane, but still stands after the blow is over, while the stone mansion collapses; or like the strength of the thin glass which escapes breakage and injury in the careless hands of the kitchen mechanic, while the thicker one chips off on the edges at the slightest jar against a hard substance and cracks from inner tension when it is exposed to heat and cold unevenly. It is the strength of elasticity, the strength in yielding. It depends on a certain degree of thinness of material, certain proportions in dimensions, and upon the choice of materials used in construction. Many things pertaining to the art of incorporating the strength of elasticity in carriages and other structures in which it is required, have been learned solely by experience, and have not yet been scientifically mastered. They are not booked in the manuals of engineers, but an understanding of this factor and a happy knack of applying it correctly have often spelled the difference between failure and success among architects, bridge-builders, carriage-makers, and others, and is of greater importance the more varied and incalculable are the

strains to which the structure is subjected. While architects and bridge-builders have mainly to figure with loads and wind velocity, builders of carriages and automobiles must take into consideration such factors as weight and load aggravated by speed, turns, impact with the inequalities of bad roads, up and down hill work; and they are furthermore handicapped by the æsthetic requirements of the public in regard to design and outlines. What is of greatest interest in connection with the subject of automobiles is the enormous disadvantage under which automobile makers labour as compared to carriage makers in this respect, on account of the greater weight of the structure, the higher speed expected of it, the consequently very highly increased force of all impacts and shocks, and the additional strains arising from the workings of the power mechanism.

Everybody who has given any thought to the mechanics or art of carriage building knows that the questions pertaining to design and material are most intimately mixed up with the requirements for elastic strength and that there comes a point in the dimensions of any construction part—of a given material and form—where it becomes impossible to combine the required elastic strength in said constructional detail with the brute strength that may also be required of it. It would break if thinner, and it would be too unyielding if thicker. If such a case arises, it may be necessary to choose a new material by the use of which the two requirements may be combined; for the proportions vary largely according to the nature of the material that is used as well as its form.

The easiest way out of difficulties of this kind is to sacrifice the elastic strength and add sufficient to the brute strength to resist all shocks. That is what was done before springs were used for carriages, and what is still being done in cheap carts for rough work. It is also being done by that school among automobile builders who believe in making the automobiles "so heavy that they will not bound over a rough road." But by following this easy principle, which testifies to a certain mental indolence in its adherents, carriages become clumsier and heavier than necessary. In ordinary carriage building, the preference in the United States has been decidedly for the opposite principle of making every part as thin, elegant, and light as possible, and by the ingenuity of the construction to ease the strains on any one part. It is by following this principle that American carriage builders have earned the reputation of making the strongest and at the same time the most elegant carriages in the world. They have been assisted in reaching this proud position through their fortunate access to the use of hickory wood, which has greater tensile strength than any wood native to Europe. Lately new developments in the same direction have been due to the introduction of steel tubing, aluminum, and rubber.

It does not seem likely that the prospective buyers of automobiles will be willing to forego the demand as to combined strength and style to which they have been accustomed in horse-drawn vehicles. But to introduce this desirable combination in automobiles so long as the present plan of construction is followed, meets with serious difficulties which are not usually realised by the public, and which are put aside by constructors as being of no consequence in comparison with the inestimable boon of getting rid of the horse. When it is desired to form a sober estimate of the probable progress of automobilism, they must be considered, however.

Proceeding in due order, reference here is only had to the effects of placing the power source and motor in the vehicle and thereby increasing its weight, and it may be premised as self-evident that all difficulties which arise from this cause must be infinitely more serious for vehicles intended to travel over poor roads where the occasions for violent bumps are numerous than for vehicles that may be used over smooth roads exclusively; so that it is quite within the range of possibilities that a French vehicle may be a success in France at a weight of 3,000 pounds, and a vehicle built on the same general plan may be an absolute failure in the United States even at a much lower weight. In this connection it is especially noteworthy that on good roads the strains in a vehicle follow regular lines and planes, along which the necessary strength may be readily provided without much addition of material—as in a bicycle, where the strains are mostly

in the plane of the machine—while on bad roads the strains are utterly irregular and must be provided against in all directions, necessitating an enormous addition of weighty material, unless, indeed, the skilful constructor knows how to provide what has here been called elastic strength, whereby the strains are distributed over a large quantity of material and absorbed in it, instead of being transmitted through a rigid construction and massed according to the direction and nature of the shock—at any one of a number of different points, each of which must be fortified against the entire original shock.

In railway coaches and tramway cars this may be done by dividing the structure into rigid portions flexibly connected by springs, thus absorbing shocks in the latter, or by buffers, but it is only the comparative regularity of the shocks received by rail travel that permits this arrangement. It is readily seen, for example, that under conditions that would twist a railway coach so as to centre a shock in one side of one of the supporting trucks instead of in both sides of two, on a well-ballasted track; either the coach body would need to be made flexible or the springs in each of the trucks would need to be very much strengthened, thereby increasing their weight and diminishing their usefulness for absorbing lighter shocks.

In automobiles it is evident from this parallel that a similar construction plan, consisting in dividing the automobile into large rigid portions, comprising (1) carriage body, (2) the rear wheels and axle and (3) the front wheels and axle—rotatable for steering, but otherwise a rigid whole—with springs interposed between these portions, may be successfully employed only on roads nearly equal to rails as a travel surface. For only on such a surface may irregular strains be averted, and on a rough surface these irregular strains would attack each spring, each wheel, and the carriage body as a whole (through the power mechanism and its connections) with such force that the necessary strength to resist it might only be brought about by a considerable addition of material all over the structure, thus adding still more weight besides that which comes from placing the power source in the vehicle. And it is precisely on rough roads that weight counts heavily to increase the work of propulsion. In other words, in order to propel the thus increased weight, and so on with infinite pyramidally-rising necessity for greater clumsiness and heft. In this sense it may truly be said that weight begets weight. If, on the other hand, an attempt is made to strike a middle course in the construction plan by introducing some degree of elasticity and flexibility in all portions aside from the springs, and especially in the carriage body, the innumerable possibilities for shocks in unforeseen directions on rough roads, makes it a very uncertain thing what particular spot of the structure will be attacked, because by abandoning the system of absolute rigidity of portions of the structure, the possibility has been opened that the shock may attack a part that has not been fortified to with-

stand it, either by its bulk, the nature of its material, or by flexibility and flexible connection with other portions of the structure.

In horse-drawn vehicles all these possibilities have been obviated through the growth of the art of building carriages. Comparative perfection in their construction has been reached by purely empiric methods and cannot be transferred to automobile building. The weight placed in the latter and the new strains arising from having power in the vehicle instead of outside of it, render the problem of constructing them on the flexibility-all-through plan an essentially new one which in all likelihood must be solved by a persevering study and protracted experimenting with new materials to take the place of wood, because wood, in order to be strong enough to resist some of the strains in a heavy vehicle, must be of large dimensions, and when of large dimensions loses its flexibility and adaptedness for distributing other strains arising from shocks of other kinds against which precautions must also be taken.

The only method by which prolonged experimenting may be partially avoided is, as above shown, to adopt the plan of absolute rigidity in each of the main portions of the automobile, accepting great weight as unavoidable. This is the most obvious plan that suggests itself to the orthodox engineer who undertakes to design an automobile in conformity with his mechanical formulas, but even the lay reader will readily understand from the foregoing that the vehicle thus scientifically evolved is, after all, only a good-roads vehicle. Only good roads present the known factors with which the orthodox engineer may figure; while to construct a vehicle for all kinds of roads, and the many unknown factors arising from them to upset calculations, requires art—consummate new-vehicle-building art—and consequently prolonged experimenting

and patient application of the "cut and try" principle.—By M. C. KRARUP, in *American Machinist*.

(To be continued.)



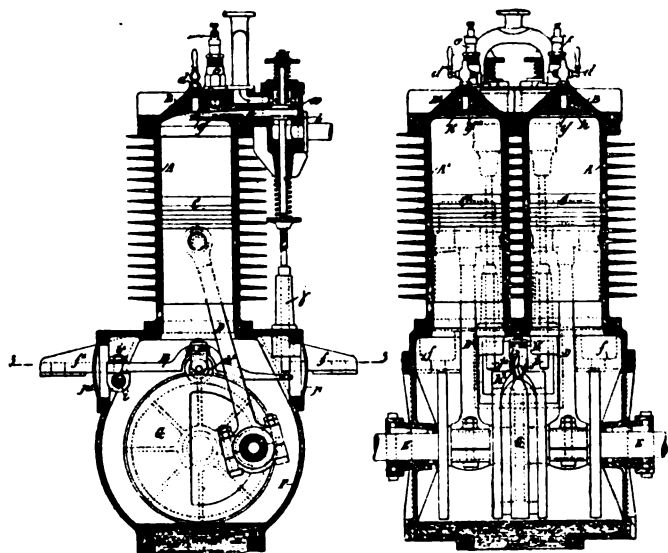
MR. AND MRS. J. J. MANN ON THE NEW MARSHALL CAR. (This vehicle is entered for the forthcoming 1,000-mile trial).

THE Vallée racing car, illustrated in the *Motor-Car Journal* for October 13th last, is now in London. The vehicle, which closely resembles a large shoe on wheels, was driven along Oxford Street and Holborn on Wednesday by Dr. Lehwess, and attracted much attention.

MESSRS. FRISWELL, LIMITED, finding their premises at 18, Holborn Viaduct, E.C., insufficient for their increasing business, have just opened a large new dépôt at 48, Holborn Viaduct. No less than four floors are available, and when we looked in the other day at the Automobile Palace, as the new dépôt has been named, we found quite a large stock of motor-cars and cycles on hand, including Mors, Peugeot, Delahaye, Rochet, Renault vehicles, etc.

THE "CYCLONE" PETROLEUM-SPIRIT MOTOR.

THE accompanying illustrations (Figs. 1 to 4) show a new petroleum-spirit motor, known as the "Cyclone," which has lately been put on the market in France by the Société des Moteurs Cyclone, of 48, Rue Saint-Ferdinand, Paris. As will be seen it is of the vertical two-cylinder type, with radial plates for cooling purposes and electrical ignition. The normal speed of the motor is only 800 revolutions per minute, the claim



FIGS. 1 AND 2.—SECTIONAL ELEVATIONS.

being consequently made that it is less likely to become overheated than those engines whose speed is 1,200 revolutions and upwards. Referring to the illustrations, Figs. 1 and 2, each of the ignition chambers, BB' , is provided with an admission valve a and exhaust valve b . The igniters are represented by $c c'$, and the taps controlling the compression by $d d'$. The pistons are of the single-acting type, and are connected by rods with the shaft E . The lower portion of the operating mechanism is inclosed in a casing F , on which the cylinders are secured. The motor is fastened in position by the shoes ff .

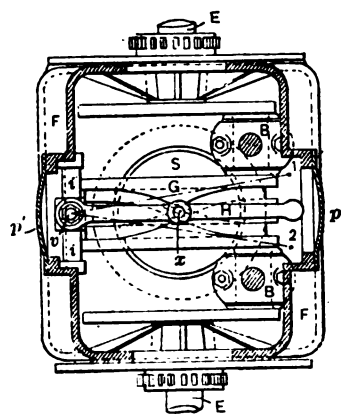


FIG. 3.—SECTIONAL PLAN.

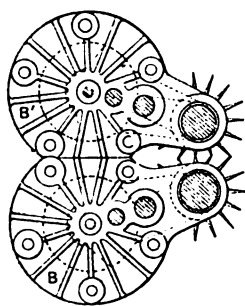


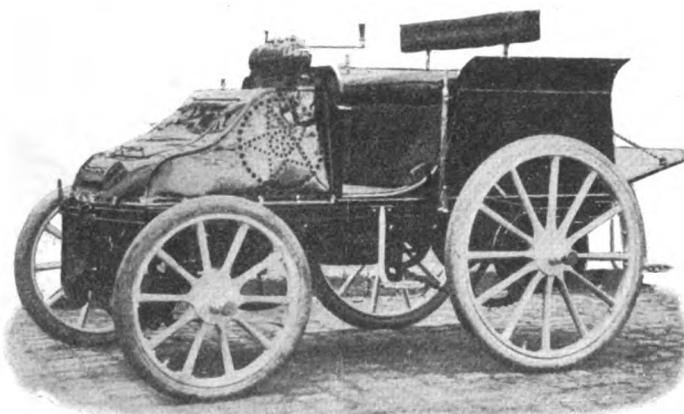
FIG. 4.—PLAN.

At the upper end of each cylinder is a partition g , which serves to deflect the fresh gases admitted through the valve a and prevents mingling with residual gases near the sparking plugs. One of the novel features of the motor is the method employed for controlling the exhaust valves $b b'$. A cam G is keyed on the crank of the shaft E (between the two piston rods $D D'$) and turns therewith. The periphery of this cam is formed with two grooves intersecting at s (Fig. 3). At the upper part of this cam is a roller h engaging the groove and journaled in a lever II (Fig. 2), fulcrumed at i .

The lever has both vertical and horizontal movements, the latter being due to the peculiar 8-shape of the groove. When the lever is shifted horizontally, its flattened free end alternately moves to the extreme points indicated by the numerals 1 and 2 (Fig. 3). In these two positions the lever is given a vertical movement by the cam by which the rods $j j'$ of the exhaust valves $b b'$ are alternately lifted. The reseating of the valves $b b'$ is effected by a spring, the tension of which can be regulated by means of a collar screwing upon the rod. The two pistons, in response to the movements of the single crank of the shaft E , always act together, and as the explosions alternate in the cylinders the motor shaft is driven at a uniform rate of speed. The motor is being made in two sizes—one developing about $1\frac{1}{2}$ h.p. and weighing only 66 lb., and one working up to $2\frac{1}{2}$ h.p., whose weight is given as 1 cwt.

THE WILFORD MOTOR-CAR.

THE illustration given below shows a motor-car of Belgian construction, it having been built by Messrs. Charles Wilford and Sons, engineers, of Tamise, near Antwerp, to the designs of M. Paul Wilford. The motive power is supplied by a two-cylinder horizontal petrol engine of 6-h.p., located in the forepart of the frame. The ignition of the explosive mixture is effected either by an incandescent tube or electrically as desired. The car, as will be seen, takes the form of a four-seated dog-cart,



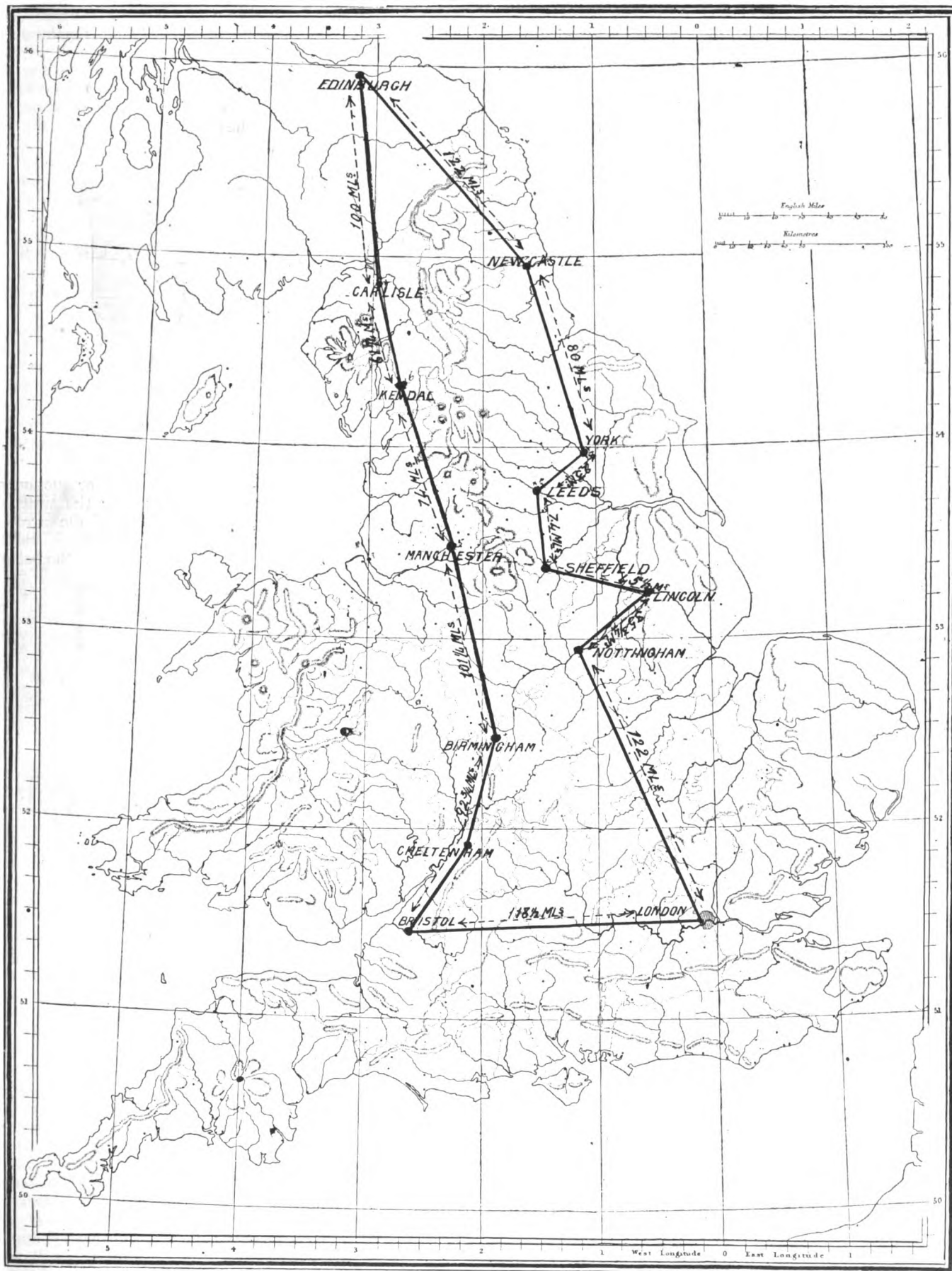
mounted on a steel frame, and wooden wheels shod with pneumatic tires. Three speeds forward—8, 16, and 32 kilometres per hour—and a reverse motion are provided, the power of the motor being transmitted by pinions to a countershaft, and from the latter to the rear road axle by a single centrally-located chain. Tiller steering is provided, while there are hand-brakes on each of the rear wheel hubs, controlled by a hand-lever at the side. Messrs. Wilford are said to be at present engaged on the construction of a 35-h.p. racing car. The motor with which it will be fitted is a four-cylinder one with electric ignition and special water-cooling arrangements.

WE learn that the Automobile Club is arranging for a British handicap section in the Paris-Ostend race, which is to be run off on the 1st and 2nd September next.

THE important announcement is made this week that Messrs. De Dion and Bouton and Co., of Puteaux, are making a $2\frac{3}{4}$ h.p. air-cooled motor as the standard for 1900. We understand that the new engine will fit tricycles and "quads" made for $1\frac{1}{2}$ or $2\frac{1}{4}$ h.p. motors, but that no conversion of old into new patterns is possible; the motor must be new throughout.

THE Lincoln Motor Bus and Parcel Delivery Company, Limited, has been registered with a capital of £5,000 to acquire any cars, carriages, engines, or vehicles, whether propelled by oil power or electric traction, for the conveyance of persons and goods, and to carry on in Lincoln or elsewhere the business of carriers in all its branches. The first directors are W. S. White, J. D. Goy, W. C. Sneath, F. Higgs, J. W. Enderby, and F. Brown.

The Forthcoming 1,000-Mile Trial.



Outline Map showing principal Towns to be passed through, with distances between same.

SOME NEW FRENCH CARBURETTORS.

THE accompanying illustration, Fig. 1, gives a section of the carburettor devised by M. C. Le Blon and used on the Le Blon carriages in France. The inventor states that his device is intended, first, to remedy the defective conditions produced in ordinary carburettors, where, because of the tilting of the vehicles upon which they are placed, the action is rendered irregular; secondly, to mix the air and petrol under the best conditions. The apparatus consists of a conical chamber, *A*, which forms a reservoir for the spirit, and in which is immersed

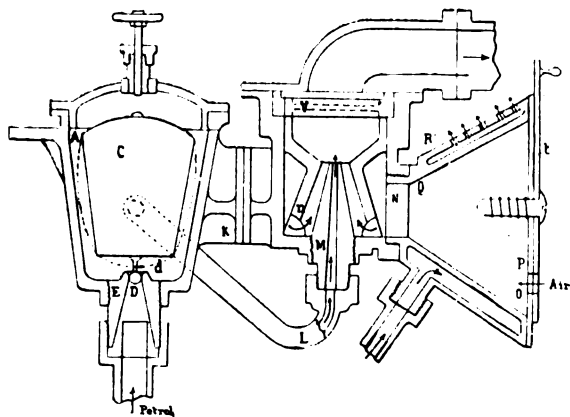


FIG. 1.—THE LE BLON CARBURETTOR.

the float, *C*. At the lower end of this float is a rod, *d*, terminating in a ball, *D*, which rests on the lips of the conical tube *E*. This tube communicates with the main reservoir of spirit. The ball *D* contained in the tube and drawn vertically by the float, remains always in position, whatever may be the inclination taken by the carburettor attached to the vehicle, and independent of the vibrations or oscillations of the whole arrangement. It will be seen that the quantity of spirit entering the chamber *A* depends upon the buoyancy of the float *C*, and its "lift"; this

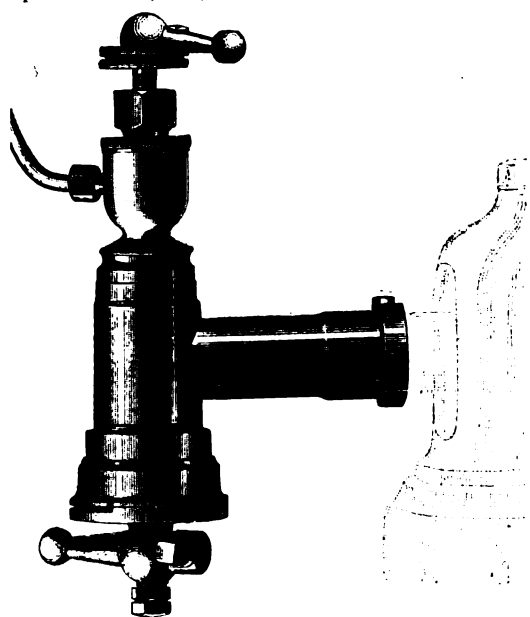


FIG. 2. THE DORE CARBURETTOR.

latter is controlled by the screwed spindle projecting through the cover on *A*. Connected with *A* by the joint, *K*, is a cylinder forming the mixing chamber, the upper end of which is in communication with a pipe leading to the suction valve.

At the side of this cylinder is a bell-mouthed chamber, having double walls; the space between the walls is in communication with a branch pipe from the exhaust, the hot gases from the exhaust flow round this space, heating the inner chamber and

escaping at *R*¹. The mouth of this bell is closed by two perforated plates; the outer one can be rotated so that the air supply can be given any desired adjustment, and as it enters it is heated and passes through *N*¹ to the inner cylinder. Within this is a conical tube, *M*, and an envelope, *N*, perforated as seen, the whole forming an injector. At the upper end of the cylinder, where it joins the suction pipe, is a series of baffle plates, *L*. The action is as follows:—Petrol flows into *A*, and is maintained at a

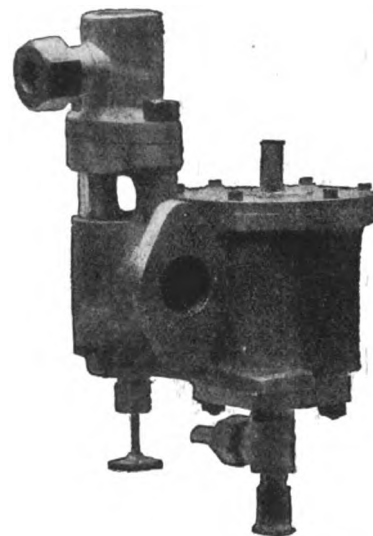


FIG. 3.—GENERAL VIEW OF ELGIN CARBURETTOR.

constant level by the float *C*. On the inhaust or suction stroke cold air enters through *O*, and in passing over the walls of the bell is heated. It follows the direction of the arrow, and simultaneously the petrol flowing through *L* meets it and a mixture is thus formed which is then sucked through the baffles, *L*.

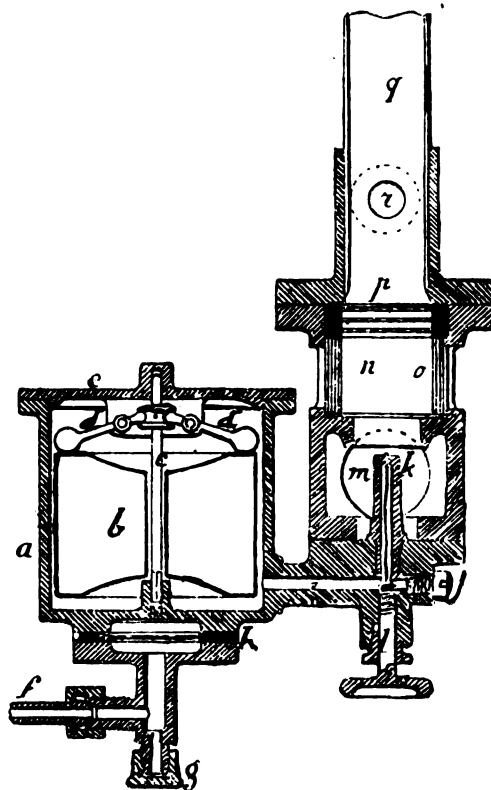


FIG. 4.—SECTION OF ELGIN CARBURETTOR.

Fig. 2 illustrates another carburettor of French design and manufacture, which is now being introduced into this country by the London Autocar Company, of Gray's Inn-road, London, W.C. The illustration shows the device half the natural size: it will therefore be seen that it is exceedingly small, while its

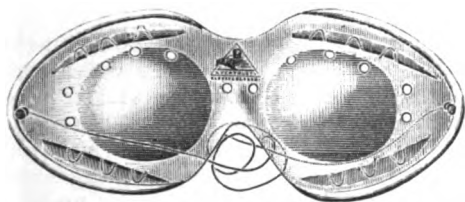
weight is less than half a pound. The carburettor fixes on to the inlet elbow pipe of any high-speed motor, and is coupled direct to the supply tank. After the device is adjusted the mixture is regulated by the lever at the bottom. This carburettor is, we understand, being taken up in France by makers of motor-cycles etc., owing to its lightness and the small space it occupies.

Figs. 3 and 4 represent respectively a general view and section of a new carburettor for petroleum-spirit-motors which has lately been put on the market by Messrs. Eldin and Lagier, of 21, Place Bellecour, Lyons. The petrol passes from the storage tank by the pipe *F*, through filtering discs *H* to the constant-level tank *A*. As the float *B* in the tank *A* rises, the levers *D* operate on the pointer *C*, which extends into the mouth of the inlet pipe and, when the desired level has been attained, finally closes the latter. Under the suction stroke of the motor a charge of petrol is drawn along the pipe *I* to the spraying device *M*. The necessary air is drawn in at *K* and is mixed with the sprayed spirit, a further intermingling being effected by the wire gauze discs *P* through which the mixture has to pass on its way by the pipe *Q* to the explosion chamber of the motor. Provision is made at *G* for clearing out any impurities filtered from the petrol by the wire gauze disc *H*, while the quantity of spirit allowed to pass from the constant-level tank at each suction stroke of the engine can be regulated by means of the small hand-wheel *L*. A new departure is to be found in the mixing chamber, the walls *O* of which, instead of being of metal, are of thick glass, rendering visible the amount of petrol emerging from the spraying nozzle, and consequently, it is claimed, facilitating its regulation. The apparatus is being made in several sizes, one for motor-tricycles and three for motor-carriages.

SPECTACLES FOR AUTOMOBILISTS.

THE considerable development which has taken place in the motor-car movement has shown the extreme importance of providing safety spectacles which will protect the eyes against dust, wind, etc. A bad accident may easily be caused if the driver's eyesight should be interfered with or in any way impeded by any matter likely to get into the eyes.

Already quite a number of different types of spectacles specially adapted to automobilists' use are on the market, and to the number Messrs. Wallach Bros., of 57, Gracechurch Street, E.C., have just added the new one illustrated herewith, and which they



have named the "Evertrusty." The firm have sent us samples of the new spectacles, an inspection of which shows that they are made of a light transparent material resembling xylonite. They easily adapt themselves to the face, and are well ventilated, so as to prevent the eyes from getting heated. We are informed that the spectacles have been adopted by many motor-car and cycle owners in France. They are supplied in a variety of shades, viz., transparent colourless, green, red, smoked grey, blue, pink, and in view of their relatively low price English *chauffeurs* will no doubt be inclined to give them a trial.

THE following gentlemen have been appointed judges for the forthcoming 1,000-mile trial:—Mr. W. Worby Beaumont, Professor C. Vernon Boys, Mr. Dugald Clerk, Mr. Bryan Donkin, Professor Hele-Shaw, Major H. C. L. Holden, Sir W. H. Preece, Professor Boverton Redwood, Sir David Salomons, Mr. James Swinburne, Professor William Unwin, Professor D. S. Capper, Professor Hudson Beare, Professor Archibald Barr, and Mr. A. F. Yarrow, the five latter gentlemen having consented to serve in addition to the ten members of the Automobile Club above-named, who acted as judges in connection with the Richmond Show.

AN AUTOMOBILE TRIP FROM VIENNA TO PARIS.

COUNT STEFAN GYULAI made a most interesting journey last September from Vienna to Venice and back. His vehicle was an 8-h.p. German Daimler. From Vienna he journeyed through Lower Austria, Steiermark, Krain, Carinthia, Goerz-Gradiska to Venice and back by way of Upper Italy and the Southern Tyrol. The distance covered was 1,630 kilometres, the journey from Vienna to Mestre, opposite Venice, being 696 kilometres. This part of the journey was covered in 29 hours, an average of 24 kilometres an hour. The 179 kilometres from Goerz to Mestre occupied 6½ hours; an average of 25 kilometres an hour. From Bruck to Gratz 53½ kilometres were covered in 1 hour and 47 minutes, an average of 29 kilometres an hour. From Gratz to Marburg 66½ kilometres were made in 2 hours and 30 minutes, an average of 26 kilometres an hour. From Cilli to Laibach, 47½ kilometres in 2 hours and 45 minutes, the average was 27 kilometres an hour. From Mestre to Bozen was 267 kilometres, from Bozen to Toblach 104½, Toblach to Klagenfurt 195, Klagenfurt to Semmering 217, Semmering to Vienna 89, an average for the whole of 22 kilometres an hour. The distance from Toblach to Vienna, 501 kilometres, was made in 23 hours. The Count, who was accompanied by the director of his estates, Herr von Lukacsy, of Arad, drove the car himself. They were attended by one servant. They met with no accident or interruption beyond a slight delay caused by a hot bearing between Padua and Vincenza, due to insufficient oiling. No difficulty was encountered in surmounting the Semmering pass, 950 metres above sea-level, and the still higher Berhauer Sattel, 1,250 metres in altitude. The roads were good for most of the way, and were exceptionally adapted to the automobile in the Tyrol and Steiermark. The carriage was covered, sheltering the occupants well. The weather, however, was favourable most of the time.

A CYCLE and motor exhibition is to be held in Leipzig from the 19th to the 23rd of October next.

THE St. George's (Hanover Square) Vestry have placed an order with the Thornycroft Steam Wagon Company for a motor-wagon.

ACCORDING to the Labour Correspondent of the Board of Trade for the Birmingham district, employment in the motor industry at Coventry "continues fair."

MESSRS. ELGIN AND LAGIER is the style of a new firm which has lately been formed in Lyons (21, Place Bellecour), with a capital of £5,200, to manufacture motors and to deal in motor-vehicles.

THE Manchester Motor Club intended to hold an opening run on Saturday last, the success of which was, however, interfered with by the severe wintry weather which prevailed. We learn, however, that two couples of members on quadricycles braved the elements and motored over heavy roads and through blinding snow as far as Knutsford.

AT the Edinburgh Police Court on Monday, Donald Mackenzie, motor-car driver, was convicted of driving a motor-car in a careless manner in Princes Street on the 27th February last, in consequence of which it came into contact with a horse yoked to a hansom cab and cut it on the breast. The Sheriff said he thought it was more an error than anything else, and inflicted the nominal penalty of 10s.

AMONG the latest additions to the list of members of the Automobile Club are: The Right Honourable Sir Francis Henry Jeune, and Messrs. H. White, J. B. Kerr, A.M.I.Mech.E., B. E. Dunbar Kilburn, J. O. Hickman, H. Dunkerdale, Harvey du Cros, jun., F. B. Cavan, A. Rosling, F. C. Baisley, M. D. Rucker, John S. Vivian Bickford, F. J. Gresham, R. A. Whytlaw, jun., B. H. Flint, G. H. Kahn, A. K. Smith, A.M.Inst.C.E., B. R. Banks, H. E. Hippisley, J.P., Llewelyn Thomas, T. H. Thwaites, G. Russell-Miller, R. J. Smith, C. Clifford Potier, F. G. Jonas, C. Burrell, jun., A. C. Edge, E. M. Liffe, W. Summers, H. S. Stoneham, and E. Manville, M.Inst.E.E.

THE MOTOR-CAR CLUB.

THE annual general meeting of the Motor-Car Club was held at the Club's premises on Wednesday evening, Mr. F. F. Wellington being in the chair. The statement of financial matters, presented by the hon. secretary, showed that expenses and receipts had not quite balanced, but only by a few pounds. Some of the members had failed to pay their subscriptions, which had thrown the treasurer out of his estimates. It was decided to strike off the defaulters from the Club's books in accordance with the rules. The recommendation of the committee, "That the club sanction the transfer of its financial business to a company, called the Motor-Car Club, Limited, and agree to pay all money received to the said company, on the understanding that in consideration of this arrangement, (1) The company will be responsible for all debts incurred. (2) The board of the company will be composed of five directors; at least two of whom will be nominated by the club," was unanimously agreed to, and it was decided that the consequent necessary revision of the Rules should be presented to the members at a future special general meeting. A full programme was decided upon for the year, including race meetings at the Crystal Palace on Easter Monday, Whit Monday, and August Bank Holiday, the races to be under Motor-Car Club's Rule. The meet and competition, which was so successful at the Crystal Palace last May, will be repeated, as will also the run to Brighton and banquet. A hill-climbing competition will be one of the features of the year's programme. Mr. H. J. Lawson was elected President for the year, Mr. F. W. Baily, hon. sec., Mr. G. H. Smith, reporting hon. sec., and Messrs. W. H. M. Burgess, Eason, Hart, E. J. Hill, C. Jarrott, McCormack, M. Moyle, W. Munn, C. Schofield, F. F. Wellington, A. J. Wilson, and C. G. Wridgway members of the committee.

THE AUTOMOBILE CLUB'S ONE-HUNDRED-MILE TRIAL.

It was announced some time ago that the Automobile Club would hold 100-mile trials every quarter. The first of these trials is to take place on the 11th April, in order that competitors may have the certificates gained thereat in time for attachment to their vehicles at the Agricultural Hall Exhibition. The following are the rules:—

Competition Rules.—This trial, having been announced prior to the 1st of March, does not come under the rules and regulations governing automobile competitions, but all competitions organised by the club (except the 1,000-mile trial) which are held subsequent to the 11th April, 1900, will come under the rules above referred to, and therefore all owners or drivers taking part in the competitions organised by the club, which are held subsequent to the 11th April, must have registered themselves and their vehicles as provided by Rule 17 *et seq.* of the competition rules and regulations.

Entries.—The trial is open to vehicles of manufacturers, agents or private owners, provided that they weigh under 30 cwt. unladen. Entries for the 100-mile trial must be made on a special entry form which shall be filled in and forwarded to the treasurer's department of the Club, on or before Saturday, the 31st inst., or Saturday, 7th April, at twelve noon as provided below.

1,000-Mile Vehicles.—It is hoped that all vehicles which have been entered for the 1,000-mile trial will be entered for the 100-mile trial.

The entry form of each vehicle must be accompanied by a cheque for 3 guineas in respect of each vehicle which has been entered for the 1,000-mile trial, and 6 guineas in respect of each vehicle which has not been entered for the 1,000-mile trial.

Vehicles entered after 12 noon on the 31st March may be entered up to 12 noon on Saturday, April 7th, provided that the proper particulars are furnished by that hour, and that a payment of £4 14s. 6d. be made in respect of 1,000-Mile Trial vehicles, and £9 9s. in respect of other vehicles is made.

Start.—Vehicles taking part in the trial shall be at a point in London, W., to be hereafter indicated, on Wednesday, April 11th, not later than 10.30 a.m. Any vehicle arriving later will be subject to disqualification. The vehicles will be started in their order of entry.

Route.—The route will be *via* Uxbridge, Beaconsfield, and High Wycombe, to the 52nd mile-stone from London and back again without stopping.

Speed.—No speed in excess of 12 miles an hour will be recognised. Controls will be established, within which no speed in excess of 8 miles an hour will be permitted, and within these controls a competing vehicle may not pass another vehicle in front of it, provided the leading vehicle is travelling at 8 miles per hour. Infringement of this rule will subject the competitor to disqualification and loss of entrance fees. A competitor may not pass a vehicle on a down grade provided the vehicle in front is travelling at not less than 12 miles an hour. The trial will include two hill-climbing trials—namely, Dashwood Hill, and on the return journey Ashton Hill. If any competitor be stopped by the police on a charge of furious driving, and the judges, on inquiry, think the police were justified in their action, the competitor may be disqualified by the judges; also, if he is guilty of inconsiderate driving.

Certificates.—The certificates will be issued by the judges prior to the opening of the club's exhibition at the Agricultural Hall on the 14th April; on them will be stated the following records of the trial:—Number of passengers. Average miles per hour not exceeding twelve miles. Number and causes of stoppages. Average cost per mile for fuel. Quantity of water used. Average speed in ascending the two hills.

Passengers.—In every vehicle having more than one seat, one seat

shall be placed at the disposal of the club for the conveyance of an official observer. Every vehicle shall carry its full complement of passengers, or equivalent weight (other than spare parts or tools) to give an average of 10½ stone per person. The passengers (other than the official observer) or weight to be provided by the owner of the vehicle. Vehicles having no seat except one for the driver shall run under the observation of club observers and obey their directions.

FURIOUS DRIVING CASES.

At the Birmingham Police Court last week, Mr. W. Lanchester, motor-car manufacturer, Ladywood Road, was fined £5 and costs for having furiously driven a motor-car in Broad Street on March 3rd. Police-constable Fish and Police-sergeant Amphlett stated that defendant travelled at a rate of from twelve to fourteen miles an hour. Many persons had to race out of the way of the car. Later in the day a constable shouted to the defendant, but he refused to stop. The defence, conducted by Mr. Staples Firth (London), was that the pace did not exceed nine or ten miles an hour. The maximum speed was only thirteen miles.—Mr. George H. Lanchester, brother of the last defendant, was fined 40s. and costs for having furiously driven a motor-tricycle on the same date.—Mr. W. Neale, Clarendon Road, Hagley Road, was also ordered to pay a similar amount for having furiously driven a motor-cycle in High Street on March 7th.

Herbert Lytle, the driver of Mr. Harmsworth's "Lifu" steam motor-car, which is used for the conveyance of newspapers, was summoned by the City police for driving a motor-car along Cannon Street at such a speed as to endanger the lives and limbs of foot passengers. The evidence of the policeman was to the effect that while proceeding along Cannon Street the driver formed a third line of traffic in endeavouring to pass other vehicles, in consequence of which he ran into a brougham coming in the opposite direction and damaging the hind wheel. After the officer had given his evidence he was subjected to a telling cross-examination by Mr. Staples Firth for the defence, and ultimately the court dismissed the charge. There have been a good many prosecutions of motor-cars in the City, and the police seem to have got their hands in, but we hope this will have the tendency to check their unreasonable attitude towards motor-cars.

We understand that Mr. W. Lanchester is appealing against the decision of the magistrates in his case.

Hearth and Home has become quite a convert to the automobile; no less than six pages were devoted to the subject in one of its recent issues.

THE Lancashire Steam Motor Company, of Leyland, are at present engaged in putting the finishing touches to a steam lorry for the Kidderminster Corporation.

IN the Lord Mayor's procession at Dublin on St. Patrick's Day a motor-car figured in connection with a series of carriages, etc., illustrating the progress made during the century in methods of road locomotion.

It is stated that Messrs. Prinetti and Stucchi, of Milan, Italy, are building a special racing car for Baron Albert Franchetti. The car will be fitted with a 16 h.p. two-cylinder motor, and will, it is said, be geared up to a speed of forty miles per hour.

THE Aachener Stahlwaarenfabrik (vormals Carl Schwanemeyer), of Aix-la-Chapelle, Germany, are going extensively into the motor-car business, the department being under the management of Herr Gaslin, who for about nine years was with the firm of Messrs. De Dion and Bonton.

ONE of the most indefatigable *chauffeurs* in Belgium is Baron de Crawhez. He is at present on his way back from Algiers, where he has been spending the winter, and where the roads, according to the Baron, are deplorable—in fact, scarcely more than beaten paths in many districts.

THE Automobile Association, Limited, consider that they have made a record in the sale of motor-cars in this country, as between the hours of 11 a.m. Wednesday, the 14th inst., and 6 p.m. Thursday, the 15th inst., they inform us they sold no less than thirty-five De Dion voiturettes and one car of another make.

OUR Midland correspondent writes that he had the opportunity the other day of seeing Jelley's motor-tyre detached and attached to the rim. The operation was performed easily and very successfully. "To my mind the most important feature of the tyre is the great width of the base, which must of necessity reduce lateral play to a minimum, thereby giving stability and rigidity to the tyre when fully blown up. The tyre is now on the market, and I understand that Tyres, Limited, Much Park Street, Coventry, have already had a number of inquiries for samples."

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COMMENTS.



AS the date of the forthcoming 1,000-Mile Trial draws near the interest of the public is growing, while it becomes increasingly useful as a topic for conversation among motorists. All the preparations are now well in hand, and probably more than one hundred vehicles will set out on the morning of the 23rd prox. The latest time for receiving entries is rapidly approaching, and we would urge those who have not yet decided on taking part in the Trial to quickly make up their minds. The

success of such an enterprise must depend upon two things, firstly, the arrangement of a well-thought-out programme, and secondly, keeping to its details from start to finish. All automobilists should bear these facts in mind, so that the strain upon the club officials may be reduced to a minimum, and everything go smoothly and pleasantly. Hence the primary necessity of being in good time with entry forms.

The Forthcoming 1,000-Mile Trial.

ONE of the latest entries in the forthcoming 1,000-Mile Trial is a car by the Star Motor Company, Limited. Mr. C. Johnson, the secretary of the Automobile Club, informs us that an alteration has been made in the route from Buxton to Manchester, viz.:—Instead of passing through Whaley Bridge, Disley, Stockport, and Longsight as originally intended, it is now proposed to proceed *via* Burbage, Broken Cross, Monks Heath, Alderley Edge, Wilmslow, Handforth, Cheadle, Didsbury, and Chorlton into Manchester. After a careful review of the two routes the latter has been found preferable.

The Provincial Arrangements.

THE various committees which are carrying through the local arrangements are making good progress with the work in hand. Mr. F. M. Newton, the secretary and treasurer, informs us that a special meeting of the committee of the Scottish Automobile Club was held in Edinburgh on the 22nd inst. to consider the arrangements in connection with the Trial. The cars will leave Carlisle on the morning of Wednesday, May 2, with stops at Lockerbie, Peebles, and Penicuik, to reach Waverley Market, Edinburgh, during the afternoon. An exhibition will be held there during the whole of Thursday, and the cars will start again on the return journey to the south on Friday morning. A staff of about thirty will be told off to register the times of arrival and departure at the various stopping places, and to guard the portions of the road where the regulations issued to the drivers require lesser speeds to be maintained for certain distances. The arrangements for the Waverley Market have all been made, and the cars on their arrival will go to specially appointed places to be cleaned, and thereafter be brought into the market and stand there over-night. The exhibition will take place next day,

May 3, and it is proposed that in addition to the exhibit of the cars, races should be organised so as to bring as attractive a programme as possible before the public.

Entrance Fees must be Paid.

It ought to be distinctly understood that entrance fees are required from all participating in the forthcoming trials. Seeing that the whole of the details of organisation with the attendant expense will fall upon the Automobile Club, that institution naturally exacts a fee from all entrants, and those who intend taking part should remit their entrance money as early as possible. It is rumoured that some firms are contemplating sending their vehicles over the course at the same time as the trials take place. If this is so, it is to be regretted as showing a want of consideration for those who have promoted the trials, and also seeking an advantage without reciprocal support to the Automobile Club. More than that, owners who thus avoid the entrance fee will place themselves and those who accompany their cars in a very unfortunate position, and we hope, for the credit of the industry, that only those who have qualified will be found with the vehicles during the trial. Certainly any such intention as that to which rumour has given currency is to be deplored.

Automobilism on the Stage.

A FEW weeks ago we gave an illustration of two artistes on the stage of a New York music hall who careered on their "Autogo" to the delight of crowds and the profit of the management. Now the motor-car has appeared on the stage of the London Alhambra, and with such an expert driver as Mr. E. J. Coles on board the audiences at that place of entertainment have this week been given a demonstration of driving which should convince the least favourable critic that the car is absolutely under control and is not the wayward combination of eccentricity that some people have imagined. To drive a vehicle on a level road is one thing; to manipulate it between flags placed on a limited area is another, especially to one whose work has been on the public highway and not on a stage, to the accompaniment of a band and in the full glare of the foot-lights.

Mr. Coles, Motor Expert.

ON Monday the inaugural performance took place, Mr. Coles appearing in the ordinary attire of a motor-car driver. His car was a Benz, fitted with Crypto gearing, and it ran absolutely silently throughout the performance, which lasted eight minutes—all too short for the many automobilists who were present, one devotee of the motor-car coming from Scotland to see the first motor-car performance on the English stage. A slope had been arranged with a gradient of one in four, and up this went Mr. Coles, coming down backwards—although the car was not provided with a reversing gear. Elsewhere on the stage was a flight of stairs, the gradient here being one in 3½. The descent was accomplished easily and silently, and then we were treated

to a series of clever evolutions between flags placed at such distances apart that one only inch on each side separated the car from the flags as it turned in and about. The slightest miscalculation would have displaced the limit flag. One of the most interesting features of the performance was when Mr. Coles, alighting quickly, let the car continue to negotiate the maze-like course alone.

Demonstration of Control.

DURING the week the performance has been continued, being lengthened on the second and subsequent occasions. Mr. Coles will repeat his feats as he has been offered a four weeks' engagement, and automobilists who are interested in seeing what can be done with a motor-vehicle under the control of an expert will doubtless wend their way to the Alhambra. Long runs and trials along country roads may demonstrate speed and endurance; but such a display as that given by Mr. Coles is equally valuable as showing how perfectly the machine is under the direction of the man with a clear head and a steady hand—two essentials to successful driving of horses and automobiles alike. Not only has the general public shown its appreciation of the performance, but during the week motorists have been present in large numbers, and on most evenings thirty or forty well-known automobilists were to be seen critically admiring the performance which will probably be seen at the forthcoming exhibition at the Agricultural Hall. During the time he is on the stage Mr. Coles uses less than a quart of petrol, and readers will smile when they learn that he is watched by two firemen carrying a wet blanket!

Magistrates and Motor-Cars.

THAT two cases of alleged furious driving of motor-cars should, in the course of a single week, be dismissed by magistrates is a matter worthy of comment, especially in view of the many cases where automobilists have been mulcted in fines notwithstanding that witnesses were brought forward to disprove the statements of the police as to the alleged excessive speed. The first case was that reported in our last issue, where Mr. H. Lytle, the driver of Harmsworth's "Lifu" steam car, was summoned for driving a motor-car at such a speed as to endanger the lives and limbs of pedestrians. Thanks to the telling cross-examination of Mr. Staplee Firth, the Court ultimately dismissed the charge. The second case was that of Mr. Joseph Lisle, who was summoned at Wolverhampton for driving a motor-car at a greater speed than was reasonable and proper, to the common danger of pedestrians. The stipendiary, while holding that the speed was unreasonable, assuming that the evidence of the police officers was correct, dismissed the summons on the ground that there was no proof of pedestrian or vehicular traffic on the highway at the time. In connection with this matter we are glad to be able to report that the membership of the recently formed Motor-Vehicle Users' Defence Association is steadily increasing. We recommend all automobilists to join the association, which is destined to prove of great benefit to users of motor-vehicles, who, owing to the present attitude of many members of the police force to the new method of locomotion, are always open to have summonses issued against them for alleged furious driving.

Chief Constables and Automobiles.

THE interest of constabulary officers and important police inspectors in automobilism is not merely limited to stopping the drivers of cars and summoning them before the local bench. Nor does it universally find vent in the manner of the Chief Constable of Lincolnshire, who has instructed his watchful men to be particularly keen on motorists returning to London in the 1,000-mile Trial. Some, like the Chief Constable of Barnsley, seek a closer acquaintance with the automobile rather than the automobilist, and lose few opportunities of testing its reliability and speed for themselves. Barnsley's Chief Constable has been having a trip on a Marshall car, and at the conclusion of a run of fourteen miles expressed surprise at

its steadiness as well as the thorough control which the driver possessed over the vehicle.

Educating Public People.

WHEREVER motorists are acquainted with police authorities, country magistrates, or public men of any sort, they should always be willing to take such gentlemen for trips. In fact they should even solicit them to become passengers in the interests of other automobilists as well as the industry. For a motorist never knows when he may have to appear in court at the instance of some imaginative policeman, and the more the magistrates and officials are acquainted with the main features of cars and with their capacities, the more likely is justice to be secured. Now that the spring season is approaching we would again urge readers thus to popularise the pastime and, at the same time, extend a knowledge of the sport among people who have authority—and who have, at present, to exercise it with only meagre knowledge of some of the subjects with which they have to deal.

A Doctor Defends Automobilism.

A CORRESPONDENCE has been going on in the *Surrey Comet*, the tone of the original letter being decidedly averse to motor-cars. But Dr. W. W. Hardwicke, of East Molesey, has entered the fray with an interesting letter, which should have a good effect in the county. After impressing upon horse-owners the necessity of training their animals to decent behaviour when near a motor-car, he raises a point which is often overlooked, viz., that drivers are often more nervous than the horses they drive. It is a common thing to see a nervous driver, on spying a motor-car advancing, suddenly excite him or herself, jump out of the carriage and rush to the head of the horse, who takes no notice whatever beyond a passing glance and look of wonderment as to what all the commotion is about. Dr. Hardwicke addresses a few words to those who attack the motor-car which are worthy of extended publicity. "If the horse," he remarks, "is to remain on the roads as an integral portion of the traffic—which he undoubtedly will do, notwithstanding the rapid development of mechanical locomotion—owners must be content to take a place amongst the various other kinds of locomotion which the advancement of the times has evolved. The motor-car has as much right on the road as admittedly dangerous horses. . . . The motor-car causes no wear and tear to roads, and is the cleanest of travellers, leaving nothing behind but a trifling passing smell of not unwholesome gas; whereas a horse scatters a road with dung, the smell from which in hot weather is not only more offensive than petrol, but is detrimental to health, for it undergoes decomposition in wet weather, and in dry weather it is inhaled in the form of dust. If a car comes to grief it harms no one but the owner, for it stops, and is in no way dangerous to the public, for it does not shy, kick, rear, bolt, or commit itself in any other unmannerly way."

The Manchester Automobile Club.

THE first general meeting of the Manchester Automobile Club was held last week. Mr. W. E. Rowcliffe, who presided, said that the duties of the provisional committee were now completed. The nucleus club had been formed, rules for its future management had been formulated, and it was for the members to say if they approved those rules and of what the provisional committee had done. The members of the club now numbered something over forty well-known automobilists in and around Manchester. The election of officers and a permanent committee for the ensuing year was then proceeded with. The provisional committee thought it wise to leave the election of president and vice-president in the hands of the new committee, who will also make all the local arrangements for the 1,000 mile Trial next month. A fund to guarantee the expenses of the local exhibition in connection with the event has been organised. The rules having been approved, the following were elected as the committee and officers:—Messrs.

George P. Dawson, Prestbury ; Frank Gresham, Stretford ; James Lowe, Sale ; Benjamin Marsden, Heaton Chapel ; Samuel Okell, Bowdon ; Victor F. O'Neill, Castleton ; Ludlow P. Perkins, Whitworth Park ; Daniel H. Simpson, Cheadle Hulme ; A. Mac-killop, Didsbury, hon. treasurer ; W. E. Rowcliffe, Alderley Edge, hon. solicitor ; J. Hoyle Smith, Eccles, hon. secretary.

Hong-Kong or Holborn.

RAPIDITY in locomotion is one of the great wants of the age ; and the function of the motor-car will be to give speed where slowness of movement is now the rule. But even the automobile, or those who chronicle its progress, can be credited with too exciting tasks. This reflection comes after reading in a contemporary that "M. Lehweß has reached Hong-Kong, from which place he will journey by automobile to Paris." This will probably be news to Dr. Lehweß as it certainly was to ourselves, for, as we mentioned last week, he has lately been startling Londoners with his shoe-shaped racing car. We are always pleased to hear of record runs, but this latest ride is beyond our comprehension. Probably our journalistic confrère saw the announcement that Dr. Lehweß intended to go to Pekin, and during a dream thought of Pekin and imagined the rest.

Mecaniciens Wanted.

THE suggestion that *mécánicos* should be given an opportunity of having their abilities tested is not a new one ; but it is none the less valuable. As the industry develops there will be a splendid prospect for the young engineers who have ambition to become engaged with owners of motor-cars. Country gentlemen will require men who can both drive and overhaul their cars, and there will be a good opportunity for young engineering fitters to specialise in this class of work. It should prove interesting to many who, possessed of the necessary mechanical bent, prefer outdoor employment to indoor work.

Repairing the Main Roads.

OFTEN have we urged that the progress of the automobile would be attended with a simultaneous improvement of the main roads of the country, and although many of the local authorities have been unkindly critics of motorists, others have shown a desire to facilitate their movements. But probably the most notable instance of the kindly consideration of a local authority has occurred in the north. The Durham County Council is informing some of the lesser boards within the area of its jurisdiction that a motor-car trial is to take place on the main road between the 23rd prox. and May 12th, and requesting that the road be put into good repair. The County Council having shown such a desire to assist automobilism should have been sufficient to have incited the district councils to a desire to put the road in order, so as to give the forthcoming trial a fair chance. Not so, however, the council at Ledgefield, which, rather churlishly, has ordered the letter to lie on the table. We record the incident as typical of what any new movement may expect from many of these pettifogging little bodies, while the enlightened policy indicated in the appeal of the County Council may be regarded as evidence of the more tolerant attitude assumed by those with larger authority and ampler knowledge.

The Monthly Comparison of Accidents in France.

THE statistical table of accidents caused during the month of February by horses, automobiles, and bicycles does not differ from those previously published by *Le Vélo* in exemplifying the increase of safety secured by the employment of mechanical means of transport. During the month the noble steed has wrought considerable mischief, for no fewer than 757 accidents can be laid to his charge. Deaths to the number of 57 have resulted from these mishaps, while 700 persons have been more or less severely injured. As compared with this appalling list the 23 accidents occasioned by automobiles is all the more striking,

and especially so when it is noted that not a single fatality has to be recorded. As for the bicyclists—well, they are responsible for 43 mishaps, which have brought about the deaths of 4 persons and the wounding of 39 others. In this cycle category one very curious accident occurred. It came about on February 25th, at Saint-Ouen, a small town situated on the banks of the Seine, and the victim was a young apprentice in an engineering works. In passing on his machine by the side of the river he accidentally swerved and ran into a tree with such force that he was thrown from his cycle and fell into the Seine, where he drowned. We understand that *Le Vélo* proposes to add a fourth column to its figures, and commencing from April 1 will record the railway accidents occurring in France, so permitting of an easy comparison being made between the four great means of locomotion. Of course, it is hardly probable that these monthly compilations include every accident, but any that are overlooked are infinitely more likely to be those resulting from the horse's eccentricities than from the automobile's vagaries, for there is never any lack of publicity in the event of a motor mishap, whereas the noble steed



THE RECENT "COUPE DES VOITURETTES" RACE.—A GROUP OF AUTOMOBILISTS, INCLUDING M. CHARRON.

frequently indulges in murderous acts without any attention being paid to him. But then he is a horse, and that covers a multitude of sins.

Fenders for Automobiles.

AN inventive and enterprising genius of that enterprising country of invention and genius, the United States, has lodged a patent for fenders for automobiles. In appearance the suggested innovation is not unlike the cow-catchers used on some American railroads, although its design can be adapted to the fancy of the person who intends to adopt the idea. This is well calculated to prevent men, women, children, cows, sheep, and other forms of life being crushed beneath the automobile which happens to go their way ; but whether the concussion of a fender is less distressing than that of the "bonnet" of an ordinary automobile is a matter the inventor must determine—we shan't. The notion offers many interesting possibilities, and as the motor-vehicle is being adopted in connection with municipal work, its development in the collection of street refuse, mud, and other matters found in our public streets might be profitably considered. Thus the fender might be so formed as to scoop up the mud and transfer it through a hopper passing over the head of the driver into a receptacle at the rear of the vehicle. Some will ask, what will become of the mud passed over as the fender-scoop rose to the hopper ? That could be got over by the use of a second vehicle following closely behind the first, or letting some other genius try his hand at the problem. Certainly the man who could put a fender in front of a motor-car—just as though it were a nursery grate—should be taken up by some go-ahead municipality that wants to find a means of increasing the rates.

THE NICE WEEK.

(From Our Own Correspondent.)

THE automobile festivities at Nice commenced on Sunday last in magnificent weather with the "corso fleuri," which took place on the Promenade des Anglais and in the Jardin Public, and which scored an even greater success than that of last year. The scene was a truly brilliant one, for more than fifty gaily decorated automobiles participated in the *fete*, and the grand stands and enclosures were filled with all the fashionable world of Nice. Among the social and automobile celebrities who took part in the "défilé" and in the battle of flowers were noted the Marquis Massengy d'Auzac and the Comte Brunetta d'Usseaux, the Comte and Comtesse de La Ravellière, Mme. Dhasty, Mme. Bob Walter, Mr. H. Johnston, and many other automobilists too numerous to mention. The committee's regulation with regard to the decorations of the cars were carried out with praiseworthy impartiality, for both Baron Henri de Rothschild and M. Jellineck were not permitted to take part in the *fete*, their cars not being sufficiently adorned. After the jury, which consisted of the Duke of Leuchtenberg, Baron Zuylen, Baron Springer, Baron Arthur de Rothschild, Prince d'Essling, Prince Lubecki, Count Biscaretti di Ruffia, Sir David Salomons, MM. Biasini, Jacques Gondoin, Crossa, Camille Blanc, Albert Gautier, De Bary, Michel Dupré, and Falconnet had made their awards, the successful competitors received the handsome commemorative banners from the hands of the Duke of Leuchtenberg, who was accompanied by the King and Queen of Saxony and the Duke of Oldenburg.

Once the *fete* was over, the one all-absorbing topic of conversation was the possibilities and probabilities of the following day's races, and the more enthusiastic motor men occupied their time until a very late hour in watching the *coureurs* make their final preparations. Every *garage* was full, and in many the work of overhauling and readjusting the speed machines was continued uninterruptedly all night long. Rumours as to the non-starters were to be heard everywhere, but it was made known without doubt that neither Albert Lemaitre nor Baron de Turckheim would figure among the drivers of the big cars, while Osmont would be an absentee from the ranks of the cyclists. As to the general opinion regarding the ultimate winners, it may best be exemplified by quoting the betting, which was at even money for R. de Knyff, and four to one against Charron and Girardot. Among the motor-cyclists Béconnais and Marcellin were equal favourites at two to one against.

The first of the racing cars was timed to start at seven o'clock on Monday morning, but long before that hour a great crowd had assembled at the *contrôle de départ*, and they were treated to one most curious and exciting incident. M. de Knyff having descended from his car, the vehicle remained by the roadside, with the motor stopped, but lamps burning and driving gear engaged. As M. Gilles Hourgières drove up behind he ran into the back of it gently, but with sufficient force to set the motor running, and the famous winner of "La Tour de France" promptly proceeded to waltz down the road. Its career, however, was but a short one, for unaccustomed to promenade unguided by the strong hand of its master, the noble creature just ran itself against the nearest tree, and there waited to be taken home. No damage having been done M. de Knyff ranged up with the other competitors, who numbered twelve all told. Charron was the first to leave at seven o'clock exactly, piloting the new Panhard model for 1900, and he was followed by Girardot, who drove the car used by Charron at Pau. The two 24 h.p. German Daimlers of M. Mercedes, the second of them being guided by M. Brown, then moved off, followed by M. René de Knyff and M. Gilles Hourgières, the latter driving a 12 h.p. Panhard. They were followed by M. Levegh with his new Mors of 32 h.p., so quietly constructed in the Grenelle factory, Comte Boson de Périgord and M. Pinson, each mounting a 12 h.p. Panhard, and MM. Gui des Aunairs, Labouré and Kœchlin, the latter driving a 20 h.p. Peugeot vehicle. Ten minutes later, or at 7.15 a.m., Marcellin, the first of the motor-cyclists, started on the journey, and the others followed at half minute intervals. These others were :—

G. de Meaulne, Gasté, Béconnais, Baras, Ducom, Reboul, Cavasse, Jouan, Allègre, Gleizes, Bardin, Teste, Joyeux, Fernandez, Léonard, Renaux-Bonnard and Bectin. The last-named was riding a machine fitted with two motors, each of which is stated to develop 3½ h.p.; Marcellin was on his two-cylinder motor of Pau, while Béconnais rode his Soncin engine with a cylinder of 80 mm. and a stroke of 110 mm. The last of this category was allowed six minutes grace before the five voituresses were despatched, one by one, the whipper in of these leaving the *contrôle* at 7.27 a.m. At Cannes, thirty-one kilomètres from the start, M. Mercedes held a two minutes' lead from M. Girardot, M. Levegh being third, while of the motor-cyclists, Béconnais had secured an advance of five minutes on Marcellin. From that point M. Levegh, M. Charron, and M. de Knyff led in turn, but it was left to the latter, *le roi des chauffeurs*, to arrive first at Marseilles, his net time for the entire journey of 201 kilomètres over a most difficult and dangerous course being 3h. 25min. 30sec. When it is considered that in 1898, Charron, the winner on that occasion, took 6h. 53min. to cover the same route, the value of de Knyff's performance will be appreciated. But he did not have it all his own way, for Hourgières finished but six and a half minutes behind him, and he in turn was hotly pursued by Charron. But to give the complete classification, here it is :—

	H.	M.	S.
1. R. de Knyff	3	25	30
2. G. Hourgières	3	32	1
3. Charron	3	33	0
4. Pinson	3	44	32
5. Levegh	3	49	37
6. Périgord	3	52	47
7. Girardot	3	52	53
8. Kœchlin	3	59	35
9. Labouré	4	51	32
10. Mercedes	4	52	49

Of the motor-cyclists, Béconnais actually beat de Knyff's time by a couple of minutes, a truly marvellous feat. Over any route 201 kilomètres in 203 minutes would be an altogether exceptional performance, but the Nice-Marseilles course is of such a character that one is almost aghast at Béconnais' daring. The order at the finish in this category was as follows :—

	H.	M.	S.
1. Béconnais	3	23	11
2. Teste	3	44	25
3. Marcellin	3	46	11
4. Joyeux	3	51	32
5. Bardin	3	52	20
6. Gasté	4	25	5
7. De Meaulne	4	26	40
8. Baras	4	52	0
9. Allègre	5	0	7
10. Bertin	5	18	0
11. Cavasse	5	27	15
12. Ducom	5	55	58
13. Bonnard	5	56	33

The voituresses completed the course in this order :—

	H.	M.	S.
1. Clérissy	6	7	23
2. Dubois	6	39	50
3. Théry	7	14	25
4. Van Berendonck	7	25	17

No very serious mishaps occurred during this first stage of the race, the most exciting adventure being that which befell Gleizes at the Pont du Var. At this point the axle of his machine broke, and the cyclist was thrown into a ravine full of water, where undoubtedly he would have been drowned had not a witness of the accident promptly come to his aid. The second car, belonging to M. Mercedes, also came to grief, but the driver, M. Brown, suffered no injuries. Among the racers the only other mishap was that of Prenil, whose voiturette capsized owing to a burst pneumatic, but one of the amateur followers of the race, Prince Lubecki, in giving way to Charron, ran his car into a wall and broke the two front wheels.

Unfortunately for the ultimate success of the race the weather on the following morning was just too dreadful, and only seven competitors were bold enough, or perhaps one should say sufficiently foolhardy, to risk the return journey to Nice under racing conditions. These *coureurs* were Béconnais, Gasté, and G. de Meaulne of the motor-cyclist and Chauchard, Dubois, Théry and Van Berendonck of the voiturette category. The three motor-cyclists left Aubagne together, the voiturettes following them at half-minute intervals. As for the drivers of the big cars, it did not take them long to decide unanimously that racing under such conditions as those prevailing would mean the risk of serious accidents, and accordingly all ten signed a formal agreement to the effect that they abandoned the race at Aubagne, and that they were willing to abide by the classification of the first day. This formality concluded, they set out upon their return journey to Nice, breaking the run at Hyères for déjeuner. At this place de Meaulne was the sole cycle representative, and from that point onwards he had the race in his hands, eventually arriving at Nice after a journey of 7h. 26min. net. The big cars reached Nice at about 5.30 p.m., and then took place a lengthy conference of the commissioners as to the course to be pursued in awarding the prizes. Ultimately it was decided to make the awards on the basis of the first day's classification of the big cars, but to admit of no alteration to the original regulations for voiturettes and motor-cycles.

Concurrent with the Nice-Marseilles-Nice event there was decided the race from Nice to Draguignan and back, a *course* reserved for tourists. The distance each way was 96 kilomètres, and happier than the Marseilles competitor, the tourists succeeded in accomplishing the return journey before the heavier deluge of rain commenced. The classification at the finish was as follows:—

CLASS A.

Motor-cycles, motor-bicycles, and voiturettes not exceeding 250 kilogrammes.

	First day.			Second day.			Total.		
	H.	M.	S.	H.	M.	S.	H.	M.	S.
1. Florès ...	2	37	37	2	55	22	5	32	59
2. G. Richard...	3	13	27	3	5	46	6	19	13

CLASS B.

Voiturettes not exceeding 400 kilogrammes.

	First day.			Second day.			Total.		
	H.	M.	S.	H.	M.	S.	H.	M.	S.
1. Ravenez ...	2	34	47	2	19	42	4	54	29
2. Cornillean ...	3	11	3	2	38	17	5	49	20
3. Prenil ...	3	16	12	3	5	9	6	21	21

CLASS C.

Cars not exceeding 1,000 kilogrammes. 4 places.

	First day.			Second day.			Total.		
	H.	M.	S.	H.	M.	S.	H.	M.	S.
1. Chauchard...	3	31	25	2	14	6	4	45	31
2. Liebig ...	3	5	32	2	25	34	5	31	6
3. Cuénod ...	3	15	12	2	55	29	6	10	41

CLASS D.

Cars exceeding 1,000 kilogrammes.

	First day.			Second day.			Total.		
	H.	M.	S.	H.	M.	S.	H.	M.	S.
1. Stead ...	2	14	0	1	44	0	3	58	0
2. Valton ...	2	33	0	2	43	58	5	16	58
3. Bergeron ...	2	32	7	3	17	31	5	49	38
4. Audibert ...	3	0	33	2	51	19	5	51	52

The only striking occurrence in connection with this race was the time made by M. Stead's car on the return journey from Draguignan. To cover the 96 kilomètres of course in 104 minutes, with six people aboard the car, is pretty fast work, and the feat of making the last 32 kilomètres of the distance in twenty-six minutes would not disgrace any of the crack racers.

MR. W. F. PEARE, of Waterford, has just built a motor tricycle, the first turned out in Ireland, to the order of Captain Langrishe, of Knocktopher Abbey.

THE RAMUS VOITURETTE.

STILL they come is the cry with regard to motor-voiturettes of French construction. Herewith we give in Figs. 1 and 2 a general view and plan of the Ramus two-seated car just introduced by Messrs. Ramus Frères, of the Ateliers de Constructions Mécaniques, Chambéry (Savoie). The motor is of the horizontal single-cylinder type with electrical ignition and water-jacket. It is of 4-h.p., and runs at a normal speed of 1,200 revolutions per minute. The cylinder and combustion chamber are cast in one piece, while all the working parts are enclosed in a dust-proof cover and provided with automatic lubrication. The carburetor,

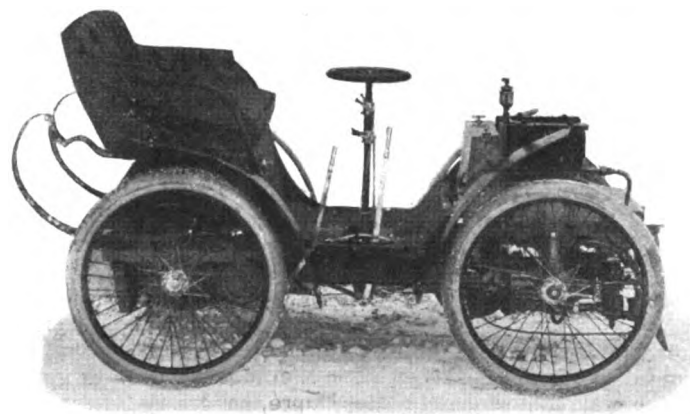


FIG. 1.—THE RAMUS VOITURETTE.

which is of a special type, there being no float, is attached direct to the combustion chamber. No pump is used in connection with the water circulation. A cooling coil is, however, provided (C Fig. 2) in the front of the car; the water tank has a capacity of 20 litres. Three speeds are available, the motor *A*, which is located in the fore part of the frame, transmitting its power by a single belt to a fast and loose pulley *DD'* on a short intermediary shaft *H* at the rear. This shaft carries three pinions of different size, any one of which can be brought into gear with corresponding pinions *F* on the rear axle. The latter is supported in four ball bearings. The change of speed is said to be effected without noise or jar, the belt being first shifted on to the loose pulley by means of a foot pedal. Steering is controlled by a hand-wheel, on

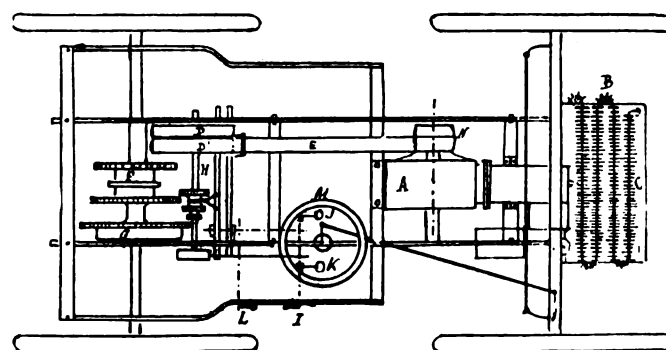


FIG. 2.—PLAN OF RAMUS VOITURETTE.

the standard of which are mounted all the control handles, with the exception of that of the variable-speed gear, which is actuated by the handle seen at the side thereof. The illustration shows a vertical steering pillar, but in future cars it is intended to make this inclined. The body is spring-suspended on a channel-steel frame; the wheels being of the cycle type shod with pneumatic tires. Two band brakes on the differential are provided, one controlled by a foot pedal and one by a hand lever at the side of the car. Messrs. Ramus inform us that their little vehicle can attain a speed on the level of thirty-five kilomètres per hour, and that it will mount gradients of one in eight at a speed of from eight to ten kilomètres per hour.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

The Belgian Automobile Show.

THE eighth cycle and motor-car exhibition is to be opened at the Pole Nord, Brussels, on Saturday next, the 31st inst. The automobile display promises to be a most interesting one, the exhibitors including Messrs. Wilford et fils, of Tamise; La Société Générale Belge d'Automobiles; Le Progrès Industriel (Rumpf fils); Les Ateliers Germain; La Construction Liégeoise d'Automobiles; M. L. Linon; La Fabrique Nationale d'Armes de Guerre; Les Ateliers Dechamps; La Société des Automobiles Koch; Les Etablissements Pieper; La Syndicat pour la Construction des Moteurs et Voitures Gobron-Brilié; Les Ateliers Vivinus; La Compagnie Belge de Construction d'Automobiles, etc.

Fatal Accident.

SHORTLY before 1.30 in the afternoon of Friday last an electric cab belonging to the Compagnie Générale was being driven at a very moderate pace across the Place Ferdinand in the Ternes quarter of Paris, when the conductor noticed a lady directly in front of him. He sounded his horn and called out to the lady, who, in her sudden effort to get out of the way, unfortunately slipped on the greasy *paré* and fell right under the wheels of the cab. The vehicle passed over her and death was instantaneous. The victim has been identified as Madame Dourin, a widow lady, seventy years of age, who had for some time past resided in this quarter of Paris. Margat, the driver of the cab, is in the custody of the district Police Commissioner, pending an inquiry into the affair.

The "A.C.F." Club Roll.

THE total number of members of the Automobile Club of France is now 2,301, and additional candidates continue to arrive. On the 15th instant eleven new names were enrolled on the list of members, these being M.M. Comte Albert de Nioac, Baer, Georges Hamot, Marcel Collyn Dupresne, Louis Amiard, Baldon, Baron du Mesnil de Saint-Fiort, Géza Szarvady, Maurier Versèin, Mariano Acosta, and Edgard Lyon. Another recent election was that of Count Zborowski, a well-known member of the English club and owner of a 24 h.p. German Daimler. The growth of the club has been extraordinarily rapid and may well serve as an object lesson for other societies.

At Beziers.

MANY provincial automobile clubs are this year organising, for the first time, races, competitions, or *fêtes*, and in the great majority of cases there is evidently no lack of local support. One of the latest societies to announce its initial promotion is the Automobile Club Biterrois, which will organise a battle of flowers and floral *fête* for Tuesday, May 8th. The Place du Marché-Neuf at Béziers will be the scene of the festivities, and prizes to the value of £60 will be distributed among the owners of the most beautifully decorated cars, voiturettes, and motor-cycles, while every competitor will be presented with a banner as a souvenir of the occasion. No vehicles employed for advertising purposes will be eligible to compete, and the committee of organisation reserve to themselves the right to refuse the participation in the *fête* of any vehicle.

The Paris-Lille Race.

SUNDAY, April 29th, has been fixed as the date of this year's motor-cycle race from Paris to Lille, and once returned from the Riviera, *coueurs* will lose no time in entering their names for this event. The organisers, who are the proprietors of the Lille bicycle track, have not yet announced full details, but most probably the event will be decided on very

similar lines to those in force last year. Then, the start was effected from Châtou and a route of 258 kilomètres followed until Lille was reached, where the competitors wound up by covering five laps on the bicycle track. This year the prizes offered amounted to £42, of which £20 goes to the first man home.

Baron de Crawhez on Tour.

ALTHOUGH Biskra had previously been visited by an automobile the vehicle had never been driven right through from the coast, and it is by his successful accomplishment of this lengthy journey that the well-known Belgian *chauffeur* Baron Pierre de Crawhez has gained renown in the capital of the Zibans. The Baron is no stranger to automobile travelling in Algeria and Tunis, having already made many extended tours in these countries; indeed, it is doubtful whether any *chauffeur* has gone further afield on automobile expeditions than has M. de Crawhez. Interesting as Algeria undoubtedly is, it hardly an ideal country for motor-cars, as the roads are more or less imaginary, the actualities being mere beaten tracks.

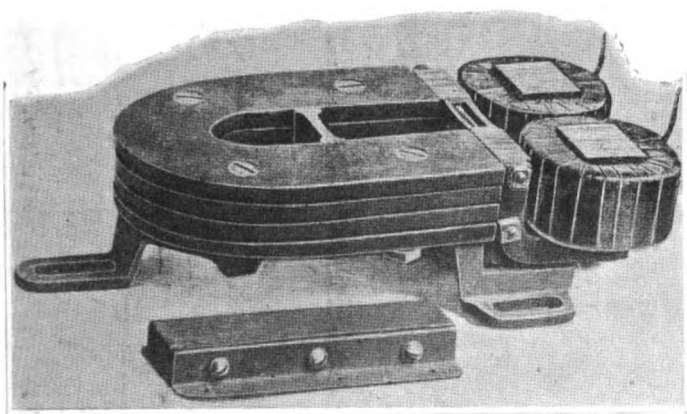
The 100 Kilometre Record.

THE record-breaking mania now holds full sway in the breast of every racing motor-cyclist, and one after another of the leading *coueurs* makes his onslaught upon some existing figures. First we have Béconnais, or rather I should say we always have Béconnais, for he is more indefatigable in his pursuit of records than any other motor-cyclist, and is certainly more successful in this class of work than in actual races. Then we have Gasté, who a fortnight ago set up new figures for one and two kilomètres, and now it is Rigal's turn. His objective was to beat Béconnais' record of 1h. 46min. 12 $\frac{3}{4}$ sec. for one hundred kilomètres on the road, a record which has stood since May 14th, 1899, and which was accomplished in a race upon that date. Rigal's original intention to make the attempt on Thursday, the 22nd instant, having been frustrated by reason of the muddy state of the roads, the record man did not set out from Etampes until 11.15 on the following morning, when the general surface of the route was fairly dry but somewhat bumpy. Mounted on a Soncin motor, Rigal travelled at a tremendous rate of speed, and not being hindered by any untoward incident, he reached Chartres at 11h. 58min. 50sec., having thus accomplished the first 50 kilomètres in the extraordinary time of 43min. 50sec., representing an average speed of 68 kilomètres (42 $\frac{1}{2}$ miles) per hour. On the return journey to Etampes the record man had to drive against a fairly strong wind, and consequently he took some three minutes longer to cover the second 50 kilomètres. But he had an ample margin in hand, for upon pulling up at the finish he was sixteen minutes to the good, his actual time being 1h. 30min. 49 $\frac{1}{2}$ sec. This represents an average speed of 66 kilomètres 666 mètres (41 $\frac{1}{2}$ miles) per hour, and not only supersedes Béconnais' figures for the road, but also beats by 6 $\frac{1}{2}$ sec. the track record made by the same *chauffeur* on February 8th last at the Parc des Princes. Due notice of the attempt having been sent to the local authorities the route was kept fairly clear, and it is not a little due to this that Rigal's attempt was crowned with success.

AN overhead-conductor service, to be used for supplying electric power to ordinary motor-vehicles, has lately been tested in France. The invention is that of M. Lombard-Gerin, who proposes to run upon two parallel wires stretched on poles parallel to the highway a small motor-chariot carrying a long conductor, which passes to a trolley-pole on the vehicle to be operated. This conductor operates the motor on the vehicle, and it is long enough to permit very considerable freedom of motion in the vehicle. In the experiments made a 12 per cent. grade was mounted with ease, and the general results were considered sufficiently satisfactory to encourage further tests. The arrangement is illustrated in a recent issue of the *Genie Civil*.

THE MCINNERNEY MAGNETO-ELECTRIC IGNITION DEVICE.

It has been said that the best definition of a gas or petroleum spirit engine is a "spark with an engine built around it." The employment of an electric spark to ignite the explosive mixture in an engine was one of the greatest incentives to electricians to perfect batteries so as to give sufficient life to furnish at a minimum 150 sparks per minute without the engine missing. Great improvements have been made in the past few years in this type of battery, and then electricians and inventors gave their attention to sparking dynamos for similar purposes. Messrs. Thomas Kane and Co., of 64, Wabash Avenue, Chicago, U.S.A., have sent us the following particulars of a device they have recently put on the market, and which they have named the McInnerney Generator, and of which an illustration is given herewith. It consists of two parts, a permanent magnet and a keeper. The permanent magnet is preferably bolted to a part of the frame of the motor, and the keeper is attached to the fly-wheel, and the makers state that in the natural revolution of the engine it passes within one-sixteenth of an inch of the magnet in such a relative position that a spark is given inside the explosion chamber to ignite the mixture. The permanent magnet consists of a series of laminated plates, and in contact with each end is a pole piece consisting of a series of laminæ which are bent to a U shape, one limb in contact with the end of the permanent magnet, and the other limb projecting at right angles to the plane of the permanent



magnet, and having wound around it a coil of wire which connects with the coil upon the other pole piece and is in circuit with the sparking device. The keeper consists of a series of laminæ bolted to the fly wheel at any suitable point. In the operation of the engine the keeper first travels from the toe of the permanent magnet towards the pole end. In consequence of this arrangement there is practically a short circuit of the permanent magnet through the keeper as the latter travels over the magnet, which tends to remove the flux from the pole pieces. This lowers the flux in the pole pieces to the lowest practical extent, just prior to increasing it to a maximum, so that the rate of increase is very rapid, and as the generation of the current depends on the rapidity and magnitude of the change, currents of considerable energy are secured. As the change takes place during the passage of the keeper across the gap between the pole pieces and the ends of the permanent magnet, the time during which the change is developed can be varied by varying the extent of the gap so as to adapt the generators to motors in which it is possible to make variations in the timing of the sparking device.

It will be seen that the device has no moving or wearing parts. The passing of the keeper over the magnets strengthens them to their maximum point, and there is claimed to be no deterioration in use. The keeper is attached on the fly-wheel in such a relative position as to give the spark at the proper time inside the cylinder. If the engine is constructed with two or more cylinders, an equal number of keepers are required. While there is no change in the construction of the permanent magnet,

the generator is so constructed that the coils are water proof and the spark is not affected by oil or water. The current given by the device is claimed to be sufficient to give a spark to start the motor without the use of a battery at slow speed, and as the speed increases in velocity a larger spark is generated, so that it can be used on high-speed engines without any deterioration in its life. Messrs. Kane inform us that the generator has been submitted to the most severe tests, and that it has been successfully used for about two years on Otto and similar types of engines for stationary purposes and on marine and automobile motors of two and four cycle type.

It is reported in Paris that Messrs. Peugeot are about to introduce a new type of car, fitted with a vertical motor located in the fore-part of the frame.

AFTER a winter's rest, the motor-cars at Bishop Auckland are, we learn, running again, and appear to be as popular as ever with the travelling public throughout the town and district.

MR. W. H. BUXTON, 162, Portland Street, Southport, has been appointed agent for the Locomobile Company's steam-cars in the north-west of England.

MR. CRAMPTON, of Great Yarmouth, who is well known as a motor-tricyclist, has finally decided to abandon that form of vehicle and has purchased a Decauville car, with which he is delighted.

HERR ALFRED SCHOELLER, of the Fabrik Electrischer Messinstrumente, Frankfort-am-Main, has lately introduced a new series of pocket volt and ampère-meters. The former are made in sizes to indicate from three up to 250 volts, and the latter from one to thirty ampères.

WE have received a copy of a new catalogue just issued by Messrs. William H. M. Burgess, Limited, 9, Farringdon Road, London, E.C. It gives particulars and illustrations of the Marot-Gardon and Burgess motor-tricycles and quadricycles, the Burgess machines being fitted with the "Auto-moto" engine. The list also includes the Marot-Gardon $4\frac{1}{2}$ h.p. two-seated voiturette, fore-carriages, motors, tires, &c.

A NEW concern in the motor trade is the Service Motor Company, of 292, High Holborn, London, W.C. Mr. C. Clifford Potier, the proprietor, has sent us a copy of a new list he has just issued. In addition to the Allard motor-tricycle, for which they are sole agents in London, it gives particulars of the Phoenix motor-tricycle, the Components motor-tricycle and quadricycle, the Shaw motor-bicycle, the De Dion voiturette, and a large range of motor-car and cycle accessories. A couple of pages at the end of the catalogue are devoted to a useful list of automobile terms in English and French.

CALLING in at the depot of the London Autocar Company, Limited, in Gray's Inn Road, W.C., the other day we were shown a new vertical water-jacketed motor which, in view of its relatively low price, should meet with a large sale. It is of 3 h.p., and is fitted with electrical ignition. The engine is fitted with a very simple form of carburettor, and will work equally well with petrol or ordinary paraffin. The London Autocar Company are also now introducing the Jupiter float-feed carburettor. This device, which is suitable for use with motors of from 4 to 6 h.p., was illustrated in our issue of June 9th last.

THE New York *Wheel* states that "travelling at express train speed, two English motor experts rode motor-tricycles for several miles on the track at Berkeley Oval on Saturday the 24th ult. It was the first time that three-wheeled cycles had ever been used on that track, but the riders apparently experienced no more difficulty in making the turns than if they had been mounted on bicycles. Mr. Charles Jarrott and Mr. C. G. Wridgway, costumed in leather suits, were the riders, and both showed a skill in handling their machines that will be a revelation to motor-cycle riders in this country. For nearly ten miles the two travelled at a rate of about thirty-five miles to the hour, the high wind that swept the track making greater speed impossible.

THE DAIMLER MOTOR-CAR.

THE Daimler motor is now well known by the older class of *chauffeurs*, but as the ranks of automobilists have been greatly increased during the past few months, and are receiving additions at a rapid rate, there may be many who are not acquainted with the details of this largely-used engine to whom the accompanying illustrations, kindly placed at our

ments will be confined to the details. The motor, as will be seen, comprises two vertical cylinders, both water-jacketed and fitted with tube ignition. Two types are furnished as desired, one in which the petrol is supplied under pressure and one in which the feed is by gravity. Figs. 2 and 3 show respectively front and rear general views of the pressure-feed motor, in which it will be seen that the float feed and mixing chamber or vaporiser are attached direct to the top of the cylinders.

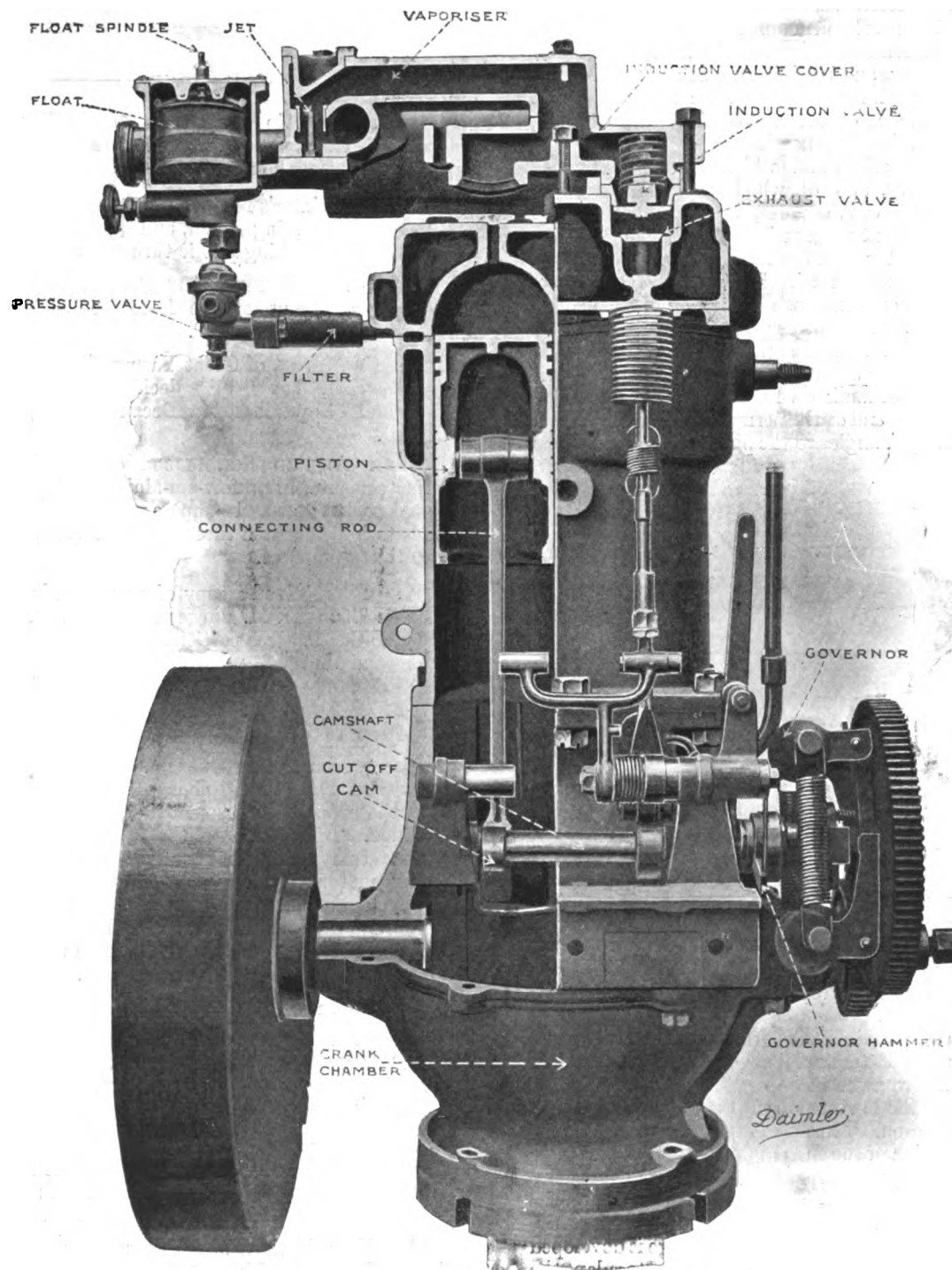


FIG. 1.—PART-SECTIONAL VIEW OF DAIMLER 6 B.H.P. PRESSURE-FEED MOTOR.

disposal by the Daimler Motor Company, Limited, will, no doubt, be of considerable interest. Since the late Herr Gottlieb Daimler first introduced his petroleum spirit-motor, with two inclined cylinders, it has been considerably improved and modified. In its present form, with vertical cylinders, it has given, and is giving, such satisfactory results that, so far as general outlines are concerned, the motor may be said to be now on a permanent basis, and that further improve-

Fig. 4 illustrates the gravity-feed type of motor, the float feed and vaporiser in this case being supported just above the fly-wheel and connected to the combustion chamber by a pipe. The various parts of the motor are so clearly shown in the part sectional elevation given in Fig. 1 that but a very brief description is necessary. This picture shows a section of the float feed and vaporiser, the pressure valve, the valve motion, and the cam gear. An enlarged view of the latter is also given in

The Daimler Petroleum-Spirit Motor.



(For Description see opposite page.)

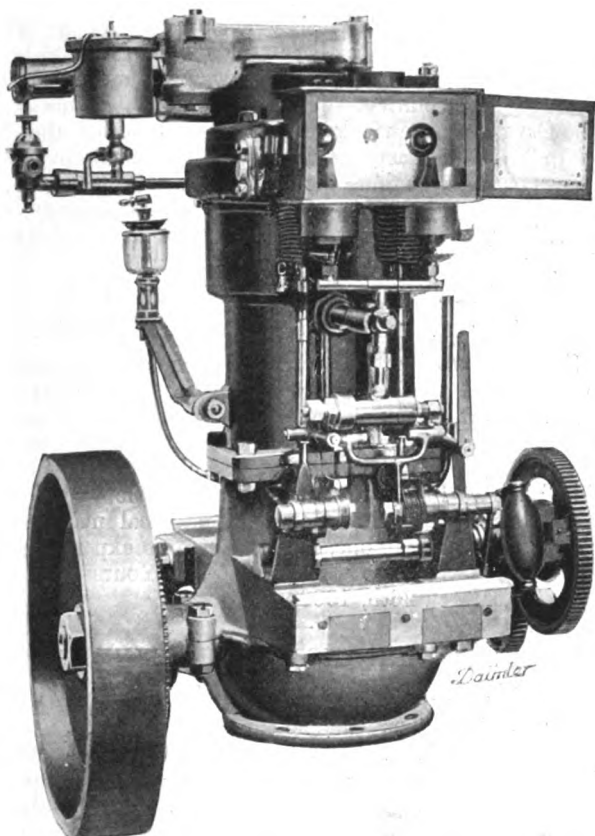


FIG. 2.—FRONT VIEW OF DAIMLER 6 B.H.P. PRESSURE-FEED MOTOR.

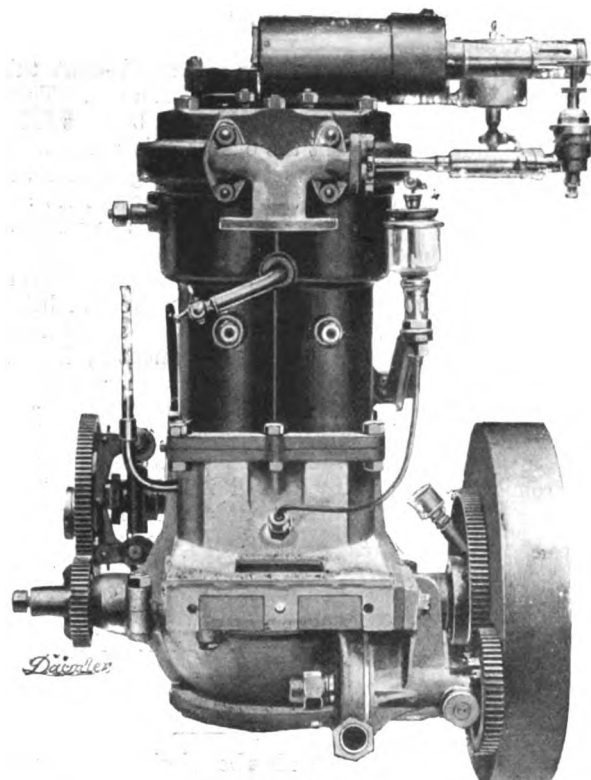


FIG. 3.—REAR VIEW OF DAIMLER 6 B.H.P. PRESSURE-FEED MOTOR.

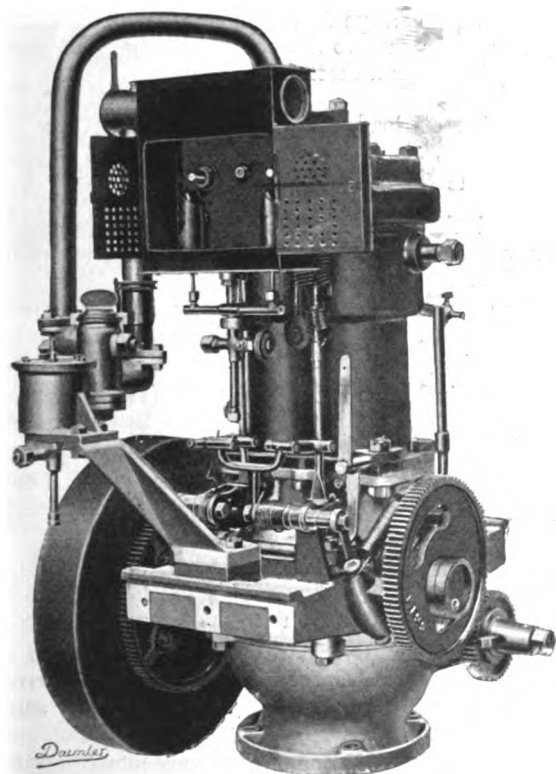


FIG. 4.—VIEW OF DAIMLER 6 B.H.P. GRAVITY-FEED MOTOR.

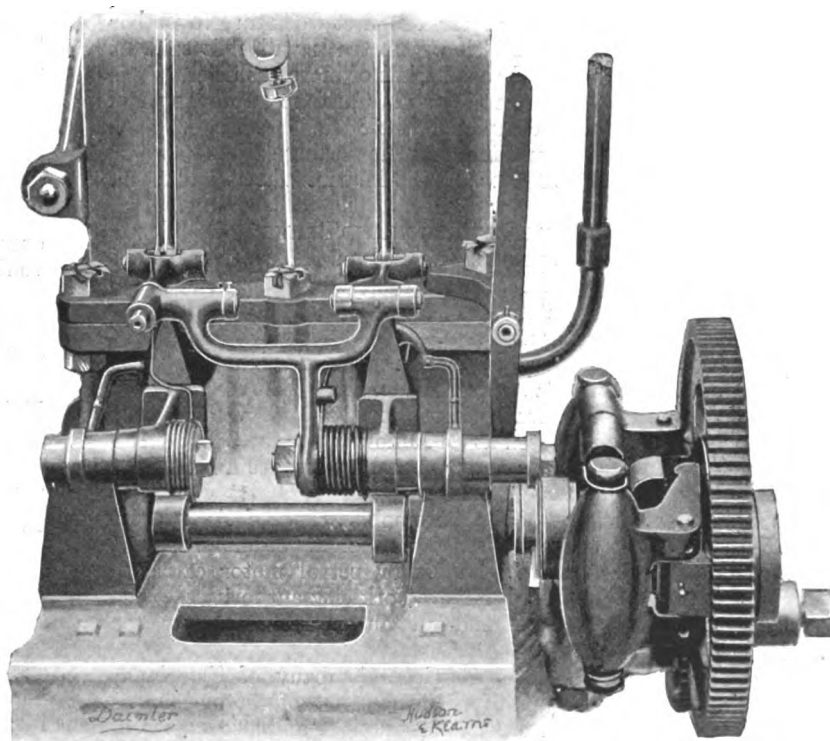


FIG. 5.—VIEW OF GOVERNOR AND EXHAUST-VALVE MOTION.

Fig. 5. In the pressure-feed motor the pressure in the petrol tank, which is located under the frame, is maintained by means of the exhaust. Reference to Fig. 1 will show that to the main exhaust pipe a short pipe is attached, to which is fitted a valve. Between the pipe and the valve a dirt filter or strainer is fixed. The function of this valve is to allow a small portion of the exhaust to pass through the pipe at each impulse of the motor, thereby keeping up the necessary pressure in the tank to force the petrol upward through the pipe. The valve also acts as an escape valve, being set to lift if the pressure becomes too great.

The charges are fired by means of incandescent tubes in direct communication with the explosion chambers. These are kept at a white heat by means of Bunsen burners fed under pressure. In order to prevent the over-running of the engine a neat form of governor is used. The governor acts on the exhaust valves, and when the motor exceeds its assigned speed keeps the same closed, and thus prevents any fresh charge of explosive gases from entering the cylinders. It will be noticed that the governor does not actuate both valve rods at the same time, the right hand valve rod being first operated upon. In this way, when running on a light road only one of the cylinders is used. The arrangement is, however, so sensitive that when the load is increased the other cylinder commences to work, and thus keeps the motor running at a regular normal speed. As already mentioned, the cylinders are kept cool by means of a water-jacket, the water being kept continually circulating from and to a tank by a small rotary pump. There are several other interesting features about the Daimler motor which we intend to refer to in our next issue. In the meantime we may add that all the working parts are encased, ensuring perfect protection against dirt, dust, and weather. While the motor is constructed as light as possible, every allowance is made for wear of the working parts, the general arrangement being such that that every part is accessible for inspection.

(To be continued.)

AN automobile patrol wagon has been built at Akron, O., and is said to be the first of its kind. The wagon weighs 5,500 lbs. and is equipped with two 4-h.p. motors. Its maximum speed is said to be twenty miles an hour.

THE Automobile Club of America has engaged the Madison Square Garden in New York for the first week in November next for an automobile exhibition. A track will, it is said, be built for demonstrations and speed trials of motor-vehicles.

THE Marlboro Automobile and Carriage Company, of Marlboro, Mass., have completed their first carriage. The power is steam, the fuel gasoline, and the seating capacity two or four persons. It weighs 900lbs., has 30-in. wire wheels and 2½-in. pneumatic tires.

LA SOCIÉTÉ DES MOTEURS GOBRON AND BRILLIÉ, of Boulogne sur Seine, France, are at present engaged on the construction of two racing cars. They are also building an 18-h.p. vehicle for M. P. Chauchard, who intends to take part with the same in the forthcoming race meeting at Turin.

THE Autocar Company, of Pittsburg, U.S.A., is moving into new works at Ardmore, Pa., near Philadelphia. The company has recently announced an advance in the price of its vehicles, the automobile previously quoted at £100 now selling at £130. The advance in the prices of raw material and labour are responsible for this change.

At a recent meeting of the Automobile Club of America it was decided to take action for the protection of automobilists who in storing motor-car spirit for steam or petrol motor carriages might come in conflict with the New York city authorities. The club will retain lawyers to defend any automobilist arrested for violation of the law.

FROM the Winton Motor Carriage Company, of Cleveland, O., we have received a copy of their new list of motor-vehicles which contains particulars of their productions and also copies of testimonials from a number of users. From the list we learn that in the 1900 model, the motive power has been considerably increased over the 1899 standard; the construction throughout has also been simplified, and the style generally improved.

CORRESPONDENCE.

—8—

THE EXHAUST BOX.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—I am glad to see from your last issue that the Automobile Club of Nice have decided to prohibit the starting in any race of automobiles, be they cycles or cars, in which the silencer or exhaust box has been removed, and should be further pleased to see this rule adopted by organisers of race meetings on the track in this country. I was one of the spectators of the races on the Crystal Palace track during the course of the National Show in November last, and the awful din made by the dozen machines or so—all minus the silencer—will be long remembered by

St. Albans, March 24, 1900.

Yours truly,
SILENCER.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be glad to know from any of your readers who have had any experience with the new Werner motor-bicycle: (1) if a continuous run of, say, forty miles at twelve miles per hour average, can be run without the explosion chamber getting dangerously hot or unworkable; (2) if so small an engine appears likely to last any reasonable time; (3) if it can be honestly recommended as a practical machine. I am thinking of purchasing one, but have had no experience in their running.

Ealing, March 26th, 1900.

Yours truly,
ENGINEER.

THE COMING MOTOR-CAR EXHIBITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I hope that valuable time will not be wasted at the forthcoming exhibition at the Agricultural Hall in tricycle races, which to my idea serve no purpose whatever, except perhaps to make prejudiced people still more down on motor-vehicles. The exhibition should be strictly confined to useful demonstrations of the utility of motors, and not given over to a few speed men to air their prowess to a select circle of admirers. The day of racing has gone; what is now wanted is good solid utility. Exhibitors have a perfect right to the whole of the exhibition to show their cars to the best advantage, and should at once protest against such a sheer waste of time.

Yours truly,
82, St. John Street Road, E.C., W. T. WARNE.
March 24th, 1900.

It is reported that the Hygienic Ice Company recently organised at New Haven, Conn., U.S.A., will introduce motor-vehicles for the delivery of its ice.

THE Mexican Electric Vehicle Company has been incorporated at Trenton, N.J., with a capital of £100,000, to operate electrical cabs in the city of Mexico.

A COMPANY has just been formed in Paris (49, Avenue de Maine) to be known as La Société Damas and Benoit, Société des Moteurs et Automobiles à Petrole, Columbia.

THE Denison Electrical Engineering Co., New Haven, Conn., it is reported, are building several omnibuses, to be propelled by 12-h.p. three-cylinder vertical petrol motors.

UNCLE ABE: Dem automobiles go so fast it 'ud take two niggers to tell about 'em. Sambo: How's dat? Uncle Abe: One ter say "Here she comes" an' one to say "Thar' she goes!"

THE commissioners of Baltimore parks have decided to admit all kinds of automobiles to the parks, provided the drivers first secure certificates of competence from the general superintendent.

MR. ALEXANDER WINTON, one of the representatives of the Automobile Club of America in the Gordon Bennett International Cup Race, will leave for France on May 5th, taking with him two racing cars.

A TRIP FROM KENDAL TO EDINBURGH.



LATEST ARRANGEMENTS FOR THE 1,000-MILE TRIAL.

By C. JOHNSON, the Secretary of the Automobile Club.

NO description has, so far as I am aware, appeared in your columns of what is probably the most interesting portion of the 1,000-mile Trial route both from a trial and a picturesque point of view. Owing to circumstances which have already been recorded in your columns, it was impossible to include the route from Kendal to Edinburgh in the inspection of the roads which was made at Christmas time. On hearing of this Dr. Dawson Turner, a member of the Automobile Club and one of the most prominent motorists in Scotland, kindly offered to drive me from Edinburgh to Kendal. The Club and those who are about to take part in the Trial owe a debt of gratitude to Dr. Dawson Turner for thus enabling the Club to indicate in its official programme carefully prepared instructions as to the turnings to be taken and other points of difficulty, seeing that on the road from Kendal to Edinburgh, especially in the wild moorland and hill districts which are to be traversed, it will be impossible to provide flags of direction. Dr. Turner was good enough to drive me from Edinburgh to Windermere and back, but for the purpose of this article it will suffice if a description of the arrangements at and road from Kendal to Edinburgh are given.

On Wednesday, the 21st inst., a meeting took place of the committee which has been formed at Kendal to undertake the arrangements there in connection with the Trial. Mr. Edward Boundy is acting as honorary secretary, and has been most energetic in forming the committee. The town council have granted the free use of their splendid market hall for the purpose of the exhibition of the trial vehicles at Kendal. It was pointed out at the meeting that if the vehicles are to ascend Shap Fell on the evening of their arrival at Kendal, and if on their return to Kendal they are allowed to be removed from the exhibition building for three hours for the purpose of cleaning, lubrication, etc., the exhibition, which is being looked forward to with considerable interest, would be more or less a fiasco. The committee were of opinion that the exhibition would be more attractive if the vehicles were seen in their uncleaned condition after they descend from Shap. It has, therefore, been decided that the vehicles shall remain uncleaned until the Tuesday morning, and that on the Tuesday morning breakfast shall be taken at Kendal before the start, that the vehicles shall be cleaned and lubricated from 6 a.m. till 9 a.m., and that the start shall take place at 9.30 a.m. The proposed stop at Ambleside for breakfast will thus be abandoned, and the day's run from Kendal to Carlisle will include only one stop, namely, at Keswick for luncheon, except the timekeepers' stop at Dunmail Raise.

On leaving Kendal, the road comprises a number of small hills, the first really steep one being Bannerigg, at the summit of which Windermere Lake is seen for the first time. There follows a magnificent run down for about $2\frac{1}{2}$ miles, but seeing that the road is at points precipitous, that it passes through Windermere town, contains many turnings, and is used by a fair amount of traffic, the rules provide that the speed should be limited to a maximum of 10 miles an hour, and that no vehicle shall pass another during the descent. If the morning be fine no one will regret that a moderate speed should enable them to enjoy a view of Windermere and the hills which surround it. The road passes through Ambleside and Grassmere, and shortly the long ascent of Dunmail Raise commences, but it will not be until Mill Bridge is reached that the hill-climbing contest will commence. From here to the summit is a distance of 3,013 yards, the average gradient being about 1 in 15. The road is, however, at points considerably steeper, and is reputed by the county surveyor to include 83 yards of 1 in $6\frac{1}{2}$. On the summit, which is about 780ft. above the sea, the county of Cumberland is entered, and, in descending, a sharp turn is made to the left in order that the vehicles may pass over the western road constructed by the Manchester Corporation, from which is obtained a fine view of Thirl-

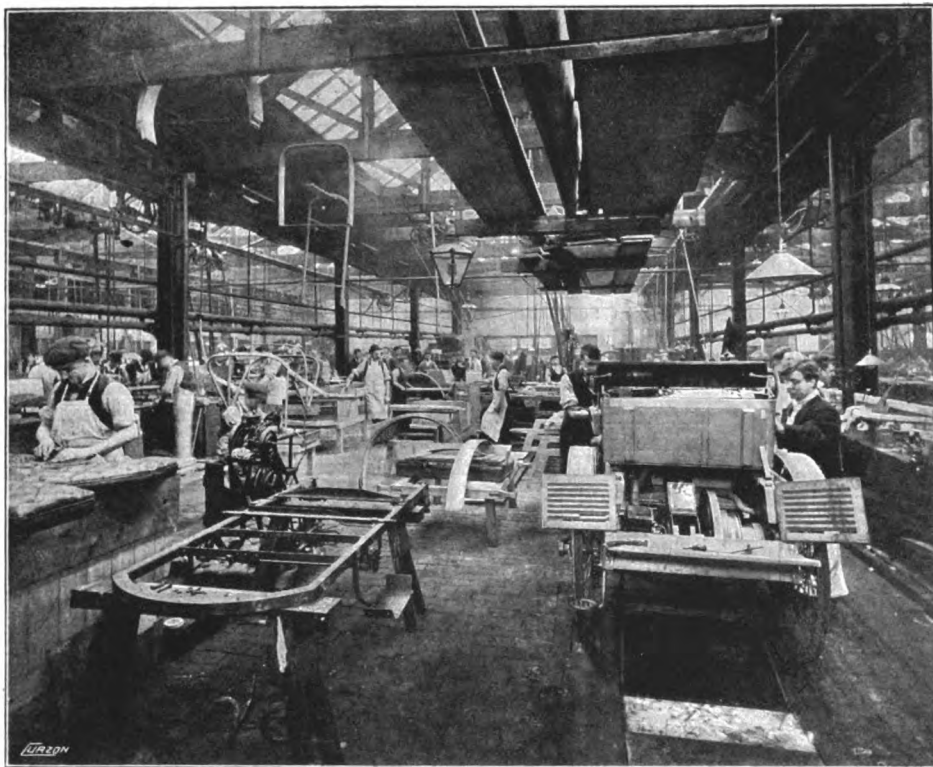
mere. On the other side of the lake is Helvellyn (3,118ft.) This road by the side of Thirlmere is beautifully engineered. It twists and turns through cuttings made in the solid rock, and will require all the attention and skill of drivers; but in proof of the fact that it presents no serious difficulties I may state that Mr. Montague Grahame White, who had never seen the road before, drove me over it in the pitchy darkness of the night of Christmas Eve by the aid of the light of two candles only. There is some stiff hill-climbing between Thirlmere and Keswick, but, on the whole, the surface of the road is so excellent that the hills should present no difficulties to vehicles in which horse-power and weight are properly apportioned. The descent into Keswick is really very steep, but no one in their senses would be inclined to "rush it," seeing that there is presented before one a magnificent view of Derwentwater, Skiddaw, and the surrounding valleys and hills. From Keswick the road by Bassenthwaite is excellent as far as Castle Inn. From there to Bothel a moorland road is taken from which is seen in the distance the sea. After getting clear of Bothel the surface of the road into Carlisle, about 19 miles, is magnificent.

At Carlisle Mr. Hayton, a solicitor, and others are kindly undertaking the local arrangements. Application has been made to the markets' committee for permission to use the butter market for the exhibition of the vehicles. If this be granted on the evening of Tuesday, 1st May, the arrangement which has been made at Kendal will also obtain here, namely, that the vehicles shall not be removed from the exhibition building until 6 a.m. on the Wednesday morning; that breakfast shall be taken at Carlisle instead of at Lockerbie, and that the start from Carlisle shall take place at 9.30 a.m., thus enabling the timekeepers, by starting early, to arrive at Birkhill in ample time to take the records of the vehicles in the hill climbing competition there.

The road from Carlisle to Moffat, a distance of 40 miles, is truly magnificent. There is very little traffic on it, it is wide and straight. It has a fine surface, and the only hill worthy of notice is that at Ecclefechan. Scotland is entered on crossing the river Sark. From Moffat the character of the road changes, and very shortly becomes a winding mountain road, which leads to Birkhill. The road lies in a valley bordered on each side by many hills of over 2,000ft. altitude. If the morning of Wednesday, 2nd May, be fine, the road selected by Dr. Dawson Turner will here delight everyone. The scenery is indeed magnificent. The hill-climbing trial will commence at nine miles from Moffat, that is, two miles from the summit. In the first mile the road ascends 150 ft., in the second mile it ascends 300 ft., that is to say, an ascent of 100 yards in 1,760 yards. The gradient just before the summit is very steep, and in the opinion of those who have been over both hills Birkhill is considered worse than Dunmail Raise. The summit of Birkhill is 1,100 ft. above the sea. From the summit there ensues a splendid run down to St. Mary's Loch, which stands 730 ft. above the sea. Luncheon will be taken at the Rodono Hotel, which overlooks this loch. After luncheon a run along the loch and the River Yarrow will bring one to the Gordon Arms Inn and the County Police Station, from whence an ascent of 300 ft. follows with a run down to the valley of the Tweed, which is crossed at Innerleithen, and the course of which is followed as far as Peebles, where tea is to be taken. It should be stated that the run down from the top of the hills to the valley of the Tweed is made on a road which cannot be treated lightheartedly, inasmuch as it is divided from a drop into the valley beneath only by an earth barricade about one foot in height. From Peebles, the road, which has a good surface, passes through pretty scenery to Penicuik, after which place the surface deteriorates, but the scenery still continues interesting, as Arthur's Seat and the sea on the right come nearer, and a splendid view of Edinburgh is obtained.

At Edinburgh the committee of the Scottish Automobile Club are making arrangements for the exhibition of the vehicles at the Waverley Market, and they are also undertaking the time-keeping and flagging arrangements between Peebles on the one hand and Berwick-on-Tweed on the other. The secretary, Mr. Newton, has promised to go over the route next week with a view to securing that every detail is properly attended to.

The journey which I recently made with Dr. Dawson Turner was one of great interest, inasmuch as it took place at the time when, according to the original arrangements, the trial would have been actually in progress. It was thought by many that at



VIEW IN MESSRS. MARSHALL'S WORKS (see opposite page).

such a time the roads would have been in a bad condition, if not impassable. So far, however, as the roads between Kendal and Edinburgh are concerned, they happened to be in the best of condition. On Friday last Dr. Dawson Turner had to give a lecture in the morning at Edinburgh, after which we started, and completed the journey of eighty miles to Ecclefechan early in the evening. There was snow on the hills, but the roads were rapidly drying. On Saturday we drove *via* Carlisle and Bothel to Windermere, seventy-two miles, arriving there in time for luncheon a little after one o'clock. The roads throughout were in perfect condition. On Sunday we left Windermere a little before eleven, ascended Dunmail Raise, accomplished the competition portion of the ascent with three persons and luggage for three on board at 9 miles an hour, and proceeded by Bothel to Moffat, 93 miles. Towards the evening we encountered showers of hard, fine snow. On Monday we awoke to find the hills snow-covered, the roads frozen hard and sprinkled with fine snow, and a bitterly cold north wind sweeping over the country. This wind we had to face, and in passing through the valley to Birkhill we found it tearing along at a very high velocity between the hills, and carrying with it snow showers which cut the face and eyes most cruelly. The shepherds in their plaids were with difficulty making their way against the wind. The ascent of the last two miles of Birkhill we made at 9 miles and $7\frac{1}{2}$ miles per hour respectively, and we arrived in Edinburgh at 1.25, having had a cold but, for all that, an enjoyable drive of 60 miles before lunch.

The carriage on which Dr. Dawson Turner drove me is a Delahaye phaeton, having seats for four, a hood, pneumatic tires, and a horizontal two-cylinder motor of nominally 8 h.p., but giving actually about $10\frac{1}{2}$ h.p. The transmission is by means of belts. By many, belt-driving machines are derided. I have had no experience of the Delahaye on slushy roads, but Dr. Dawson Turner tells me that so admirably are the belts adapted to their work, and so thoroughly are they protected from road-splash and wheel-splash, that he has little or no trouble with them, even in very wet weather. During the 300 miles which I travelled on the Delahaye car it behaved most admirably. In going up even very steep hills there were no signs of belt slip. Its hill-climbing powers are extraordinary, and from observation made by me I am inclined to believe that were legal restrictions as to speed removed, the car could with four passengers on board make the journey of sixty-two miles from Kendal to Carlisle—(that is to say, the trial journey of the 1st May)—including the ascent of Dunmail Raise, in $3\frac{3}{4}$ hours, and the journey of 100 miles from Carlisle to Edinburgh, including the ascent of Birkhill, in 6 hours. The machine gave very little trouble, the main cause of anxiety being the presence of solid matter in the petroleum spirit. It is devoutly to be hoped that the time is not far distant when Messrs. Carless, Capel, and Leonard and the Anglo-American Oil Company will not permit a single receptacle of petroleum spirit to leave their premises without the cork being covered by a metal or other seal, so that automobilists may receive the spirit from the agents in receptacles sealed by the makers, and may thus be satisfied by



ANOTHER VIEW IN MESSRS. MARSHALL'S WORKS (see opposite page).

the unbroken seal that they obtained the spirit in the condition in which it left the maker's hands.

THE PIONEER OF AUTOMOBILISM.

WAR Offices are not always slow in their investigations, although our own military authorities have been rather prone to ignore the progress of automobilism. And in the early days of experiment it was the War Office of France that gave to one of the pioneers of the motor-car both encouragement and help.

Drawing vehicles without horses was the subject of a patent taken out in England by Ramsay and Wildgoose in 1619; but that can be left alone, as it evidently was neglected by their contemporaries and successors. To the French, who have made such advances in automobilism during the past few years, must be accorded the position of pioneers; and although others had vague ideas of the possibility of carriages being drawn by other power than that of the horse, the credit of having constructed the first steam carriage to carry passengers belongs to Nicholas Joseph Cugnot, an ingenious Frenchman, who had served in both the German and French armies. On retiring from the latter he took up residence at Paris, and having secured the patronage of the Minister of War was able to carry on a series of experiments until, in 1769, his steam carriage was sufficiently advanced to be tried on an ordinary road. Travelling with four passengers at the rate of two and a quarter miles per hour it came to a standstill after a run of about twenty minutes, owing to the boiler being too small. A further mishap occurred shortly afterwards, a stone wall being knocked down, which naturally served to excite unfavourable comments from those interested in the maintenance of the old system. But the French Minister of War recognised that the invention had merits, and he not only advised but also helped Cugnot to continue his studies. In 1770 the latter produced a machine—still preserved in Paris—which did most satisfactory work—if allowance is, of course, made for the early stages of the industry. The vehicle was actuated by an ingenious form of high-pressure engine, and consisted of two parts united by a movable pin. The body of the carriage was on two wheels and had a seat for the steersman, while the engine and boiler were supported by a single driving wheel of 4ft. 2in. diameter. On the framework of the fore part was a toothed quadrant actuated by spur gearing on the steersman's shaft near the seat, so that the carriage could be turned in either direction at an angle of from 15 deg. to 20 deg. A round copper boiler with a furnace inside was in front of all. Ratchet wheels were on each side of the driving wheel, and as a piston descended the piston rod drew with it a crank, the pawl of which, working into the ratchet wheel, caused the driving wheel to make a quarter of a revolution. This movement placed the piston on the other side ready for making a stroke and turned the four-way cock so that the second cylinder was opened to the steam and the first to the atmosphere. The descent of the second piston then caused the leading wheel to make another quarter of a revolution while restoring the first piston to its original position. Some successful trials were made, but the weight of the boiler in the front part, running practically upon one wheel, did not tend to steadiness and one day it overbalanced itself. Consternation seems to have seized the authorities, for they confiscated the carriage and imprisoned the inventor. Ultimately he was released and awarded a pension, but the troublous period in which he lived did not conduce to his prosperity, and after many vicissitudes he died at Paris in October, 1804. But his name will ever find record in the annals of automobilism.

It has been decided that the following gentlemen shall act as judges in connection with the laboratory tests of the horse-power of road wheels of motor-vehicles which are being organised by the Automobile Club, and which are to take place in the autumn:—Mr. Worby Beaumont, Professor Boverton Redwood, Mr. Dugald Clerk, Major H. C. L. Holden, Mr. Bryan Donkin, Professor Vernon Boys, Mr. Alex. P. Trotter, Professor Unwin, Professor Capper, Professor Hudson Beare, Professor Archibald Barr, and Mr. Carus-Wilson.

A MANCHESTER AUTOMOBILE FACTORY.

VISIT TO MESSRS. MARSHALL AND CO.'S WORKS.

PROMINENT among the English establishments devoted to the production of automobiles are the Belsize Works of Messrs. Marshall and Co., Clayton, Manchester. Clayton is one of the industrial centres of Cottonopolis, and these particular works promise to develop into an important factor in the workaday life of the locality. The area occupied is rectangular in outline, with an area of 6,000 square yards, half of which is covered with buildings. There is thus ample room for the extension that the development of the industry will doubtless require.

The accompanying photograph of Mr. J. J. Mann, to whose energy and acumen the development of these works is due, will be regarded with interest by those who read his speeches at the Automobile Club discussions, and recognise the merits of the Marshall car when running on the road. Mr. Mann has had



MR. J. J. MANN.

exceptional opportunities for observing the progress of the industry with which he is now closely identified, having resided for many years in Paris, where he followed the course of improvements both in construction and design. He is a director of the Société L'Energie, of Paris, who are the owners of the patents for the Renaux motor-tricycle. In other directions his energy has always found vent, and in electrical circles he is known as the inventor of the call-wire system, and of Mann's circuit line, which has been adopted in connection with most of the large town public services of the National Telephone Company.

The Belsize Works are admirably adapted for the production of automobiles, and while on a recent visit we had an opportunity of personally testifying to the excellent arrangements made both for the comfort of the workmen and for facilitating the making of cars. All the departments are on the ground floor, the space required by the different departments being kept quite distinct by wide passages, which have the further utility of allowing the cars to be easily transferred from one section to another. Along the side of the building fronting Clayton Lane

the counting house, drawing offices and stores have been located, and on entering the works we found all the heavy tools placed to the immediate left. These appliances are of the latest design, the planing machines being by the American Tool Works Company, the heavy lathes by the same company, and also by Messrs. Pratt and Whitney, while Messrs. G. Richards and Co., of Broadheath, Manchester, supplied the side planers, which are a noticeable feature of the splendid equipment.

Further removed from the entrance, but on the same side as the heavy machinery just particularised, is the milling department, to which equally efficient and modern appliances have been supplied by Muir and Pratt and Whitney, while nearly all the milling machinery is from Messrs. Brown and Sharpe's latest models.

On the side of the central passage a row of radial drills by Messrs. Richards and Co. is the characteristic feature, so arranged that the heavy work can be easily brought to them. Elsewhere in the works the remaining drilling machines, including multiple drills of the latest design, have been placed for convenience.

At the extreme left-hand corner of the building the well-stocked pattern shop and a useful experimental room have been placed, while at the end opposite to the offices are the smiths' hearths and testing stocks for motors. In front of these, and stretching from one side of the works to the other, are rows of benches for the fitters, and here, at all times, can be seen a large number of oil motors in all stages of construction.

The departments concerned with the lighter and finishing part of the works are arranged on the right hand. There are fixed all the small lathes for brass finishing, and experts in the finer parts of mechanism are there employed, five enamelling stoves completing the equipment.

To motorists generally the section of greatest interest is the central part of the works, views of which are given on page 58. Practically the whole of this area is taken up with the operations of building up the motor-cars from the parts prepared in other departments. And here about twenty cars can always be seen in course of building. Although a number of the bodies are obtained from other makers, Messrs. Marshall and Co. find it convenient to keep a number of body makers on the premises, and these are employed on the latest woodworking machinery.

An interesting department is that where are the pits for testing the complete cars. The car to be tested is placed over one of these pits with the back wheels resting on two sunken pulleys, the periphery of each pulley being on a level with the floor. On the engine being started the car instead of going forward simply revolves the pulleys by the friction between the back wheels and them. The revolving of pulleys is made difficult by means of a brake of calculated power, so that it is easy to see if the motor of each car is up to the standard power.

All the painting operations are performed in a separate building. The storage accommodation is of a threefold character, one store being in the central part of the building, where the different parts of motor-cars are tested as to their accuracy while in process of production. Having been finished, these parts are taken to a second store, while yet another is provided for the accommodation of all the raw material used in the works.

We were much struck with the way in which every detail has been arranged, for while the heating of the premises by steam and also by hot-water apparatus is all that can be desired, the works are lighted by electricity, for the generation of which two dynamos are requisitioned. Along the passages dividing the departments this is supplemented by large gas lamps on the incandescent principle.

MR. E. MARTIN, of 27, Park Lane, Clissold Park Road, can be recommended to any automobilist requiring the services of a competent man to drive and look after motor-cars in the forthcoming 1,000-mile Trial.

THE London Autocar Company, Limited, of Gray's Inn Road, W.C., inform us that they have arranged to carry a stock of all parts and accessories for the motors (70 and 72 mm.) of Beeston tricycles. This should be welcome news to owners of such machines.

THE "STÉATE" SPARKING PLUG.

IN the bulk of sparking plugs so far employed in connection with the ignition of the charge in combustion chambers of petrol motors, porcelain has hitherto mainly been used as the insulating material. In view of the trouble that has been experienced by *chauffeurs* with sparking plugs of this type, two Belgian engineers, Messrs. E. Fremy and M. F. de Mare, have for some time been devoting attention to the question of discovering a substitute for porcelain, which, while possessing all of its advantages, shall not be accompanied by any of the drawbacks such as mis-fires, slow sparking, short circuits, etc. This they claim to have done in the "Stéate" sparking plug, illustrated herewith, the feature of which is that no porcelain is used in its construction. Instead, they make use of the mineral, steatite, which they claim to form a peculiarly well-adapted insulating material for sparking plugs. In its natural state this mineral can, they inform us, be "worked" as easily as soap and can be turned much easier than a block of copper; crude, it can be scratched by the nail, but after being baked in a furnace at a high temperature, emery hardly makes any impression on it. Other advantages claimed for steatite are, that the baking operation does not deform the piece, or cause any variation in its dimensions, that both its mechanical and electrical resistance are increased by the baking, which properties are retained both when cold or when submitted to the high temperature in the combustion chamber of the motor. The "Stéate" plug is connected to the metallic parts without any joints whatever; it is supplied ready adjusted in a short metallic sheath, and is being put on the market by Les Sciences Industrielles, of 43, Boulevard du Hainaut, Brussels.



It is stated that the next run of the Automobile Club of America will be to Philadelphia, and will probably take place the first week in April.

A GENTLEMAN purchased a motor-quadracycle from the Riley Cycle Company, Limited, Coventry, last week, and rode it right through to Manchester under six hours. Considering that it was a brand new machine, this is not a bad performance.

M. E. J. BRIERRE, of Paris, informs us that he has placed the sole agency in England for the Brierre motor-voiturette, illustrated in our last issue, with the London Motor Van and Waggon Company, Limited, Tottenham Street, Tottenham Court Road, London.

THE *Court Journal* remarks that there are already a few very smart "cars" to be seen in the Park sometimes—one enamelled white being aggressively noticeable. It will, however, be possible to judge in another two months whether motor-car driving is to be as fashionable as the makers predict. Ranelagh is going to encourage automobile races and meets, and, no doubt, Hurlingham will do the same, while there will be at least one "motor four-in-hand" at the Derby.

As already mentioned in these columns, in connection with the 1,000-mile Trial a special dinner is to be held at the Agricultural Hall on Wednesday, April 18th. The dinner will be open to everyone taking part in the Trial—whether they be manufacturers, agents, private owners, passengers, or paid drivers; and it is hoped that every person taking part in the Trial may be present. The tickets for the dinner may now be obtained from the offices of the *Motor-Car Journal*, or from the Steward of the Automobile Club, price 2s. 6d. each (without wines).

THE DESIGN OF AUTOMOBILES.



(Concluded from page 41.)

IT MIGHT be objected that the carriage-building industry is not solely concerned with light, elegant, flexible carriages, but also produces heavy vehicles designed for heavy loads, and that the automobile builders might pattern after these, and thus acquire the art of motor-vehicles construction with one bound, saving an unprofitable apprenticeship. But this consolation is illusory, for heavy horse-drawn vehicles are not intended for high speeds as are those automobiles which would equal them in weight; and automobiles intended for heavy hauling at slow speed would be still very much heavier than the horse-drawn vehicle intended for the same work.

So long as the present lines of automobile construction are followed, each style of automobile must remain much heavier than the style of horse-drawn vehicle intended for the same purpose, and no profitable parallels may therefore be drawn from the construction of one to the construction of the other. This truth becomes still more conspicuous to the intuition when it is remembered that the distribution of material is entirely different in the two classes of vehicles, owing to the load of machinery in the automobile and the radically new strains that spring from applying the power at the rear wheel rim in automobiles, instead of at the front wheel hub in horse-drawn vehicles, and also other strains due to the different steering methods.

Some additional reasons should perhaps be pointed out why there is little hope for the deliberately-heavy "scientific" vehicle favoured by the orthodox engineer, as above referred to. This style is admittedly a possibility for good roads, and that is certainly something to boast of; but aside from this limited usefulness—which is being thoroughly exploited in France, in the Panhard-Levassor construction especially—it has few chances for success in the United States for any form of pleasure vehicle, because weight and bad roads are two factors that aggravate each other mutually, and when the requirement of speed is added as a third factor, the combination becomes outright impossible.

It being understood that in its safest form this style of vehicle consists of rigid portions flexibly connected by springs, substantially as above described, it is first noted that a shock from the road may have to be sustained by any one of these springs alone, and they must therefore be made so strong and stiff that they will afford very little protection for wheels, axles and motor mechanism (while occupants may be protected by special spring-supported seats) against the constant succession of smaller shocks associated with common-road travelling and the vibration set up by the same, and by this constant trembling, machinery and wagon-work are rapidly deteriorated and a new necessity created for still further increasing dimensions of material and weights in order to resist it.

It is true that in one of the heaviest American gasoline carriages, made in Holyoke, Mass., a system of auxiliary springs has been introduced, with the effect that small shocks are absorbed in the weakest springs, and the other stiffer springs begin to operate in each case only after the resiliency of the weaker springs has been exhausted; but this is at best only an exception from the general rule, and, as such, shows, moreover, that necessary details even in this heavy form of construction have not yet been worked out by the majority of its representatives in the industry.

Another fact operating against the heavy good-roads vehicle of the usual type is the impossibility of providing much lateral flexibility between the wagon box or carriage body, containing the motor, and the rear axle. The power transmission gear operating between the motor shaft and the axle does not permit much twisting—if it consist of sprocket and chain or gear wheels, as usual in American automobiles—and a sideways jolt which should ordinarily compress one of the rear axle springs and dislodge the other now transmits a strain to the transmission gear and the carriage box, involving manifest danger of disrupting some portion of the structure, unless new material be added to prevent it.

With belt-driving this drawback is of course avoided, and

with electric carriages it does not exist, because the power transmission is by wire to the motor on the rear axle; but it does exist in the majority of American gasoline and steam automobiles and interferes with the benefits to be derived from the rear springs, and these benefits are the more indispensable the less reliance may be placed in the evenness of the road surface.

Usually large pneumatic tires are the expedient chosen for mitigating the strains referred to, as well as all other strains arising from rough roads, it having been accepted as an axiom—transmitted from cycloedom, it seems—that pneumatic tires are well adapted for this purpose. And, in truth, it may be admitted that the heavy good-roads automobile, when used on poor roads, stands more in need of a resilient tire than any other moving thing; but it is unfortunately also a fact that no pneumatic tire has yet been invented the material of which will endure the strains of, for example, serving to stop suddenly, by ground friction, a heavy automobile on a down-grade curve. The use of rubber for the tires of very heavy vehicles is purely in the experimental stage, so far as economical usefulness to the owner of an automobile is concerned.

The most rational method so far devised for obviating twisting strains on motor and gear parts, and at the same time perhaps economising weights somewhat, consists in hanging the motor on the frame of the vehicle rigidly connected with the rear axle, thereby removing its weight from the carriage body and the springs supporting the same and also gaining carrying-space in the wagon box. There is nothing to hinder the employment of special springs for the support of the motor in this position, and the method would undoubtedly be adopted by all designers of heavy automobile vehicles, were it not for the intolerable inconveniences that accompany it and the general unsightliness of the construction. Among the inconveniences it may be mentioned that the design compels slight repairs and adjustments of motor parts to be made by the operator lying flat on his back, reaching upward, and likely to receive scalds from hot lubricating oil dropping on to his face. This spectacle is, however, often witnessed in Europe, where this design has been in considerable favour, probably chiefly with a view to the increased carrying capacity of the vehicle.—By M. C. Krarup in the *American Machinist*.

THE Motor-Car Company, of Shaftesbury Avenue, E.C., expect to have over a new type of Renault car in a few days. The vehicle will be fitted with a 3½ h.p. De Dion water-cooled motor, and will also be provided with a modified form of variable speed gear. The Duke of Manchester, who has already purchased a Stanley steam car, has, we learn, already ordered a car of this type.

WE have received through Messrs. Shippey Bros., Ltd., King Street, E.C., the English agents, a copy of the new catalogue lately issued by the Riker Electric Vehicle Co., of Elizabethport, N.J., U.S.A. The list, which is handsomely printed and illustrated, gives particulars of the various parts of the Riker vehicles, also full page illustrations of a number of types of Riker electric cars, including a "runabout," a phaeton, a victoria, a brougham, a theatre bus, a delivery van, and a heavy truck.

A CURIOUS accident occurred recently in the store-rooms of an automobile company in New York. A cleaner was inspecting vehicles on the cleaning and polishing floor. Orders had been given not to move the car by motor power on the floor. The steam had been generated in the boiler over a gasoline burner for the usual tests, and when it became necessary to move the vehicle, the young man started the motor. The seat had been removed in order to watch the test of the boiler, so that the cleaner stood upright. The carriage was run near the opening to the elevator shaft; it was then stopped and the man intended to back it into its place, but instead of moving the reverse lever he moved the throttle lever and the heavy vehicle plunged against the steel gate of the shaft. Unfortunately it gave way and both man and machine went over the edge. The man first reached the ground some sixty feet below, and the vehicle, banging from side to side of the shaft, fell on him and crushed his skull so that death was instantaneous.

THE BORON ELECTRICAL GENERATOR.

THE Boron primary cell, which was first introduced to the public in 1894 by Professor Henry Warren, Principal of the Liverpool Research Laboratory, and founder of the Boron Battery Company, has, since its introduction, very considerably evolutionised. In its primitive state the cell was for the most part a double-fluid battery, charged either by a soluble dichromate, preferably chromic acid, or one of its haloid compounds. The production of the carbons has undoubtedly been the success of the battery from the very start; since the author, having studied for years both the actinic and catalytic action of the numerous metalloids and their derivatives, has at last been able to produce a cell which is claimed to practically defy polarisation.

The generator on this account alone is naturally particularly well adapted for the charging of accumulators. Depolarisers in this instance should be either ferric sulphate, chromic acid, or potassium bichromate, and the cells, used either in series or parallel, as the case may require, are connected by the positive of the accumulator to the carbon of the cell, and the negative of the accumulator to the zinc element of the battery. Usually about five hours is the time required for charging, and the cost of the same (as for instance the charging of two sets of accumulators for motor-car ignition purposes) usually does not exceed twopence. It is claimed that the cells are so constructed as to last a lifetime without any creeping of the salts or deterioration of the carbons, and the solution can remain in the jars without experiencing any change when the cell is out of action. The zincs, which are also very small, can remain in when not in use, or be lifted from the solution, and are thus always ready when required. The cell will run with one charge of three ounces of chromic acid or potassium bichromate for about forty hours constant, the practical output being an E.M.F. of two volts, the amperes ranging from eight to twelve, or as high as thirty, according to the depolarisers employed. The cells are made slightly different when required for such purposes as motor driving, lighting, or plating, but in any case, we are informed, are equally as constant.

AN automobile club is to be organised in Minneapolis, Minn.

WE understand that many of the gentlemen who went to the United States early in the year, in connection with the Anglo-American Rapid Vehicle Company, have returned to this country.

THE Noye Manufacturing Company, of Buffalo, N.Y., have lately introduced a new horizontal petrol motor for motor-car propulsion, which they have named the "Niagara." It is described as a valveless engine, operated, as desired, either on the two-cycle or four-cycle principle. To obtain this result no extra parts are added. A loose collar on the gear shaft, placed at one end of the shaft, makes the engine run two-cycle; when this collar is placed at the other end of the shaft the motor runs four-cycle. The change can be made permanent or while the engine is running. The motor, being valveless, the makers claim a reliable compression, without variation, at all stages. The gas and air entering the enclosed base are thoroughly mixed by the rotation of the crank before entering the cylinder. Lubrication of all the working parts takes place from the supply of oil fed to the inclosed crank case. The double cylinders, running two-cycle, give two impulses to a revolution, and very nearly constant power. The carburettor used with the motor is very simple, consisting of but one or two pieces. The petrol is supplied to the carburettor direct from the main tank, the quantity being controlled by the motor without the use of needle valves or pumps. The gas for the motor is generated as used, but the mixture is not varied with the varying speed of the motor. The speed of the engine is controlled by a throttle connected with a varying spark. The ignition is caused by a spark in the firing chamber at a point where the purest gas enters. The contact produces what is called a drawn spark, and with only a 10in. spark coil will, it is claimed, produce a spark fully $\frac{1}{2}$ in. long.

A MOTOR-CAR ACCIDENT.

AT the Brighton County Court last week Mr. William Mundy, 52, Whichelo-place, Brighton, fly proprietor, sued Mr. C. Friwell for £5 5s. for damages to plaintiff's victoria through the alleged negligent driving of a motor-car by the defendant on the King's Road in November last. Mr. Buckwell appeared for the plaintiff, who said he was driving his cab along the King's Road on "Motor-car day" when defendant tried to turn his motor-car round in front of the Metropole and ran into the cab, breaking the step and the wings, straining the front carriage and the hind spring.—Thomas Harrington, carriage builder, Church Street, proved repairing the damage to plaintiff's cab for five guineas, and his Honour gave judgment for plaintiff for the amount claimed with costs, payment forthwith.

FURIOUS DRIVING CASES.

AT Wolverhampton last week, Mr. Joseph Lisle, Tettenhall, was summoned for driving a motor-car along the Penn Road at a greater speed than was reasonable and proper, to the common danger of passengers.—Two constables swore that defendant was travelling at the rate of twelve miles an hour.—The Stipendiary, while holding that the speed was unreasonable assuming that the evidence of the police-officers was correct, dismissed the summons on the ground that there was no proof of pedestrian or vehicular traffic on the highway at the time.

BEFORE the Brighton Borough Bench on Monday, Mr. E. A. Salamon, of 14, Great Cumberland Place, London, was summoned for driving a light locomotive on King's Road at a speed greater than was reasonable and proper, having regard to the traffic on such highway, and the safety of pedestrians, on the 18th inst. Defendant did not appear. Hackney Carriage Inspector Ranger stated that on Sunday afternoon, the 18th inst., about 3.55, he saw the defendant driving a motor-car by West Street, going westward. He was going about sixteen miles per hour. Defendant pulled up at the Metropole Hotel, where witness obtained defendant's name and address. Defendant said he did not think he was going more than ten miles an hour.—The Deputy Stipendiary said defendant had written a letter from which it appeared he was evidently a "beginner." He would be fined £5 and costs, or 21 days' imprisonment.

THE UNIVERSAL MOTOR CARRIAGE AND CYCLE COMPANY.

AN extraordinary general meeting of the shareholders of the Universal Motor Carriage and Cycle Company, Ltd., was held at the Institute of Chartered Accountants, Moorgate Place, E.C., last week for the purpose of considering the following resolution, namely:—"That it is desirable to wind up the company, and accordingly that the company be wound up voluntarily, and that Mr. G. H. Chantry, of Blakemore and Chantry, chartered accountants, of 57, Moorgate Street, E.C., be appointed liquidator for the purpose of such winding up, at such remuneration as may be fixed by the members of the company." After some discussion the resolution was adopted.

THE Motor-Carriage Depôts, Limited, 6, North Charlotte Street, Edinburgh, is to be wound up voluntarily.

AN automobile club is to be organised in San Francisco on the lines of the Automobile Club of America.

LA SOCIÉTÉ L'ÉLECTRIQUE, Compagnie Française d'Exploitation de Voitures Automobiles, of Paris (8 Rue Drouot), is increasing its capital from £12,000 to £60,000.

MR. ARTHUR J. EDDY, a prominent attorney of Chicago, was the first automobilist of the city to obtain a licence as a driver of automobiles, after passing the necessary examination.

THE Automobile Forecarriage Company has just been formed in New York with a capital of £1,000,000 to manufacture and deal in carriages, automobiles, etc. This is the company which is introducing the Kuhlstein-Vollmer *avant-train* into America.

AMONG the new joint stock companies registered last week was the Speedwell Motor-Car and Cycle Company, Limited, 71, Woolmanhill, Aberdeen, the capital being £2,500. The company has been formed to carry on the business of motor-car and motor-cycle builders or agents, cycle manufacturers and agents, etc.

A DISPATCH from Boston states that Senator Baldwin has introduced in the Massachusetts Senate a bill for legislation to control the operation of automobiles. The bill provides for such fenders and wheel guards as may be required by the railroad commissioners, who are to notify companies and persons manufacturing and using these vehicles within three months after the passage of the Act.

THE Motor-Car Journal.


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COMMENTS.



ON Saturday, the 14th inst., the portals of the Agricultural Hall, Islington, will open on the Automobile Club's great exhibition of motor-cars, which the proprietors of this journal are directing. As already intimated, the arena which proved so popular for demonstrating purposes last year will again be available, and exhibitors will doubtless be glad of the opportunity thus presented of showing intending purchasers the control which is possible over their vehicles. On the various stands will be exhibited some interesting novelties, and many improvements in the details of construction that have lately been introduced will be on view. It is gratifying to all concerned in the development of the industry to know that a thoroughly representative display has been got together, and it can safely be anticipated that the forthcoming exhibition will be the largest, most comprehensive, and the best ever held outside of France. The entire space on the ground floor has been allotted, and practically every British firm in the industry and several of the leading Continental builders will be represented.

Provincial Visitors.

Of course, all who are interested in the industry will attend the exhibition during the week it is open; but the attendance of the general public is also likely to be greater than in the past. The railway companies are running holiday excursions from all parts of the country, and many provincial people will take advantage of Easter to attend the exhibition. Business men in the great provincial towns cannot afford to give up much time on ordinary occasions, but many of them will gladly regard this as a convenient season for coming to London to see the latest things in the way of motor-cars.

A Popular Feature.

LAST week we referred to the remarkable performance given by Mr. E. J. Coles at the Alhambra, and we are now glad to announce that arrangements have been made for him to repeat his feats at the Agricultural Hall every afternoon and evening during the progress of the Exhibition. The slope and other appurtenances of his display will be re-erected in the arena, and the repetition of his performances, which have elicited much attention in the Press, should prove a popular feature calculated to increase the attendance of the general public, and to impress all who go to the exhibition with the absolute control the drivers can obtain over their cars.

The 1,000-Mile Trial.

MOTORISTS who intend to participate in the forthcoming great Trial are taking preliminary spins over portions of the course and generally getting into trim for the task. As the time draws near we are constantly receiving further evidence of the popular interest in the event, and the fact that all the

leading newspapers on the line of route are making special arrangements for reporting the Trial is one upon which automobilists are to be congratulated. It is to be hoped that the local exhibitions will be well attended, and the letters received from the secretaries responsible for the arrangements in the various towns show that this is likely to be the case. Elsewhere we record a few facts which have come to our knowledge since our last issue, and we hope, next week, to bring this chronicle fully up to date.

Some Additional Entries.

SEVERAL additional entries have during the past week been received. In Section I., Messrs. Roots and Venables have entered a two-seated heavy oil-car. New competitors in Section II. are Mr. E. M. Iliffe, with a new 2½ h.p. Enfield quadricycle; Mr. Mark Mayhew, a 8 h.p. four-seated Peugeot car; and Mr. J. D. Siddeley, a two-seated Daimler Parisian car. The 12 h.p. Daimler carriage originally entered by Mr. Mayhew will be replaced by a Panhard car of 8 h.p., the reason being that the Daimler vehicle will not be ready in time for the Trial. The 2½ h.p. tricycle originally entered by the Ariel Motor Company will also, by permission of the club committee, be replaced by the same company's 3½ h.p. quadricycle.

A Boston Inquiry.

SOME time ago a few of the leading commercial men of the city of Boston, U.S.A., joined in an effort to secure reliable information with regard to the automobile, and Mr. W. A. Whittlesey was instructed to secure the necessary particulars, and to make a report which would guide them in the adoption or otherwise of the motor-vehicle. After much inquiry he has come to the view that the automobile will loom large on the roads of the future, and the pamphlet in which much of his information has been collated is of unusual interest, especially to those who have followed the progress of the industry in the United States. From the economic standpoint Mr. Whittlesey makes an interesting comparison of the cost of horse and electric services. In the case of the former the horse is supposed to average 21 miles per day, doing this at the rate of 7 miles per hour under a draw-bar pull of 50 lbs. "In other words, he is doing work at the rate of .89 of a theoretical horse-power for three hours per day. The automobile, on the other hand, is to do 42 miles a day at the rate of 9 miles per hour, and the cost of power is assumed to be five cents per k.w. hour. Under these conditions the automobile can do the work of two horses in 1.34 hours less time than they can do it with a saving of .01689 cents per pound of goods delivered, or at a saving of 40.752 cents per day on a delivery of 2,400 lbs."

Eastbourne and Motor-Cars.

EASTBOURNE is a very superior place; or, rather, the local authorities are very superior people. So eminently respectable are they that they would fain prohibit motor-cars from their Parade and from Paradise Drive. In fact, many of the learned councillors would like to see Eastbourne traffic

monopolised by weary jades and the usual type of horses met with at respectable seaside towns. It appears that Messrs. W. Jury and Sons, Sidney Easton, and H. E. Stredwick have recently applied to the Watch Committee of the town for the renewal of their motor-car licences. This was agreed to by the committee, subject to the prohibition from the thoroughfares already mentioned, but at the meeting of the full council even that curtailed form of licence met with opposition, and a proposition was made by Councillors Welch and Turner that the whole recommendation be struck out. Ultimately that was not pressed, councillors evidently being careful not to go the whole length of their intention, and so preferring to give something with one hand and take it back with the other.

Playing the Ostrich.

FOR that is practically what was done in the end, when temporary licences were granted till the next council meeting, the matter being referred back to the Watch Committee in the meanwhile. Evidently there is a section of the council that does not want the parade—one of the best sea-side fronts in England—to be utilised by visitors who favour the automobile. This is a short-sighted policy that should be resented by everyone anxious for the prosperity of the town. During last season some 3,000 or 4,000 visitors were carried by motor-car during each week, so that the popularity of the vehicles was fully established. At all the Continental seaside resorts these cars are not only allowed but encouraged, the authorities recognising that they constitute an attraction that pleases visitors and helps towards successful seasons. Now that Bournemouth, Hastings, Clacton, and all the progressive seaside places are obtaining motor-car services to a much greater extent than is proposed at Eastbourne, it does seem folly for the local council to respond to the crack of the cab-drivers' whips and play the ostrich, digging its head in the sand—blind to progress and, we would add, the prosperity of the town.

Automobiles Help Seaside Prosperity.

WHY Councillor Eden should want to exclude motor-cars from Paradise Drive no son of Adam can be expected to understand—unless he feels that there is a likelihood of a greater popularity of the motor-car and its power of serving the public better than ordinary vehicles driving cars and char-à-bancs off the road. But the same argument was used at the introduction of railways, and is as antiquated as the ancient civilisation of the Egyptians. It ought not to be allowed to prevail so close to the Twentieth Century, and we hope the councillors of Eastbourne will learn wisdom, and recognise the advantage that must accrue to the town from a broad and tolerant treatment of those who seek to give its streets the best and most modern means of locomotion. Certainly hotel-keepers and those who cater for the accommodation of visitors, as well as residents who wish to see Eastbourne even more prosperous, should welcome the encouragement of the automobile.

Motors and Mushrooms.

STRANGE indeed have been many of the paragraphs appearing in the general newspaper press with regard to the influence that will be exercised by the extended adoption of the automobile. Not long ago an American doctor pointed out that horses were largely responsible for our plagues of flies, and contended that the motor-vehicle would give them nothing to feed upon. Now comes the news that the automobile has greatly increased the price of mushrooms in Paris! To grow the finest variety of champignons refuse from the stalls of mares is required. The great stables of Paris, in the days of omnibuses, met this demand, as there were separate stables for the mares. The automobiles have done away with large numbers of horses, the great stables have been abandoned, and mixed stables substituted, greatly decreasing the supply of the essential fertilizer. Who, other than a French journalist, would have thought of this

intimate connection between motors and mushrooms? American newspaper men should now endeavour to carry their imagination a little further.

Local Authorities.

WHEN local authorities realise the effect that automobiles will have in connection with street traffic—both as regards the crowding of roadways and their maintenance in cleanliness—we may hope for a more sympathetic attitude towards the development of mechanical traction on ordinary roadways. Hence every motorist should endeavour to secure the interest of members of local boards in the subject. We would suggest that personal invitations given to such gentlemen to visit the exhibition to be held this month would prove most helpful in this direction.

Exhibition at Vienna.

WE have been asked by Mr. F. Stockinger, who is the Consul-General in London for Austria-Hungary, to give the publicity of our columns to an exhibition which is to be held at Vienna between May 31st and June 10th. Prince Max Egon Furstenberg and Herr Paul Von Schoeller, the British Consul-General in Vienna, have consented to be presidents of the exhibition, which will be held under the auspices of the Austrian Automobile Club. Foreign productions intended for the exhibition will be admitted free of duty and returned free of charge after the event. The exhibition will include motor-cars, parts and accessories of the same, and all appurtenances to the sport. Prizes are to be awarded in various classes.

Motor Dust-Carts.

UNDOUBTEDLY those firms who specialise motor-vehicles for municipal purposes will find plenty of employment ere long. In addition to the orders recently given out another may shortly be expected from Acton, for we learn that the Works Committee for the Acton District Council have directed the surveyor to make inquiries as to the advantages, cost, and utility of motor dust-carts. Already a vast amount of experience on this subject is being accumulated, and there should be little difficulty in convincing the local authorities of Acton of the value of mechanical power in collecting street and house refuse.

"Motor-Vehicles and Motors."

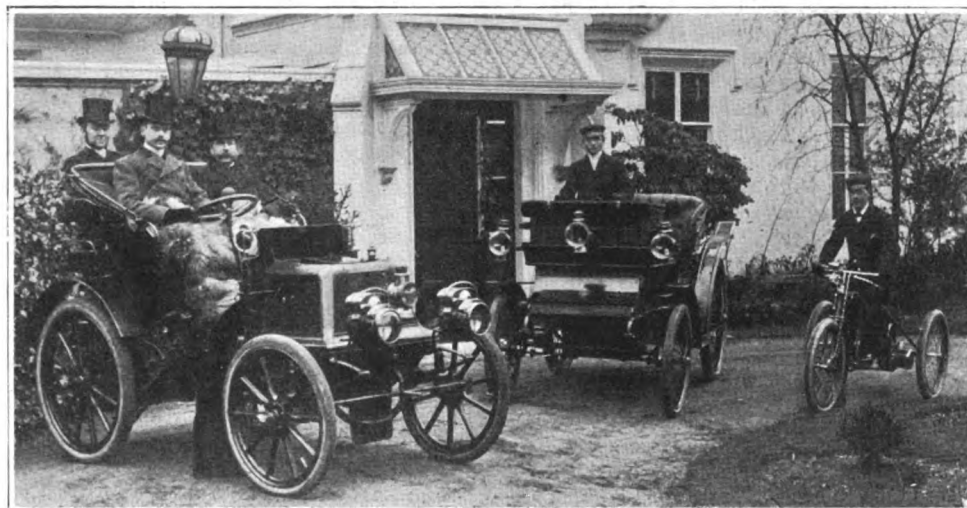
WE learn that practically the whole of the comprehensive book some time ago announced as from the pens of Mr. W. Worby Beaumont and of Mr. Dugald Clerk is now in the hands of the publishers, Messrs. Constable and Co. The book will deal but briefly with the history of the work of the early steam coachmen between 1824 and 1836, but practical deductions from their designs and experience will be presented. The intermediate period between 1840 and 1885 is more fully dealt with. The great bulk of the book, which will comprise about 600 pages and over 400 engravings, relates to the design, construction, and working of oil, steam, and electric vehicles, most of them dating from 1894 to 1900. At least 300 of these engravings have been made from special drawings to scale. The scales are given in British and metric measures, and the drawings have been made to show every piece of mechanism and every connection. The book contains chapters with elaborate but practical tables of power required; wind and road resistances, frictional losses and mechanical efficiency, on vapourisers and carburettors, on the apparatus and methods of electrical ignition, on brakes, steering gear, and on analyses of the performance of vehicles in the organised trials and races which have taken place in England and France. The part of the work as originally intended by Mr. Dugald Clerk, on, amongst other matters, the physics and economics of internal combustion in motors, and the index to patents, having been unavoidably delayed, will appear hereafter as a second volume.

An American Lady Motorist.

EXAMINATION papers—whether at Oxford or at a Board School in South London—have always produced some amount of fun for others than the actual writers, and automobile tests in the United States will probably soon supply the American newspapers with columns of light reading. Up to the 14th ult. about sixty operators had been licensed in the city of Chicago, the last batch of candidates including Miss Julie E. Bracken, who was the first lady to enter the lists. She is secretary to Mr. C. G. Woods, of the Woods Motor-Vehicle Company, and after she had answered the technical questions, took the City Electrician, Mr. Ellicott, for a ride, and rather astonished him as she showed how expertly she could “cut figure eights, circle around in front of trams, shave the wheels of two-ton trucks, and dust the coat-tails of pedestrians at the crossings.”

Mr. Mark Mayhew, L.C.C.

THE photograph we are able to reproduce this week of Mr. Mark Mayhew, L.C.C., and his stud of motor-vehicles will be regarded with interest, not only by members of the Automobile Club, but also by those who remember his election of last year, when he went to the top of the poll—on a motor-car. The photograph “Scio,” Putney Heath, S.W., and Mr. Mayhew is seen holding the steering wheel of his Panhard racing car. The central vehicle is a 8 h.p. Peugeot car, and to the right is a 3½ h.p. Delagère tricycle. Both the carriages are entered for the 1,000-mile trial, and will doubtless perform the task with distinction.



MR. MARK MAYHEW AND HIS AUTOMOBILE STUD.

Mules rather than Motors.

MULES have always been regarded as strange, wayward, and obstinate creatures, and their frequent stampedes during the war now proceeding in South Africa should destroy what little character they formerly possessed. At Nicholson's Nek the eccentricity of the mules cost Sir George White hundreds of men, and we have just had another loss owing to other mules stampeding, overturning the waggons, and otherwise disporting themselves. Surely the War Office cannot longer turn a deaf ear to the request for experiments with motor-vehicles, seeing that the advocates of the automobile are prepared to give every help in the selection of vehicles which are to be trusted and regarded as efficient. Unfortunately, however, it is easier to drive a coach and four through an Act of Parliament than to get a motor-vehicle into the barrack yard—as a recognised feature of the military equipment.

Horse v. Automobile.

Two important points in connection with motor-vehicles are often overlooked by those who decry the new means of locomotion. Firstly, the little room in which an automobile can be housed as compared with a carriage and horse, and, secondly, the fact that all repairs required by the former are mechanical, and can be dealt with according to certain

rules and methods. On the other hand, the ailments of the horse are often beyond the range of human divination, and their treatment is frequently a matter of great uncertainty—if not largely of guesswork. It must not be forgotten, too, that the keep of the horse has to be continued whether working or not, while no attention need be given the motor-car under the latter circumstance. Of course, these points will be apparent to every automobilist; their frequent reiteration, however, must be regarded as a means of public instruction.

A Carriage Builder's Queries.

IN its recent suggestion to carriage builders, that they should watch the progress of the motor-car and concern themselves with its development, the *Carriage Builders' Journal* has struck a rich vein of correspondence, and its April number contains letters on the subject from Mr. G. H. Smith and Mr. J. E. Tuke from the standpoint of the automobilist. The views of the carriage builder are admirably given by Mr. William Philipson, of the Northumberland Carriage Manufactory Pilgrim Street, Newcastle-on-Tyne, in a letter which we reproduce, as it contains some points of interest for makers of automobiles. Some of the matters mentioned are certainly worthy of serious discussion, and we shall be glad to have the views of automobilists or manufacturers of motor-vehicles. We notice by the way that

our contemporary makes the interesting confession that it spells motor-car as “motocar” “simply and solely for euphony's sake” to avoid the ‘burring’ sound of the final’s.” It is thus apparently a concession to those whose articulation is not of the clearest order.

WE learn that Mr. Thomas Bayley, M.P., has just joined the board of directors of the Daimler Motor Company, Limited.

IN answer to “S. T.,” the address of the makers of the Scott steam tractor is the Société des Chaudières et Voitures Scott, 56, Rue de Provence, Paris.

MR. ROGER WAELACE, Q.C., Mr. Frank Butler, Sir David Salomons, and Mr. Staplee Firth, have been asked to act as the reception committee in connection with the forthcoming exhibition at the Agricultural Hall.

SAYS the *Court Journal*: “Automobiles are much in vogue this season on the Riviera. They are seen on every fashionable promenade, and at the door of every fashionable shop, popular café, and concert-room.”

OUR German contemporary, *Die Automobile*, states that the Berlin Electricitäts Gesellschaft is in negotiation with an English motor company with reference to the supply of motor-waggons for the transport of coal.

MR. H. EDMUNDS, of the firm of Messrs. W. T. Glover and Co., Ltd., Manchester, the well-known manufacturers of electrical cables, has lately placed an order for a Parisian Daimler car. The vehicle is being fitted with Mossberg roller bearings and with an Estcourt cooler of the type recently illustrated in these columns, and which obviates the necessity of using a water-circulating pump. Mr. Edmunds, who has just been elected a member of the Committee of the Automobile Club, hopes to drive his new car in the forthcoming 1,000-mile Trial.

CROWDED STREETS OF GREAT CITIES.

BY OBSERVER.



THE streets of London with their ceaseless flow of traffic from early morning till long past midnight are regarded by provincial and foreign visitors as among the wonders of the world. There is scarcely room to pass from pavement to pavement in many places, so constant is the stream of vehicles of every description; ever and anon stoppages occur for two or three minutes at a time, and immediately a block for two or three hundred yards is created. At a signal from the authoritative policeman the flow recommences, and traffic is resumed. Save at those points where police regulations are made, it is probably impossible to cross a City thoroughfare in a straight line, and the man or woman who cannot stoop below a horse's head or dodge a wagon had better strive to catch the policeman's eye, or, if the pedestrian be near the Mansion House, betake himself or herself into the subterranean pathways which have been formed for the safe passage of harmless people from one side to the other of the most congested spot in the City of London. This tendency to crowd our streets is increasing, and although the development of electric railways around the metropolis with the added mileage of underground locomotion must relieve the pathways to some extent, the vehicular traffic of City thoroughfares seems quite as heavy as ever.

None who have studied the conditions of traffic in our streets can have failed to have noticed how road space is wasted by drivers not conforming to the rule of the road, and keeping properly near the kerb. "It is probable," said Mr. R. E. Crompton in a paper written last December, "that the traffic on a sixty-foot road might be conducted in such a manner as to give two continuous lines each way and afford a third line for overtaking, and thus give double the capacity of a forty-foot road; that is to say that on a sixty-foot road 28,000 passengers could be carried per hour past any given point in one direction." If 28,000 people could be conveyed past any given point in an hour, something substantial would have been done to relieve the congestion of the streets.

It is very clear that the more rapidly the traffic can be conveyed the less crowded will our streets appear. Look at a thoroughfare where half a score of hansoms are being drawn by weary animals while the drivers are scanning the pavements for fares. If they were driven quickly—which could be done without adding to the risks of the streets—there would be many more opportunities for crossing the roads. The rapidity with which the traffic in London is passed along depends, in very great measure, on the speed of the slower vehicles. Other drivers may overtake such vans and conveyances (space being wasted in such room being allowed), but, in the main, they are the great factors in the locomotion of the streets, and if crawling cabs and pirate buses could be taken from our crowded streets and replaced by those which plied at a reasonable speed some ease of the present strain would take place. Under the present conditions the streets must become more and more crowded as the traffic grows and the quality of metropolitan horses declines—so far as their speed is concerned.

Something will have to be done. Increased railway facilities will prove but a small thing in lowering the great tides of traffic developing in volume; and tramways in the suburbs will not ease the central districts. They will, most probably, extend the area of congestion, since they require one-third of the roadway, which is practically taken out of general use in order that their passage may not be obstructed. To widen our streets or bring about any rearrangement so that the whole of their area might be utilised for traffic without waste is now practically prohibited by the cost of such needed improvements in the busy commercial districts. In some of the outer areas, however, the surveyors would do well to bear such matters in mind whenever opportunity for reformation occurs. Under the circumstances, therefore, we are limited to improvement in two directions, viz.: reduction in the area occupied by vans and horses and quickening of the speed so that a proportionately greater traffic can be transported in a proportionately less time.

In this connection the automobile furnishes the much-needed dual reform. The economy in space occupied by the electric-cabs and motor omnibuses which have been run in London was obvious to everybody, and the general adoption of such vehicles would give our main thoroughfares a very different appearance to that now presented. More than that, the rate at which traffic proceeds could be materially accelerated if horseless vehicles were generally adopted, and with that increase of speed there need be no greater risk for pedestrians, for the reliability of modern motor-cars is a matter of increasing acknowledgment. In fact, they can be stopped more quickly than most horses and vans, and many of the accidents now reported from horse-drawn vehicles would be avoided if motor-vehicles were more generally employed.

This is a matter which ought to be brought to the notice of local authorities throughout the country. Many of them are anxious to deal with the important question of street traffic, and hence their encouragement of the automobile ought to be easily obtained. Unfortunately the value it may be to them in solving pressing problems has not yet been directly presented, but as motor-vehicles become more common on the streets, their value will be more and more appreciated. Perhaps no more convincing argument could be given than the view which will be obtained in the arena at the Agricultural Hall during the week after next. Not only will it be possible to safely negotiate in that area twice the number of horse-drawn vehicles that would be allowable, but the cleanliness of automobiles will there be fully emphasised, for under the present traffic conditions an expense is incurred in keeping the streets cleanly and healthy that would be wholly unnecessary were automobiles generally adopted. Thus as a relief to crowded streets, and on economical grounds as well, we would urge local authorities to give heed to the new movement and to encourage the new industry.

THE "M.C.C. TRIUMPH" PETROL CAR.



THE illustration on page 67 shows a new three-seated car, which is being placed on the market by the Motor-Car Company, Limited, of Shaftesbury Avenue, London, W.C. As will be seen, it is of the Renault model, but is stated to comprise many improvements. The engine is a 3½-h.p. water-cooled De Dion, located under a bonnet in the front part of a tubular frame. Three speeds forward and a reverse motion are available, the variable-speed gear being of the Panhard type. No chains are, however, employed, the longitudinal jointed shaft being connected by bevel gearing direct to the rear axle. The wheels are of the cycle type, fitted with Dunlop Multiflex tires. The "body" is comfortably upholstered and is well sprung, the car, one of which has been entered for the forthcoming 1,000-mile Trial, having altogether an attractive appearance.

ON the afternoon of Thursday, the 19th, a meeting of the Motor Trades Association will be held at the Agricultural Hall.

LA SOCIÉTÉ FRANÇAISE DE VEHICULES ELECTRIQUES is the name of a company which has just been formed at 28, Avenue de l'Opera, Paris, with a capital of £12,000, to exploit the Riker vehicles in France.

WITH reference to the statement in a contemporary last week that Mr. C. Jarrott had accepted a position with the Anglo-American Rapid Vehicle Company, we are informed that this is incorrect. Furthermore, we learn that Mr. Jarrott has resigned the secretaryship of the British Motor Company, Limited.

MESSRS. DE DION, BOUTON AND Co., of Puteaux, France, have just delivered to the Italian Government some steam carriages of 50 h.p., each carrying a load of 4 tons and towing an 8-ton carriage. The trials of the vehicles lasted for three days, on very muddy roads, without the slightest accident, and included the great declivity of "Le Cœur Volant," between Marly-le-Roi and Versailles.

THE NICE WEEK.

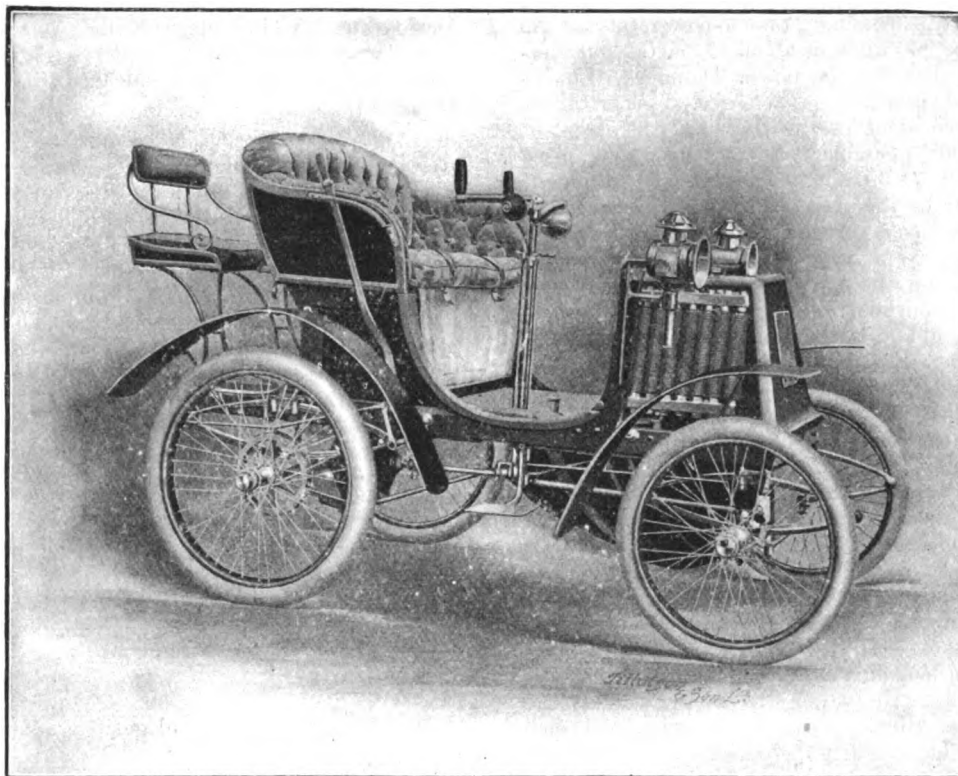
(From Our Own Correspondent.)

WITH the irony of fate the weather experienced at Nice on the 28th ultimo, the day reserved for the display of the various competing automobiles, was as gloriously fine as that of the previous day had been wretchedly miserable, and in struggling through the crowded exhibition one heard on all sides the remark: "Oh! if we had but had this weather yesterday." Yes, had the atmospheric conditions of the two days been transposed a satisfactory termination of the Nice-Marseilles-Nice race would have been witnessed, and all the unpleasantness and irritation arising from the judges' extraordinary decisions with regard to the awarding of the prizes would have been avoided. The clerk of the weather must be held largely responsible for the lack of success of this year's Nice week; indeed, the worthy man seems to have laid himself out expressly to spoil the meeting. The exhibition of cars was held in the garage of the Nice Automobile, a well lighted and commodious building formerly used for panoramic displays, and the general arrangements being excellent the show passed off without a hitch. During the day the official awards of the prizes were made known, and except in the case of the big car category the decisions gave rise to the liveliest dissatisfaction.

As reported in these columns last week, Béconnais, Gasté, and Gaétan de Méaulne were the only three motor-cyclists to set out from Aubagne on the homeward journey at the appointed time, and of these the last-named was the sole representative at the finish, and he arrived after the *controle* had been closed. Ducom, another competitor in this category, started from Aubagne some three and a-half hours later than the above-named trio, taking the precaution to secure a certificate of departure signed by four witnesses, and he eventually reached Nice during the morning of the following day, that is to say, on the 28th ult. His certificate, however, availed him little, as he was refused classification upon arrival, and a similar fate befell the voiturette drivers, Théry and Jules Dubois, who, mounted on Decauville cars, also made their appearance during the morning, having been *en route* since 10.19 a.m. of the previous day. The time of departure of these two latter *coureurs* was officially noted at the Aubagne *controle*, and as apparently no limit of time was mentioned in the regulations governing the *course* the judges would seem to have adopted a somewhat high-handed proceeding in declining to classify the men, and to withhold the prizes. Théry and Dubois received recognition of their participation in the race at the start, and in the absence of a time limit it would appear only just that they should be timed at the finish. The feeling on this point is so strong that it is highly probable that M. Ravenez, the chairman of the Decauville Company, on whose behalf the two *chauffeurs* were competing, will institute legal proceedings

against the organisers of the meeting for the purpose of obtaining the advertised awards. The official awards as issued on the Wednesday were as follows:—*Motor-cycles*: Gaétan de Méaulne. Prize 500fr. and 1,000fr. *du temps primé*, that is a total amount of 1,500fr., or £60. *Voiturettes*: No prizes awarded. *Cars*: 1, René de Knyff, 1,799fr. 61c. and a medal; 2, Gilles Hourgières, 472fr. 32c.; 3, Charron, 461fr. 74c.; 4, Pinson, 293fr. 58c.; 5, Levegh, 237fr. 73c.; 6, Boson de Périgord, 210fr. 73c.; 7, Girardot, 201fr. 91c.; 8, Gui des Aunaies, 171fr. 90c.; 9, Kœchlin, 163fr. 42c. The system upon which the awards were made is known as the *temps primé*, and has for its object the recognition of every performance achieved in a race. In the past there would be, perhaps, three prizes given for some particular *course*, and the fourth man, although finishing possibly but very few seconds after the last of the prize winners, would receive no award whatever. This was not as it should be; for over these long distances the performances made by the third and fourth cars as above cited would be of practically equal merit, and accordingly race promoters endeavoured to hit

upon some plan whereby each competitor would be able to receive some recognition for a meritorious performance. The result of the deliberations is now seen in the *temps primé* scheme, and as judged by the initial experiment the plan is likely to work well. By this arrangement every competitor arriving within a certain time limit is entitled to a certain share of the prize fund, the exact amount being determined by the lapse of time between his arrival and that of the actual winner of the race. Taking for example the case of the first man home, the value of his prize depends upon how long after him the second man arrives, and so on



THE "M.C.C. TRIUMPH" CAR (for description see opposite page).

with the other competitors. In the motor-cycle section of this Nice-Marseilles-Nice event Méaulne was awarded on the judges' first decision not only the first prize, but the whole of the *temps primé* money, no other competitor being classified. But to return to the day's doings at Nice. After the close of the exhibition the majority of automobile men betook themselves to the Cercle Masséna, where, under the presidency of the Mayor of Nice, the Italian *chauffeurs* were entertained to a banquet. On the morning of Thursday, the 29th ultimo, the rain once again made its unwelcome appearance, and assuredly in no half measures, for it simply poured. The *course du mille* had accordingly to be postponed until the following Saturday, and the organisers of the week spent their time in reconsidering the situation arising from their decisions relating to the motor-cycles and voiturettes. It will doubtless be remembered that by the governing regulations only those vehicles which accomplished the distance of the race for which they had been entered would be eligible to compete in the two succeeding events, that is to say, the hill-climbing contest and the mile race. By the judges' decision the Nice-Marseilles-Nice race had terminated at Marseilles for the big cars, but for the other two categories the finishing point was still Nice, and as but one motor cyclist

and no voituresses had officially completed the course no competition in these two races was possible. The promoters were therefore compelled to make two extra categories for these stray sheep, and they further amended their original decision by classing Ducom second after Méaulne in the motor-cycle section. One small automobile incident served to brighten the day, and that was a speed trial made by Baron Henri de Rothschild with his twenty-four horse-power Cannstatt-Daimler over the 17 kilomètres of gradient used for the hill-climbing contests, and known as La Turbie. The Baron wagered twenty-five louis that he would ascend the hill in 20min., but his attempt was not successful, as his actual time was 24 min. 23 secs. Magnificent carriages as they undoubtedly are, these German racers are too heavy to rival the leading French makes in the matter of speed over a hilly course. The French cars are light, but that they possess at the same time ample strength is clearly demonstrated by the fact of many of them competing in race after race, in addition to daily touring runs, without coming to grief, or even showing signs of the terrible strains to which they have been subjected. As an example, there is M. René de Knyff's car, which he has used continuously since the Spa Spring meeting of last year. Fitted with a motor developing as nearly as possible 24 horse-power, this vehicle complete with body weighs 960 kilos, or about 17½ cwt., considerably lighter than an English 6 horse-power Daimler! But to continue the history of proceedings at Nice. Apart from automobiles the stirring incident of the day was the ascent of M. Santos Dumont in his steerable balloon, which took place from the Place Masséna at 11.30 a.m. The intrepid aeronaut, who is a leading member of the Aero Club, nearly came to an untimely end, for, caught by a terrific hurricane when passing over Grasse, the balloon was carried upwards to a great height, and then dashed down among the trees of one of those woods which abound in the neighbourhood. It was only by a miracle that Dumont escaped death, and his balloon was badly damaged.

The following morning, Friday, March 30th, broke fine and clear, and an early start was made for La Turbie, to witness the hill-climbing contests which were timed to start at 10 o'clock. And in connection with this event it is necessary to chronicle a terrible accident. The victim was M. Wilhelm Bauer, one of the leading engineers of the Cannstatt factory, and the mishap came about in the following manner. Mounted on the German Daimler of M. Mercedes and accompanied by M. Brown, M. Bauer was driving the car for all she was worth, when in taking the first sharp bend on the hill he made a slight error in steering, and the car rushed at the wall bordering the route. M. Bauer promptly and forcibly applied his brakes with the result that the vehicle appeared to spin round on herself, and the unfortunate driver was shot out as from a catapult. He struck the rocky wall at the roadside, and although not killed on the spot he sustained such injuries to the head that he died at four o'clock on the following morning. The other occupant of the vehicle, M. Brown, received but very slight injuries, and can be congratulated on his marvellous escape, for at the moment of the mishap the car was travelling at certainly sixty kilomètres per hour. Apart from this terrible affair the competition passed off successfully, the official times being quoted as follows:—

Racing-cars.—1, Levegh (Mors), 19min. 2sec.; 2, Charron (Panhard), 19min. 15sec.; 3, Girardot (Panhard), 19min. 59sec.; 4, de Knyff (Panhard), 20min. 21sec.; 5, Hourgières (Panhard), 21min. 12sec.; 6, Pinson (Panhard), 23min. 55sec.; 7, Kœchin (Peugeot), 37min. 45sec.; 8, Labouré, 39sec. 50sec.; and Comte Boson de Périgord, who with three passengers made a time of 25min. 19sec.

Motor-cycles (not having finished the road race).—1, Gasté, 20min. 10sec.; 2, Marcellin, 21min. 16sec.; 3, Tart, 22min. 40sec.; 4, Bonnard, 25min. 30sec.; 5, Fernandez, 28min. 52sec.; 6, Baras, 30min. 23sec.; 7, Béconnais, 37min. 20sec.

Motor-cycles (having finished the road race, racers, or tourists).—1, Deville, 29min. 26sec.; 2, Floreo, 35min. 5sec.; 3, G. Richard, 48min. 10sec.; 4, Méaulne, 53min. 48sec.

Voituresses (not having finished the road race).—1, Théry, 31min. 21sec.; 2, Jules Dubois, 43min.; 3, Clérissy, 47min. 30sec.; 4, Van Berendonck, 63min. 55sec.

Voituresses (having finished the road race—tourists).—1, Ravenez, 47min. 33sec.; 2, Cornileau, 67min.

Touring-cars (weighing more than 1,000 kilos.).—1, Stead, 32min. 22sec.

Touring-cars (weighing less than 1,000 kilos.).—1, Liebig, 38min. 28sec.; 2, Cuénod, 49min. 21sec.

M. Levegh's time gives an average speed per hour of 53 kilomètres, and beats M. Lemaitre's last year's record by nearly six minutes. Béconnais made even faster time for the first portion of the route, but then a pinion came unkeyed and he was put hopelessly out of the hunt. Baras was also stopped by reason of the compression cock of his motor breaking, a somewhat curious accident. It is worthy of note that M. Liebig was driving the first Austrian-made automobile. Once the hill climbing was finished a general exodus was made for Monte Carlo, where the cars competing in the *Concours d'élégance* were quickly ranged up for inspection. Unfortunately, down came the rain again, and it was under most depressing circumstances that the judges were required to do their work. Their awards were eventually made as follows:—

Carriages of four or more places.—1, Edmond Blanc; 2, Desjoyeaux; 3, Gobron; 4, Brillié; 5, Hancy.

Carriages of two or more places.—1, Prince d'Oldenburg; 2, Johnston; 3, Stead; 4, Chauchard; 5, Dupin; 6, Duchâtel; 7, Recter.

Voituresses.—1, Serpollet; 2, Seigfried.

On Saturday morning, the closing day of this automobile week, the postponed mile race was run off on the cement foot-path of the Promenade des Anglais, and was favoured with glorious weather. Many of the *chauffeurs* had, however, left Nice, with the result that the race excited but a tithe of the interest that it would have done had it been decided on the day originally fixed. Proceedings commenced at about half-past four in the afternoon, and, as I announced some weeks ago in these columns, the times made by the various competitors were taken by means of an apparatus specially designed by M. Mors for the occasion. By this system the respective times for the mile and for the kilomètre with flying start were accurately ascertained, and the figures officially issued were as follows:—

		CARS.	
		Kilomètre.	Mile.
		S.	M. S.
1. Levegh	...	48½	1 32½

MOTOR-CYCLES (not having finished road race).

		SECS.	M. S.
1. Béconnais	...	39½	1 18
2. Gasté	...	46½	1 27
3. Marcellin	...	48½	1 31½
4. Baras	...	49½	1 32½
5. Joyeux	...	46	1 27½

Joyeux employed Gasté's tricycle, and beat one of his times.

MOTOR-CYCLES (having finished road race).

		S.	M. S.
1. G. de Méaulne	...	59½	1 51½

VOITURES.

		M. S.	M. S.
1. Van Berendonck	...	1 8	2 0½
2. Tart	...	1 9	2 1½
3. Clérissy	...	1 36½	2 50½
4. Guyenet	...	2 1½	3 28

STEAM AND ELECTRIC CARS.

		M. S.	M. S.
1. Serpollet (steam)	...	1 5½	2 0½
2. Prince d'Oldenburg (steam)	...	1 4½	2 3½
3. Notbeck (electric)	...	1 29½	2 30½
4. Hamilton (steam)	...	1 24	2 34½

M. Levegh simply had a walk over, and as he started badly, did not get the best possible performance out of his car, but Béconnais, on the other hand, achieved startling times. He covered the kilomètre with a flying start in the extraordinary time of 39 1-5 sec., which represents a speed of ninety-two kilomètres,

or fifty-seven and a-half miles per hour, and his figures for the entire distance of one mile made from a stationary start was 78sec., or at an average speed exceeding forty-six miles per hour.

In this trial, as in the Nice-Marseilles-Nice and La Turbie races, Béconnais was riding a motor-cycle fitted with a Soncin single-cylinder motor developing between five and six horse-power. The diameter of the cylinder is 86 mm. and the stroke 110 mm. The large pinion carries 98 teeth, and in the mile race Béconnais employed a small pinion of 26 teeth.

This performance more than recompensed the spectators for their previous disappointments, and it must also have been a source of great satisfaction to Béconnais himself, who had been pursued by bad luck throughout the meeting. With this event the Nice week came to an end, and it cannot be honestly said that the meeting achieved the success that was expected of it. The lamentable death of M. Bauer naturally cast a gloom over the festivities, and the miserable weather was not conducive to the enjoyment of the various items on the programme, but apart from these causes the defective organisation told heavily against the success of the fête. There was perhaps also a little too much of the idea that the competing automobilists were mere puppets placed at the disposal of the organisers for the purpose of entertaining their visitors, and as a natural consequence certain disagreements and unpleasantnesses arose. Certain it is that many automobilists will retain far from agreeable recollections of the Nice week of the year 1900, and if the organisers of the fêtes desire to maintain their meet as the premier in the South of France they must act more cordially towards those chauffeurs who contest the various events provided.

After the termination of the Nice Meeting many racing men betook themselves to Cannes for the purpose of competing in a hill-climbing race up the famous "Côte de l'Esterel." The distance required to be covered was 13 kil. 600 mètres, and the turnings were, if anything, more dangerous than those at La Turbie. Thanks, however, to capital organisation, the event passed off without a hitch of any description, and the spectators were treated to some splendid exhibitions of fast travelling. The official returns were:—*Motor-cycles*: 1, Béconnais, 14min. 44sec.; 2, Baras, 16min. 52sec.; 3, Gasté, 17min. 5sec. *Cars*: 1, Levegh, 16min. 23sec.; 2, Stead, 23min. 30sec.; 3, Boileau de Castelnaud, 27min. 6sec.; 4, Gondoin, 32min. 9sec.; 5, Liégard, 35min. 9sec. *Voiturettes*: 1, Van Berendonck, 31min.

In this race, as in the La Turbie contest, Béconnais used a small pinion with twenty-four teeth, and his ascent of the hill of Esterel was made at the speed of fifty-five kilomètres per hour. To see him, crouched low on his machine, taking the sharp corners of the route, as often as not on two wheels only, was a sight not likely to be forgotten by the spectators for many a long day. This race took place last Sunday, and upon its conclusion the competitors proceeded to put their affairs in order preparatory to setting out for Salon, where they were due to contest the two races organised for Tuesday and Wednesday last. The former was a course open to all cars and motor-cycles, and was to be decided over a route of one hundred kilomètres, while the latter was an event to be competed for by members of clubs associated to the Fédération Automobile du Sud-Est over a course of one hundred and eighty kilomètres, but full particulars of these two races will appear in next week's issue of the *Journal*.

MR. J. S. HARVEY informs us that it has now been practically decided to hold the Dieppe meeting on the 29th July and following days. On the 29th there will be the motor-cycle race from Paris to Dieppe. The programme of the international meeting will include a battle of flowers, an international race, a race for English drivers only, and a rallye—that is a paper chase—in the Forest of Arques.

MR. EDWARD LISLE, of the Star Motor Company, Wolverhampton, started from Wolverhampton at eight o'clock on Thursday morning last week to deliver one of his cars by road to Mr. A. J. Boulton, Barnet, reaching the latter place at 8 p.m. He states that the car went well throughout the journey, notwithstanding the muddy roads. Mr. Lisle made frequent halts on his journey, putting in quite a two hours' stay at Coventry.

CORRESPONDENCE.



GUARANTEEING AUTOMOBILES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Although we hear much of the developments of the motor-vehicle, the only intimation the ordinary observer has of its existence is on seeing some case of furious driving reported in the police-court. Seeing that some few years have elapsed since the automobile was proclaimed as the vehicle of all vehicles that had come to stay—or rather to go—I really think we ought to see more upon the streets than we do at the present time.

The public is naturally shy at embracing a new hobby, and I fancy manufacturers should do something to secure general confidence by giving guarantees with all vehicles sold. Unquestionably such a policy led to confidence in the bicycle, and there are many men who, if the maker would guarantee the motor-car for, say, a year, would be quite willing to invest in such a vehicle.

Steadily are difficulties in the way of production being overcome, but of all these improvements the public are unaware. Early prejudice is not yet dispelled. What is required is that makers should give a guarantee to keep the vehicle they sell in order for a twelvemonth, and, even if they charged a higher price, the sale would certainly be much quicker than it is at present.

Yours truly,

CYCLE AGENT.

London, E.C., April 2nd.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With a view to acquire the information sought for by "Engineer" in his letter printed in your last journal, and, perhaps, to assist in the cause of automobilism, I have this month felt justified in purchasing a Werner motor-bicycle. I am not yet able to afford a favourable reply to "Engineer's" queries, but I hope that some other correspondent may offer the information which is asked for. I have not been able to travel more than about five miles without coming to a stop, either on account of mechanical, electrical, or calorific troubles, but conclude that as my experience extends I shall find that the "motor-cyclette" is destined to occupy a leading position amongst motors. However, it is pretty clear that anyone bent upon becoming a motorist cannot achieve that purpose more economically than by purchasing a motor-bicycle.

Yours truly,

J. A.

Altrincham, 31st March.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Engineer's" letter in your last issue, I have recently been riding a "Werner," and beg to give him the results of a not very prolonged experience. 1. The machine will run forty miles, say, at a good bit over twelve miles an hour without overheating. To put it in the orthodox way, I conclude that were legal restrictions removed the machine would average sixteen to twenty miles an hour or more. 2. There seems no reason why the engine should not last as well as a De Dion under similar conditions. It appears well made, and equally well proportioned to its work, but, of course, requires the use of the best lubricating oil to avoid fouling, and due attention to valves, etc. It is perfectly easy to manage, but if querist is not used to a free wheel a little practice with a free-wheel bicycle previously would facilitate matters. Steering is perfect, and owing to the belt drive there is none of that tendency to pitch rider off if engine stops or back-fires, which has been such a fatal objection to many bicycle-motors. I have not found the tendency to side-slip, so often ascribed to such machines, at all marked, at least on muddy country roads, but have not been on greasy asphalt, where few automobiles are quite free from it.

Perhaps some more experienced rider of one may reply, and if so I should be glad to know if it has been tried with one of the light French bicycle-trailers, and whether the latter affects the

steering, especially down hill. I find it a very comfortable machine, more so than a tricycle, at least to an old bicyclist.

Yours truly,
R. W. BUTTEMER.

St. Mary's, Godalming, April 2nd, 1900.

GEAR-CASES FOR MOTOR-VEHICLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As I have had some inquiries from motor-car owners as to whether it was feasible to construct and fit successfully a dust-tight case for the chains of motors, I would like to say that I have just applied for protection (provisional) for a case to fill the requirements as stated below, viz.:—A case to be successful must be dust-tight and firmly fixed, yet able to move up and down with the wheels as the springs work; it must be silent and able to be detached in a few minutes. I should be pleased to forward you, for publication, drawings and particulars of same as soon as I have protected it, if you so desire; also, I should like to know if your readers are of opinion that a chain-case is a needed improvement on motor-cars in general; for myself I believe in casing in all working parts of motor-cars, to make them dust-tight, and so save undue wear.

Yours, etc.

March 31st, 1900.

DUST-TIGHT.

THE VICTORIAN DUTY ON MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—For some time past the Victorian Customs authorities have been assessing the duty on motor-cars imported into Victoria at the highest rate fixed for high class vehicles, that is, forty pounds (£40) each, and they also charged an additional duty of 30 per cent. on the value of the mechanical driving apparatus.

Owing to the difficulty of assessing the value of the motor power apart from the rest of the vehicle, the Commissioner of Customs has decided that motor-cars in the future shall be classified under the heading of "Vehicles not otherwise enumerated." The rate of duty will, therefore, be twenty-five per cent. (25 per cent.) *ad valorem*. Motor-cycles were assessed at 30 per cent. on the value of the engine portion, and the balance was subject to 11 per cent. under the heading of "Cycles."

As the above decision applied only to motor-cars, I wrote to the Department of Customs pointing out that motors and voiturettes were considered in Europe as belonging to a separate class, and asked whether they would be subject to the same rate of duty as motor-cars. I have just received a reply from the Department of Trade and Customs stating that, in their opinion, motor-cycles or voiturettes are dutiable at the rate of 25 per cent. It can, therefore, be taken as a settled thing that all motor-vehicles of any description that are imported into Victoria in future will be charged 25 per cent. duty by the Customs Department.

I might point out that this is really equivalent to 27½ per cent. on the invoice value of the vehicle, as 10 per cent. is added to the invoice price to cover the assumed cost of transporting the article from its place of shipment to Victoria, and the duty is then charged on the gross amount. There will no doubt be a revision of this rate when the federation of the Australian Colonies is completed, but the rate will in all probability be fixed at about 20 per cent.

Trusting that this information will be of service,

Yours truly,
KELBURNE EDGE.

305-307, Flinders Lane,
Melbourne, Victoria,
February 27th.

WE learn that the Still Motor Company of Toronto, Canada, will show, through Messrs. Shippey Brothers, their London agents, some new types of electric motor-cars, at the forthcoming exhibition at the Agricultural Hall. The cars will be equipped with the New Ideal storage batteries, for the development and manufacture of which in Great Britain a company is in progress of formation.

THE DAIMLER MOTOR-CAR.

(Continued from page 56.)



IN our last issue we published several views of the Daimler standard two-cylinder 6 h.p. motor. The Daimler Motor Co., Ltd., are also building a four-cylinder engine of 12 h.p., of which a general view is given in Fig. 6. As will be seen, this consists of a couple of the standard 6 h.p. engines mounted on the same bed-plate, and provided with a common crank shaft. This type of motor, which is generally known as the "Twin Daimler," is made for either pressure or gravity feed, as desired, and comprises all the special features referred to last week. Fig. 8 gives a view of the pump employed to keep up the circulation of the water between the cylinder jackets, the radiating coil, and the water tank. The pump, which is constructed largely of aluminium, is supported from one side of the crank chamber, and as will be seen from Fig. 3 (p. 55 ante) is driven by a pinion fixed close up to the fly-wheel on the motor-shaft. The next illustration (Fig. 7) gives a part-sectional view of the petrol storage tank which is located under the floor of the car. The figure shows the inlet hole in the centre with the outlet pipe immediately at the left; it will be noticed that the latter extends across the tank into a small hollow projection at the bottom, the supply of petrol for the carburettor being drawn from the bottom of the tank and up through the outlet pipe. As mentioned last week, the pressure in this tank is maintained by means of the exhaust. To the main exhaust pipe a short pipe is attached, to which is fitted the valve illustrated in Fig. 10. The function of this valve is to allow a small portion of the exhaust to pass through the pipe at each impulse of the motor, thereby keeping up the necessary pressure in the tank to force the petrol upward through the outlet pipe, the pressure pipe being connected to the flange joint seen at the top on the right of Fig. 7, and in the automatic lubricators referred to below. The valve, which can be regulated by the hand wheel shown, also acts as an escape valve, it being set to lift if the pressure become too great.

Passing over Fig. 11 which gives a view of the burners in the gravity-fed motor, we come to the automatic lubricators (Fig. 9). This is known as Drake's patent, and as stated above the device is worked automatically by the exhaust of the motor. There are, it will be seen, three outlets, one for each cylinder of the 6 h.p. motor and one for the crank chamber. This lubricator has been proved to give excellent results in practice and is now being fitted to all Daimler cars; it is located in the dashboard in full view of the driver.

(To be continued.)

MOTOR-CARS are to pay a toll of threepence once per diem on passing through the toll-gate in the College Road, Dulwich.

THE new works of the Fabbrica di Automobili Torino at Turin, Italy, were officially inaugurated a few days ago; they are said to cover an area of 12,000 square metres.

MR. VICTOR ASHBY, cycle and motor engineer, High Street, Towcester, is now carrying a stock of motor-car spirit and all accessories for automobilists. He is also able to undertake repairs to motor-cars and cycles of any kind.

TICKETS for the special dinner to be held at the Agricultural Hall on Wednesday, April 18th, in connection with the 1000-mile Trial may be obtained from the offices of the *Motor-Car Journal*, or from the Steward of the Automobile Club, price 2s. 6d. each (without wines).

WE learn that a new company has just been formed under the style of the Automobile Manufacturing Company, Limited. The new company, which has works and show rooms at North Street, Manchester Square, London, W.C., has acquired and will carry on the business of Messrs. W. C. Bersey and Co., and of the Southern Motor Car Company. At the forthcoming exhibition at the Agricultural Hall the new company, in addition to a large collection of accessories, will exhibit a "Georges Richard" and a new light steam carriage of English construction, known as the Express. We understand that the latter comprises many novel features.

The Daimler Petroleum-Spirit Motor.



(For Description see opposite page.)

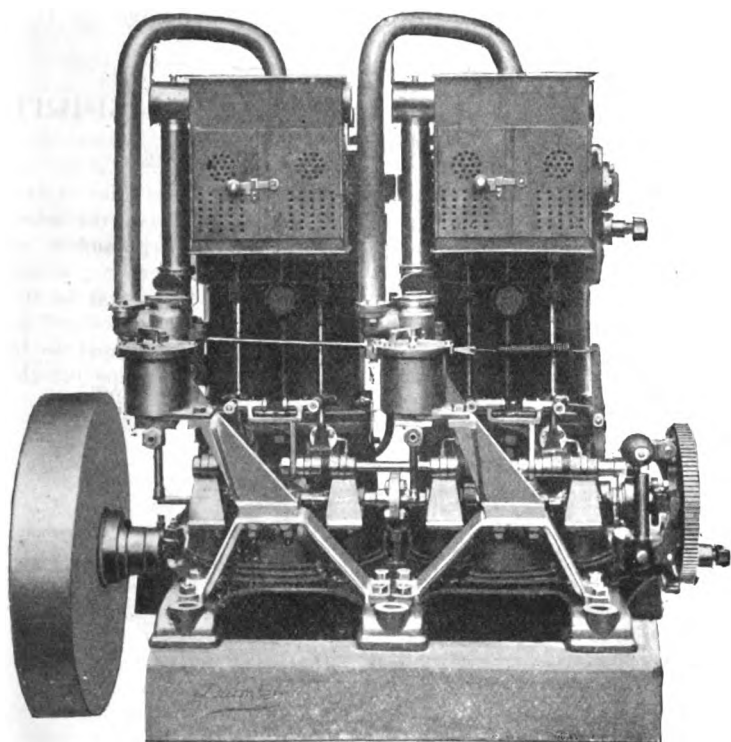


FIG. 6.—GENERAL VIEW OF DAIMLER FOUR-CYLINDER 12 B.H.P. MOTOR.

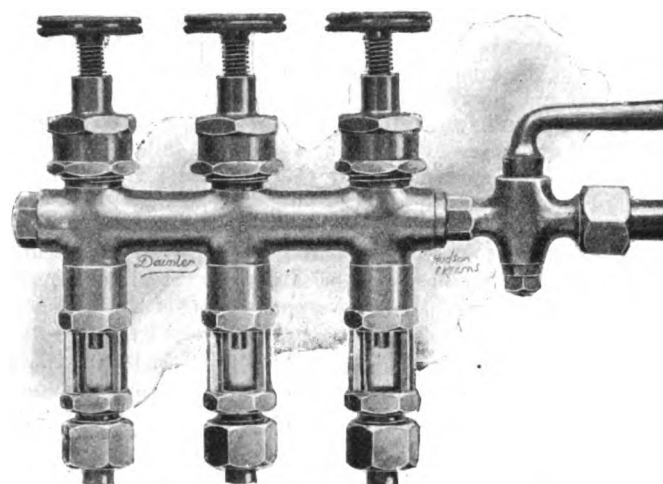


FIG. 9.—DRAKE PRESSURE LUBRICATORS.

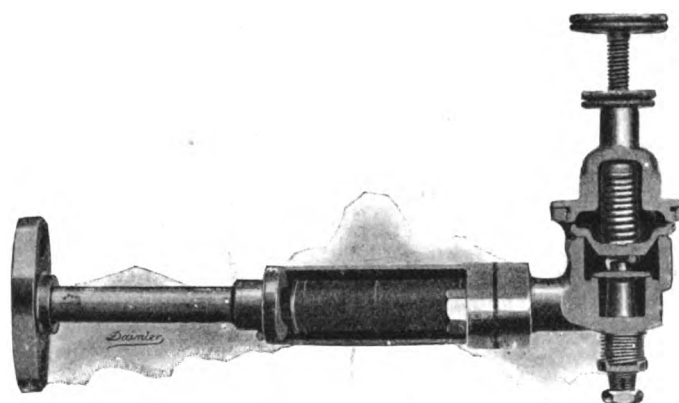


FIG. 10.—SECTIONAL VIEW OF PRESSURE-REGULATING VALVE.

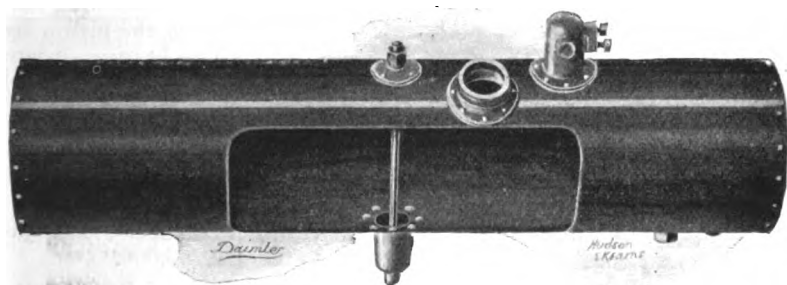


FIG. 7.—PART-SECTIONAL VIEW OF PETROL TANK.

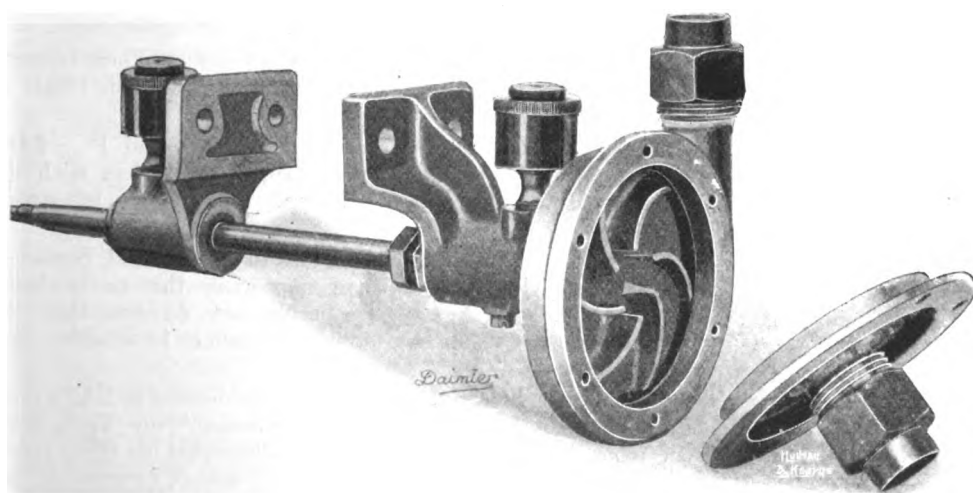


FIG. 8.—DAIMLER ROTARY WATER-CIRCULATING PUMP.

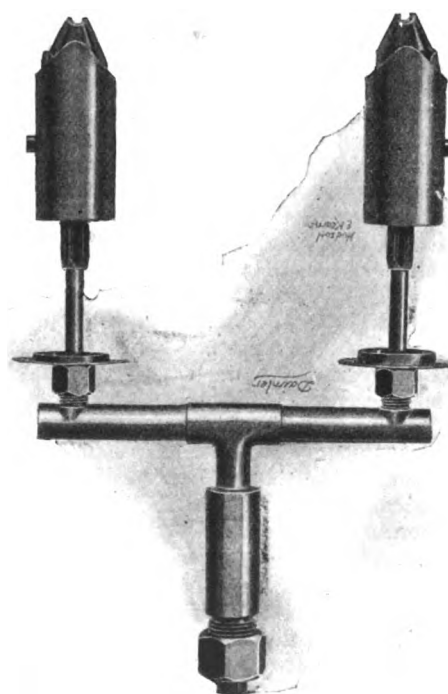


FIG. 11.—VIEW OF BURNERS—GRAVITY-FEED MOTOR.

THE AUTOMOBILE CLUB'S 1,000-MILE TRIAL.



INTEREST in this event continues to increase, and by Saturday, the 14th inst., the entries will be complete, that being the last day for both private owners and manufacturers to send in their applications to the secretary of the Automobile Club. On the same day the Exhibition at the Agricultural Hall will open, and on Wednesday, the 18th inst., the arrangements for the Trial will be detailed by the Hon. C. S. Rolls at a dinner at the Agricultural Hall. Then, on the following Saturday, there will be a meeting of all the 1,000-mile Trial vehicles for examination and sealing by the judges.

The start will take place at 7 a.m., on Monday, April 23rd, from the club house, Whitehall Court. Meanwhile the local arrangements are proceeding briskly and everything points to a very successful time. Below we record some of the arrangements which have already been made:—

BRISTOL.—The local committee has decided to abandon the proposed parade round the Downs, and to obtain estimates for a band to perform in the Drill Hall during the exhibition. The committee will also undertake the flagging of the route between Marlborough and Bath. On entering the city the cars will go *via* Victoria Street, St. Augustines, and Park Street to the Drill Hall, and leave *via* Whiteladies Road and Redland Road to Horfield Barracks, where the outward control ceases. There will be a fully adequate supply of petroleum spirit obtainable, and the public are showing considerable interest in the forthcoming event.

CHELTENHAM.—The cars are expected to arrive in Cheltenham about 11.30 a.m., and a short exhibition (under the patronage of the mayor) will be held in the Winter Gardens; the admission will be 1s. and the profits will be given to some patriotic fund. The cars will leave Cheltenham at three o'clock. The Cheltenham committee have undertaken to be responsible for that portion of the route which lies between the Cheltenham "inward control" and the Tewkesbury "outer control," and for the timekeeping duties at the latter town they have secured the assistance of Mr. Osborne, Mr. F. Paxman, and Mr. Palmer. The following are the gentlemen secured by Dr. Abbott to act as time-keepers at the Cheltenham Controls, viz.: Messrs. W. Turner, F.S.S., W. W. Whittard, B.A., E. E. Bick, T. George, W. Hughes, G. Rudge. Although no great effort has yet been made to dispose of the tickets, they are already going well, and there will no doubt be a considerable sale for them.

BIRMINGHAM.—Three members of the local committee at Birmingham went over the course between Worcester and Lichfield last Saturday and Sunday, and completed the organisation for the timekeeping. By order of the Chief Constable, competitors upon entering the Birmingham control, at Selly Oak, will proceed at 8 miles per hour until they reach the Horse Fair, a distance of 3 miles, whereupon they will have to further reduce speed to 6 miles per hour, until Bingley Hall is arrived at, a distance of $\frac{3}{4}$ mile. The same rate of speed (6 miles per hour) will be insisted on at the commencement of the outward journey, until Gosta Green, a distance of $1\frac{1}{4}$ miles, is reached, but from Gosta Green to Four Oaks Station, a distance of $8\frac{1}{2}$ miles, the limit will be 8 miles per hour. The exhibition will be held in Bingley Hall annexe. In Bingley Hall an Industrial Exhibition is proceeding, and the manager, Mr. Stanley, has invited through the local committee, all members of the Automobile Club to pass from the annexe to the main hall at their pleasure. As several military bands have been engaged no doubt this invitation will be cordially appreciated. The cleaning of the vehicles on the morning of the 26th will be done at Messrs. Mulliner's Gas Street Works, quite close to the exhibition buildings.

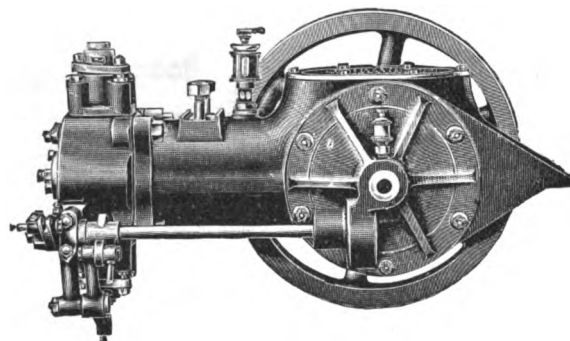
MANCHESTER.—The Chief Constable of Macclesfield has expressed his intention of assisting as far as possible, and Messrs. Coulthard and Co. will help in making the arrangements at Preston. Between Bakewell and the outward control for Buxton, Mr. J. Walton, the secretary of the Buxton Cycle Club, will do all that is necessary.

NEWCASTLE-ON-TYNE.—The Mayor of Newcastle will open the exhibition at the Drill Hall on May 5th, and there will be a reception of the Automobile Club in the evening. Mr. J. Duncan Hodgson has agreed to act as guide from Berwick to Newcastle.

LEEDS.—The size of the exhibition building at Leeds is 138ft. by 172ft., and the charges for entrance will be 1s. on the evening of May 7th, 1s. up to 5 o'clock on the following day, and 6d. after 5 p.m.

THE "ASTRAL" PETROLEUM-SPIRIT MOTOR.

MESSRS. LINFORD and WILLSON, of the Astral Works, Bell Barn Road, Birmingham, have just introduced a new horizontal petroleum-spirit motor, as shown in the accompanying illustration. The engine, which develops 4 b.h.p. when running at a speed of from 600 to 800 revolutions per minute, has a cylinder $4\frac{1}{2}$ in. diameter by 5 in. stroke. The water-jacket is so designed that it is claimed to be impossible for water to leak into the working space of the



cylinder. The inlet and exhaust valves are located one above the other at the end of the cylinder, and are so arranged that they can be readily removed. Special attention has been paid to the matter of lubrication, the crank working in an oil-containing case. This is provided with a detachable cover, so that the piston and connecting rod can be quickly withdrawn. The bearing surfaces are of phosphor bronze, and are specially large and well lubricated.

THE Safety Steam Automobile Company is a new Maine corporation registered with a capital of £300,000.

THE Maltby Automobile and Motor Company has just been formed in New York with a capital of £200,000.

LA SOCIÉTÉ DE LOCOMOTION ÉLECTRIQUE, of Paris (2 Rue Pasquier), is increasing its capital from £120,000 to £140,000.

AT a meeting of the Institution of Mechanical Engineers on Thursday, the 26th inst., Professor Hele Shaw will read a paper on "Road Locomotion."

MESSRS. SAUVAGE AND FRICK is the style of a new concern which has just been formed at Puteaux (4, Place de l'Eglise), France, to manufacture motor-voitures.

THE recently-formed Lincoln Motor Bus and Parcel Delivery Company, Limited, has, we learn, placed orders with the Daimler Motor Company, Limited, for four ten-seated wagonettes.

NOT only in this country, but also in the United States is the value of the automobile in improving the roads being recognised, and an American contemporary declares that the "automobile is one of the influences that is to broaden and smooth our roads."

THE Automobile Club of America has decided to hold a show of motor-vehicles at Madison Square Garden, New York, from November 3rd to 10th next. It is also intended to offer prizes for the manipulation of automobiles in action, such as in hill climbing, turning, stopping and starting.

MOTOR-CARS IN BELGIUM.



SOME OF THE EXHIBITS AT THE BRUSSELS SALON DU CYCLE ET DE L'AUTOMOBILE.

THAT Belgium means to keep well to the front in motor-car matters is well evidenced by the eighth Salon du Cycle et de l'Automobile which was opened at the Pole Nord, Brussels, on Saturday last, and which closes on Sunday next, the number of motor exhibits far exceeding those of cycles. We have not space to refer to all the exhibits, and those mentioned can only be dealt with briefly. In subsequent issues we hope to publish complete descriptions with illustrations of the more interesting vehicles. As was the case at the exhibition in Paris in December last, the feature of the show is the large number of two-seated voiturettes displayed.

M. L. Linon, ingénieur-constructeur, of Ensival-les-Verriers, Belgium, is the builder of the neat two-seated voiturette shown in the accompanying illustration (Fig. 1). The motor is located in the fore part of the frame; it is of the vertical type of 3 h.p.; the ignition is electrical, while for cooling purposes the cylinder is provided with radial ribs and the combustion chambers with a water jacket, the circulation being maintained by a small pump. Two speeds are provided, the power being transmitted by a single straight belt to fast and loose pulleys on an intermediary shaft at the rear; the pulleys on this shaft are of equal size, but each is connected to a pinion which gears with a corresponding pinion on the rear differential axle. The pinions work in a dust-proof case. Steering is controlled by a sloping hand-wheel, while ample brake power is provided.

The frame is spring-suspended on cycle-type wheels. The car, complete with oil and water, ready to start, weighs about 5 cwt. On the level, it can, it is claimed, attain a speed of 35 kilomètres per hour, while it will also mount gradients of one in eight. M. Linon also shows a car built on similar lines, but fitted with a 5-h.p. two-cylinder motor and three speeds, and a number of heavier cars built on the Gautier-Wehrle system.

Messrs. Ch. Wilford and Fils, of Tamise, near Antwerp, exhibit the 6 h.p. dog-cart illustrated in our issue of the 23rd ult., and a light three-seated car, which has been named the "Comfortable." It is fitted with a 3-h.p. water-cooled motor, located in the fore part of the frame. Belt driving is adopted; two speeds—10 and 35 kilomètres per hour—are provided. The car is well suspended, and fitted with pneumatic-tired wheels has a comfortable appearance. The steering is controlled by an inclined hand-wheel. Three brakes are available, one on the differential and one on each of the hubs of the rear wheels. A car very much on the lines of the Victoria Combination is shown on the stand of La Société des Usines Delin, of 7, Marché du Poisson, Louvain. It is fitted with a 2½-h.p. air-cooled motor, as is also the Delin motor-tricycle. A novelty is to be seen in the Delin motor-bicycle. This is fitted with a 1½-h.p. engine; it is fitted within the frame just in front of the bottom bracket. No pedals or chain gearing is provided, the motor driving

through a long shaft the rear wheel hub, by means of bevel gearing. La Fabrique Nationale d'Armes, of Herstal, exhibit the little two-seated car illustrated in the *Motor-Car Journal* for January 10th last.

An interesting exhibit is that of the Société des Ateliers Déchamps, of 31, Rue Frère Orban, Brussels. It comprises the Déchamps voiturette with 4½-h.p. motor already illustrated in these columns and the new four-seated Déchamps phaeton. This vehicle is fitted with a four-cylinder engine of 8-h.p., the diameter of the cylinders being 3 in. by 3½ in. stroke. The engine is located in the front part of the frame under a bonnet; it is air-cooled, the current of air being intensified by means of a fan driven off the motor. The combustion chamber is, however, water-jacketed. The transmission is by bevel gear to a counter-shaft, a single centrally-located chain connecting the latter with the rear axle. Three speeds forward—15, 30, and 45 kilomètres per hour—and three reverse motions are available. Steering is controlled by an inclined hand-wheel, the pillar of which is hinged at the bottom to facilitate mounting and dismounting. A car of this type is to be shown at the forthcoming exhibition at the Agricultural Hall, and will also take part in the 1,000-mile Trial. The

Déchamps Company also display a 2½ h.p. vertical air-cooled motor, and motor-tricycles fitted with the same.

La Société des Etablissements Pieper, of Liège, exhibit the light two-seated 3 h.p. petrol car illustrated in our issue of December 15th last, and also the combination electro-petrol vehicle. We published a short description of this car some months ago; we are now able to give illustrations, together with some additional particulars. The makers state that they "have tried

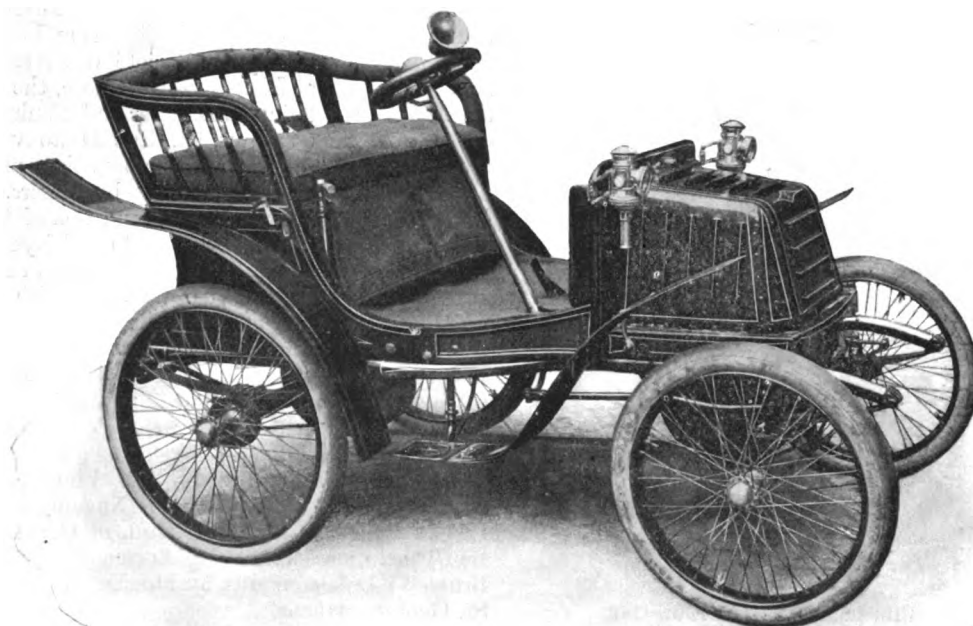


FIG. 1.—GENERAL VIEW OF LINON VOITURETTE.

to construct as light and as simple a carriage as possible, and have succeeded in giving to the assemblage of the driving power an elasticity which the petroleum-spirit motor alone does not possess. To this end we have coupled together a petroleum-spirit motor and a dynamo on the same shaft, which by means of a reducing gear of cog wheels drives the back axle of the car. The dynamo is connected with a small battery of accumulators, and the starting up of the motor is occasioned by passing the current of the battery through the dynamo by means of a rheostat. The electro-motor immediately starts turning, dragging the petroleum motor with it. It then only needs the regulation of the carburation and the opening of the gas admission tap to bring the petroleum motor quickly into action. As soon as this is effected, the dynamo works as a generator, and the power developed by the petroleum motor is transformed into an electrical current, which recharges the batteries. The dynamo is shunt-excited, and a rheostat placed in the circuit of the magnetic field enables the speed to be varied considerably. The common shaft of the dynamo and petroleum motor carries a friction cone, which enables its movement to be transmitted by means of spur-wheels to the rear axle. It will easily be understood that this disposition gives a great elasticity to the movement. During a stoppage all the power of the petroleum motor is utilised to recharge the batteries.

When the carriage is in motion the electro-motor acts as a generator or receptor according to the power required. If this power is inferior to that of the petroleum motor the surplus goes to the battery. If, on the contrary, it is superior to that which the petrol motor can supply (except at starting or during a steep grade) the speed of the motor lessens and the dynamo receives current from the battery, the power which it gives out being added to that of the petroleum motor. It will be noticed that all this works automatically without manœuvring on the part of the conductor."

Fig. 2 gives a general view of the car; Fig. 3 a view with body removed; while Fig. 4 represents a plan of the car, and shows the location of the petrol engine and the electro motor. The axles are connected together by two strong steel tubes p . To further ensure solidity four stiffening rods T are provided. Between the speed-changing shaft and the shaft of the electro-motor a flexible coupling is fitted to facilitate the dismantling of the latter.

In order also to be able to quickly transform the combination into a simple electrical carriage should the supply of petrol run out a coupling K is fitted, which, by a simple forward push, after loosening the nut N , cuts out the petrol motor. The current in the battery is sufficient for a run of twenty-five miles on level roads. It will be noticed that all the mechanism, with the exception of the accumulators, tanks, and carburettors, are placed on the

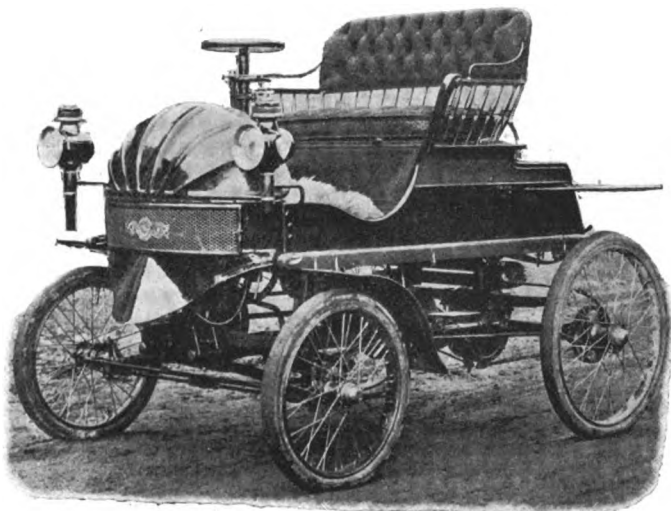


FIG. 2.—GENERAL VIEW OF PIEPER ELECTRO-PETROL CAR.

frame work, and are thus easily got at to clean or to dismount for repairing. The power of the petrol motor is so calculated that the battery is slightly charged on flat roads at the maximum speed of the car. Going down hill, the charging current rises considerably and the dynamo acts as a brake. In practice, the battery always remains charged; however, in the case when for some reason or other it gets exhausted, it can be recharged at a standstill by the engine. The variable-speed gear works in an oil bath, all the wheels being continuously in contact. On good flat roads an average speed of twenty to twenty-five miles an hour can, it is claimed, be attained, and ten miles on grades of about 12 per cent. Steering is controlled by a hand-wheel V . The road wheels are of the cycle type with pneumatic tires. The petrol motor is of $3\frac{1}{2}$ h.p., and is a single cylinder vertical engine with electrical ignition. The cylinder is cooled by cast iron fins, while the explosion chamber and valve boxes are provided with a water circulation. The water for cooling is carried in a small tank above the motor, a radiator being also fitted. The electric motor is hermetically closed in a gear case and develops $2\frac{1}{2}$ h.p. The battery, weighing about 250 lbs., consists of forty elements placed in ebonite boxes with double lids so as to prevent any spilling of the acid. Two brakes are provided, worked by pedals; the first acts on the main shaft, the second on drums F near the hubs of the rear wheels. A reverse motion is effected by means of the starting rheostat, which at the same time cuts off the gas, leaving the electro-motor to work the car alone. The

total weight of the car in running order is about 800 lbs. La Société de Construction Liégeoise d'Automobiles, 83, Rue Lairesse, Liège, who have lately acquired the Belgian rights in the American Duryea vehicles, show a two-seated car of this type and a four-seated dogcart. Several cars very much on Daimler lines are shown by La Compagnie Belge de Construction d'Automobiles, Place du Chatelain, Brussels. They are, however, fitted

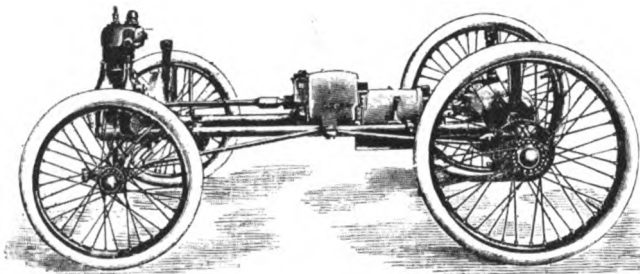


FIG. 3.—VIEW OF PIEPER ELECTRO-PETROL CAR WITH BODY REMOVED.

with a two-cylinder 6-h.p. vertical motor, known as the "Pipe." Four speeds forward and a reverse motion are provided, the transmission being effected by pinions and chains. A big display of vehicles is made by La Société des Ateliers Germain, which has large works at Monceau-sur-Sambre, the company controlling the Belgian rights in the Daimler and Panhard patents.

Les Ateliers Vivinus, 54, Rue Destouvelles, Brussels, show their "Vivinus" car, which is now being made in this country under the name "New Orleans," by Messrs. Burford, Van Toll, and Co. Messrs. Antoine Fils and Co., of 43, Quai St. Leonard, Liège, exhibit motor-tricycles and quadricycles fitted with a new air-cooled motor of $2\frac{1}{2}$ h.p., and known as the "Kelecom." They also show a neat two-seated car fitted with a 4 h.p. water-cooled "Kelecom" motor. The car has a tubular frame, the engine being located in the front portion. Two speeds are available, and the steering is controlled by a sloping hand-wheel. The Koch heavy oil car is shown by the Société des Automobiles Koch, of Clichy, near Paris; the Peugeot cars by the Peugeot Company, of Audincourt (Doubs); Vincke cars, fitted with "Ideal" motor, by Les Ateliers Vincke, of Malines; Gobron-Brillié "Silent" cars by M. L. Nagant, 49, Quai de l'Ourthe, Liège; Benz cars by M. A. Baut, of Courtrai; Panhard cars by Le Cycledrome-Automobile, Ancien Marché de la Rue de la Loi, Brussels; Delahaye cars by Messrs. J. Alberts and Co., 19, Rue St. Georges, Ghent.

New voiturettes, of which we hope to give particulars in a later issue, are shown by M. Foidart, 141, Rue de Merode,

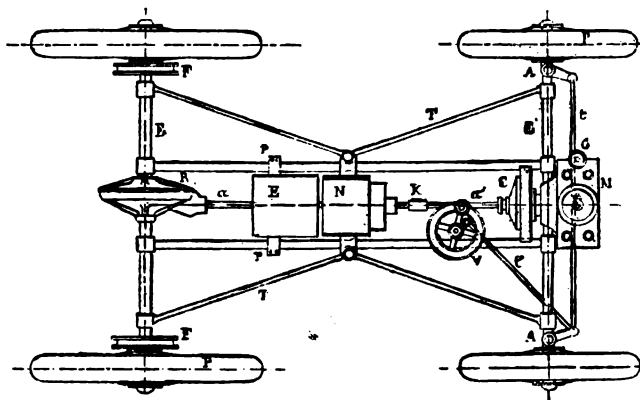


FIG. 4.—PLAN OF PIEPER ELECTRO-PETROL CAR.

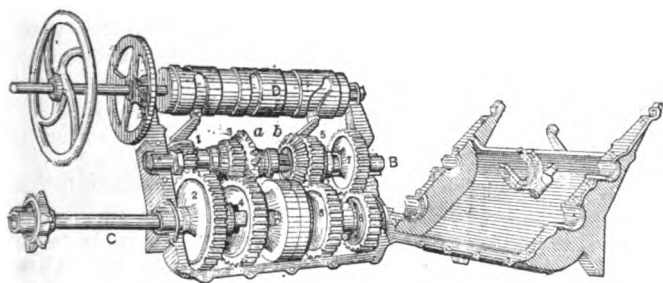
Brussels; Messrs. S. De Jong and Co., of Berchem, Antwerp; Messrs. Foidart and Rosenthal, 63, Quai du Hainaut, Brussels. Electric cars are displayed by M. L. Lefert, of 17, Rue du Poivre, Ghent, and La Compagnie Internationale des Transports Automobiles (Jenatzy), of 56, Rue de la Victoire, Paris. The foregoing are the principal exhibitors; in addition there is a large number of firms showing motor-cycles and accessories.

THE MONTAUBAN-MARCHANDIER VARIABLE SPEED GEAR.

AN improved variable speed gear for motor-vehicles has recently been introduced in France by Messrs. Montauban and Marchandier, of St. Quentin (Aisne), of which an illustration is given herewith. The claim for the new gear is its compactness, it being enclosed in an aluminium oil-containing case. The latter is built up of two parts bolted together and rendered oil-tight by a packing of leather. Three shafts are arranged in this case; the first is merely an extension of the motor shaft, with which it can be thrown in or out of engagement as desired by means of a friction clutch. The second shaft, *B*, parallel to the rear road wheel axle of the driving-wheels, is provided with two bevel-wheels, *a* and *b*, engaging a third on the motor-shaft. These three gears, when the friction-clutch is thrown into engagement with the motor-shaft, are rotated. Between the two bevel-wheels a clutch is mounted, having teeth adapted to interlock with teeth on the gears, the carriage being propelled forward or backward by throwing the clutch into engagement with the proper gear.

On both sides of the bevel-wheels *a* and *b*, and on the same shaft, are mounted the spur-wheels 1, 3, 5, 7, meshing respectively with the gear-wheels 2, 4, 6, 8 on the shaft *C*, and giving four different changes of speed. Between each pair of gear-wheels 2-4 and 6-8, which are loosely mounted on the shaft *C*, is another clutch, which when thrown to the right or to the left engages one of the pairs, 2-4 and 6-8.

In order to have but one set of gear-wheels in operation at



a time, the lowermost shaft is made in two sections, projecting from both sides of the casing and carrying at each end a small sprocket-wheel, which transmits the movement to the rear driving-wheels. In order to throw each pair of the gear wheels, producing the different changes of speed, successively into operation, each clutch is thrown by means of a fork, carried by a rock-shaft and operated by a crank-arm. The crank-arms are engaged by cam-grooves on the drum *D*. By rotating this drum, the pairs of gear-wheels can be successively thrown into or out of mesh. Less than one revolution, it is claimed, suffices to pass from a complete rest to full speed, or to stop and reverse. The drum *D* is operated from the driver's seat by a hand-wheel, two small sprocket-wheels, and a bicycle-chain. The gear is being made in several sizes suitable for cars of from 3 to 12 h.p.

THE Simplex Motor Vehicle Company has been incorporated at Kittery, Me. U.S.A., with a capital of £100,000.

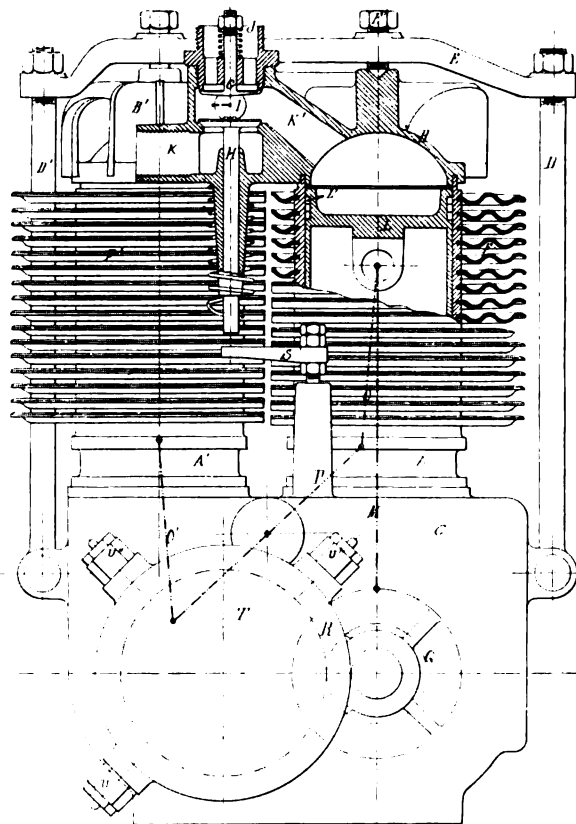
THE Leesdorfer Automobilwerke Gesellschaft is the name of a new company which has just been formed at Baden, near Vienna.

M. LEON LEFEBVRE, of 12, Rue Emile Allez, Paris, the maker of the "Boule" car, informs us that he has converted his business into a company, under the style of Messrs. Leon Lefebvre and Co., with a capital of £7,000.

THE Duryea Power Company has just been incorporated under Pennsylvania laws to build motor-vehicles at Reading, Pa., under the supervision of Mr. Charles E. Duryea, in other designs than those turned out by the Peoria Company. Among the vehicles manufactured will, it is said, be hansom cabs for city use. The capital is £20,000.

THE PHILIBERT-BOURDIAUX MOTOR.

ONE of the new petroleum-spirit motors which attracted attention at the recent cycle and motor-car show in Paris was the Philibert-Bourdiaux, introduced by M. E. Delalande, of 103, Rue Saint Maur, Paris, and of which an illustration is given herewith in Fig. 1. As will be seen, the motor has two cylinders, parallel and bolted close together to a common base chamber. On the outside of each cylinder is turned a helical groove of small pitch, in which are fitted a series of copper plates *F* for cooling purposes, the bore of which corresponds to the diameter of the bottom of the grooves in the cylinders. These plates are cut across to permit of fixing or withdrawal, while to increase the cooling surface they are corrugated. A feature of the motor is that there is only one crank for the two cylinders. The piston of the cylinder *A* is connected to the crank shaft by the rod *M*, while the piston of the cylinder *A'* transmits its motion to the head of the



same rod by arms *OO'* connected together by the compensating balance arm *P*. This arrangement, it is claimed, greatly simplifies the mechanical control of the motor and reduces the vibration, and enables two cylinders to be employed, which can be more easily cooled than one large one. The motor weighs only about 22lbs., and is claimed to develop 3-h.p. at 2,000 revolutions per minute. The explosion chambers *B B'*, the outsides of which are provided with cooling fins, are held in position by the stays *D D'*. *G* is the admission valve of the cylinder *A*, and *H* is its exhaust valve, mechanically operated by a tappet *S* and a cam shaft driven off the motor shaft by the pinions *R Q*. The valves *G H*, and the inlet pipe and exhaust outlet *K*, are of large section, in order, it is stated, to assure the regular working of the motor at the high speed. The ignition is electrical, the sparking plug being located at *I*, between the inlet and exhaust valves.

THE Wilkesbarre Automobile Company has been organised at Wilkesbarre, Pa., to introduce public electric vehicles there.

THE KÜHLSTEIN-VOLLMER PETROL CAR.



IN addition to the Kühlstein-Vollmer *avant train* illustrated in these columns last year the Kühlstein Wagenbau Gesellschaft, of Charlottenburg, Germany have lately introduced the two-seated car illustrated in Fig. 1 to 4. The frame is built

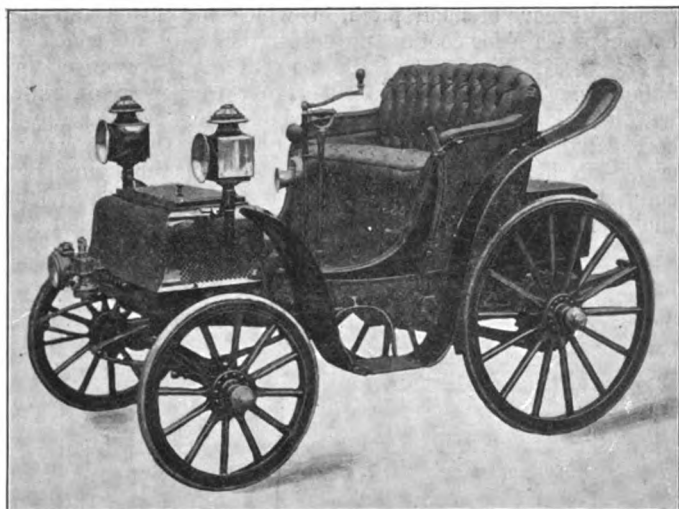


FIG. 1.—GENERAL VIEW OF KÜHLSTEIN-VOLLMER PETROL CAR.

up of channel steel, and carries the motor and the whole of the transmission gear. As will be seen the motor is located centrally in the rear part of the frame. It is of the horizontal two-cylinder type, with water jacket and electric ignition, and is stated to be capable of developing 5 h.p. The water-circulation is maintained by a pump; the carburettor is a gravity-feed one

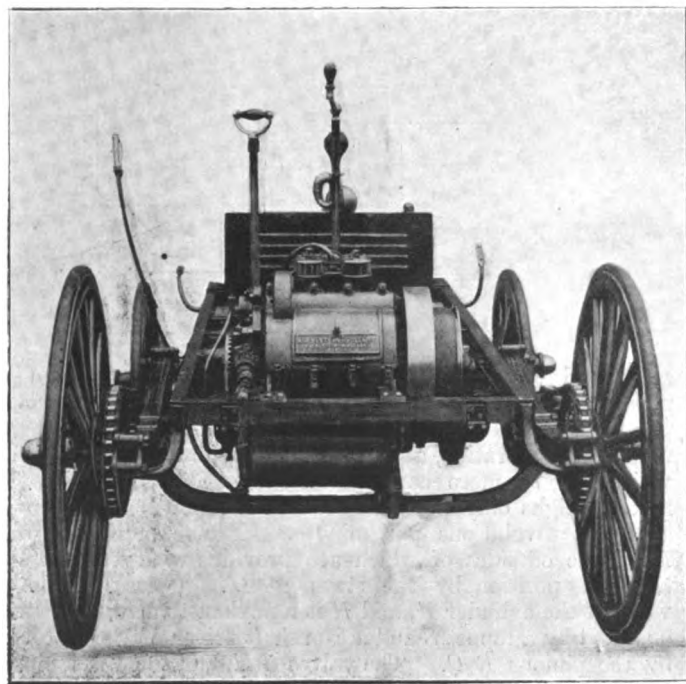


FIG. 2.—REAR VIEW OF KÜHLSTEIN-VOLLMER CAR, WITHOUT BODY.

of a special type. Three forward speeds—8, 18, and 35 kilomètres per hour—are provided, as also a reverse motion; the power of the engine is transmitted by a single belt to a counter-shaft spur-wheels, forming the variable-speed gear, connecting

this with the differential shaft, from which the power is transmitted to the rear axle by the usual sprocket-wheels and chains. The crank of the motor and the variable-speed gear work in oil-containing cases. The body is quite independent of the frame, to which it is attached by six bolts; the water tank, which has a capacity sufficient for a run of 100 kilomètres, is located in the fore part of the frame, a *refroidisseur* or coiling coil being introduced in the circuit. The wheels are of wood shod with solid rubber tires, while tiller steering is provided. The weight of the car complete is given as 700 kilogrammes or about 14 cwt., the makers stating that their object has been not to construct a light vehicle but one which will withstand the jolting and vibration caused by bad roads. We are indebted to *Die Automobile* of Berlin for the illustrations.

AN AUTOMOBILIST'S COAT.



LOVERS of the automobile will be glad to know that their sartorial wants are being studied and adaptations made to present-day styles of garments to meet the special requirements of their sport. Messrs. Burberry's (of 30, Haymarket, S.W.) "Automo Slip-on" is an overcoat combining the wind and rain resistance usually only found in mackintosh, the warmth holding and naturally hygienic qualities of the travelling ulster, and the lightness characteristic of the dust or covert coat. Built on their patented plan of combination, the outer surface is the well-known gabardine, while the inner lining, coming next the wearer, is a delightfully soft, light, thick, pure camel fleece, of a natural undyed colour, forming a coat so snug and warm that the greatest comfort is maintained in the bitterest winds or when travelling at the top speed of the motor. Add to this that the coat is capable of turning the heaviest continuous downpours without impeding in the slightest degree the free passage of air through the pores of the cloth, the motorist will see that this garment overcomes many of his chief difficulties so far as an overgarment is concerned.

The design of the "Slip-on" is such as to provide fulness at the knees, acting in itself as a rug, cut with the further advantage that, in addition, the motor-carriage apron may be wrapped round the knees under or over the coat as preferred. Carriage aprons are made of the same materials and supplied with the coat. They afford more protection and natural warmth than either box cloth or mackintosh, and are necessarily more pleasant to use. Messrs. Burberry's secret of success is their plan of proofing, which has long held the forefront in the battle of the proofers. Experience shows that this proofing lasts practically as long as the materials, and though quite as efficient as mackintosh in turning rain, the air passages of the cloth are as open as those of ordinary unproofed materials, as can be proved by blowing smoke through.

THE Foster Automobile Company has been formed at Rochester, New York, to manufacture steam and electric carriages. The capital is £20,000.

THE Motor Manufacturing Company, Limited, of Coventry and Holborn Viaduct, E.C., have arranged to take up the manufacture of De Dion air-cooled engines of 2½ h.p.

THE *Western Electrician* states that the last three or four months have witnessed a marked increase in Chicago in the popularity and number of electric automobiles.

THE Denison Electrical Engineering Company, New Haven, Conn., are building an omnibus for Mr. George D. Jones, of Torrington, Conn., to carry nine passengers and baggage. The motor is a 12 h.p. Yale two-cycle petrol engine, and the vehicle complete will weigh about 2,000 lbs.

THE Baldwin Cycle Chain Company, of Worcester, Mass., U.S.A., has sent us a copy of the list of motor-car and cycle chains it has just issued. The list gives particulars of Baldwin block chains ranging from 1 in. pitch $\frac{5}{16}$ in. wide, up to 2 in. pitch 1 in. wide, and of roller chains from $\frac{1}{16}$ in. pitch to $1\frac{1}{2}$ in. pitch.

CARRIAGE BUILDERS AND AUTOMOBILES.*

By WILLIAM PHILIPSON.

IF an impartial inquiry were made, I doubt whether it would be found that coach makers are either so conservative or so slow in their relations to the motor-car movement as some people would have us believe.

we must employ it in large vehicles like omnibuses and wagons, but here we are hindered by the restrictions laid down as to weight and speed by the Local Government Board.

During the past three years my firm has received scores of applications from potential buyers of automobile vehicles. The three chief purposes for which such vehicles are needed are for passenger traffic in towns where there are no tramways, for country districts where light railways have been projected for

bringing people and farm produce into towns, and for the delivery of goods within a radius of, say, ten or fifteen miles, at a smaller cost and with less risk of breakage and delay than is the case when sent by railway. As the law stands, however, we are not allowed to produce such a vehicle with the requisite degree of reliability and strength, because if a certain weight is exceeded then the law steps in and restricts the speed to a useless rate.

And now as to the oil motor. No one with any knowledge of the subject would attempt to deny that up to the present it is far ahead of all others. One may say without exaggeration that all the cars running in Great Britain and Ireland to-day—and there are several hundreds—are propelled by oil motors.

To the coach maker it is immaterial whether the car is provided with electric or lamp ignition; they are all disagreeable, stinking things, but if the oil motor does the work of moving the car and its load -

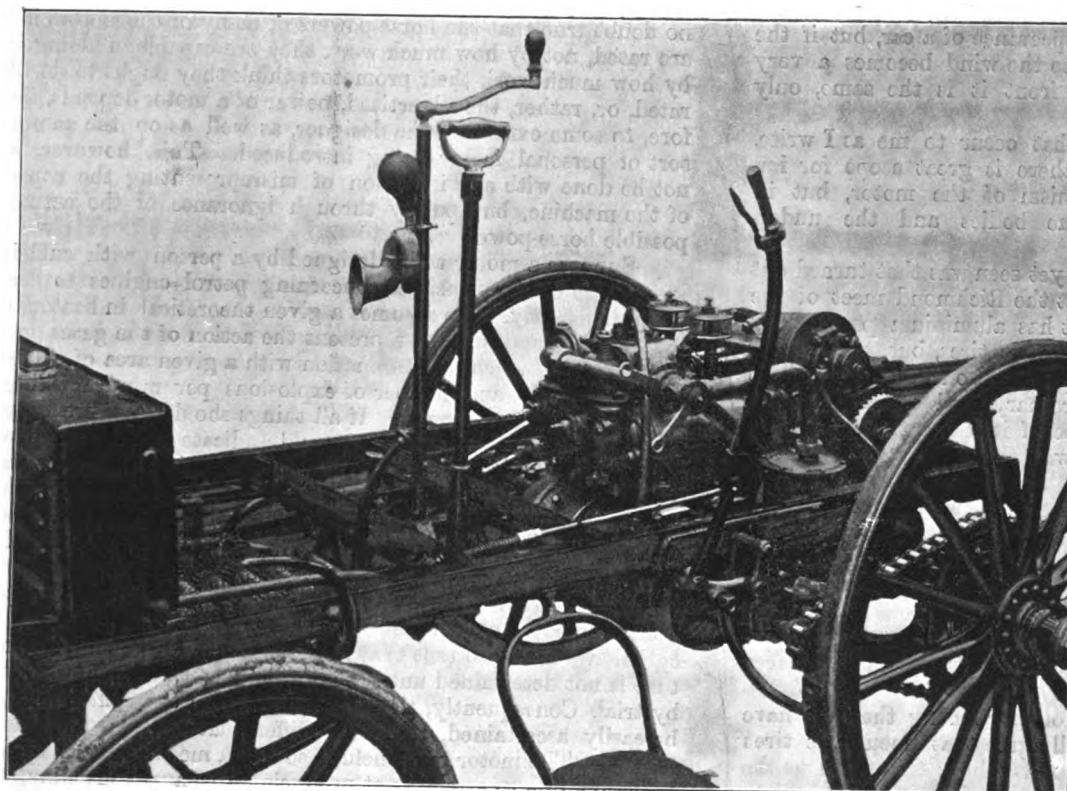


FIG. 3.—VIEW OF KÜHLSTEIN-VOLLMER CAR FROM RIGHT-HAND SIDE. (For description see opposite page.)

The electric motor is the one to which coach makers very naturally incline, owing to the absence of noise, vibration, heat, and smell. It may be kept charged ready for work at a moment's notice, night or day, and if provided with duplicate batteries, it is ready for a second journey after finishing its first. No doubt the working cost per mile comes out heavier than is the case with oil or steam, but when we obtain greater reliability and a reduction in the weight very little will be heard about the expense.

At the present moment the steam motor is the only elastic one we have, i.e., the only motor that will adjust itself to all roads, be they wet or dry, hilly or level, and whether the car be full or empty. By the steam valve we can regulate our power to a nicety without having recourse to complicated speed gearing, which adds weight, noise, and friction, and a part that is always requiring repair. To utilise the steam motor to the fullest advantage, however,

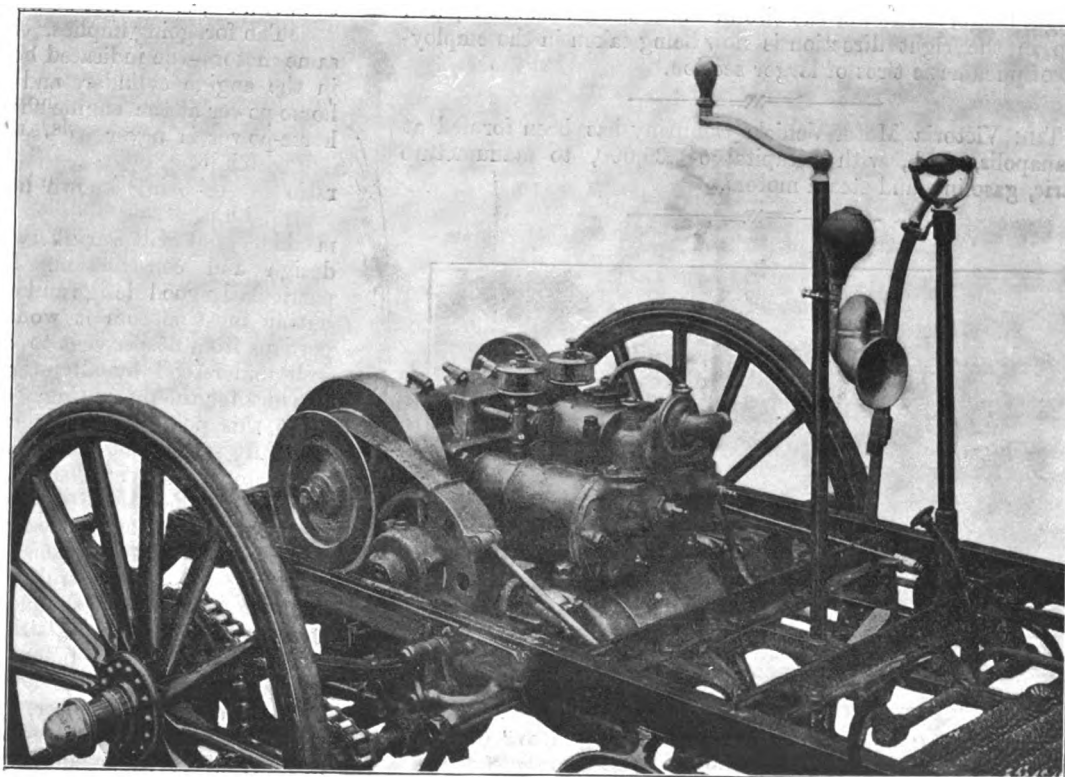


FIG. 4.—VIEW OF KÜHLSTEIN-VOLLMER CAR FROM LEFT-HAND SIDE. (For description see opposite page.)

A MOTOR-CAR CONTRACT.

IN the Queen's Bench Division last week, Mr. Wm. Gibson (instructed by Mr. D. S. Doyle), in the case of Joynt v. Hewetsons, Limited, moved on behalf of the plaintiffs for leave to issue a writ out of the jurisdiction, and to substitute service on Mr. Wm. McTaggart, of Dublin, agent for the defendant company, whose offices are in London. The action is to recover £25 3s. 6d. for breach of warranty in the sale of a motor-car to the plaintiff, and for breach of contract, and for money paid for the defendant's use.

Mr. Justice Boyd said the writ need not be served out of the jurisdiction, but could be served on the agent of the defendant company on an order to substitute service on him being made. He granted an order in the altered form.

AFTER A COLLISION.

EDGE v. WESTON.

BEFORE Mr. Justice Ridley and a common jury this case was heard at the Law Courts, London, on Friday. The plaintiff brought the action to recover damages from the defendant for injury done to a motor-car, owing to the alleged negligent driving of the defendant's servant. The defence denied that there had been any negligence, and there was a counter-claim for damages done to the defendant's cart owing to the plaintiff having run into it with his motor-car.

The case for the plaintiff was that on October 5th, 1899, he was proceeding along the Euston Road from the place where he stabled his machine on his way to a meet of the Automobile Club in Whitehall Place. He was driving a machine which was valued at £830, and weighed about a ton. The collision occurred at the crossing of Howland Street and Fitzroy Street, he having travelled down the latter street at a moderate speed. When the plaintiff arrived at the crossing there was a two-horse van in the way. He slowed down for the crossing and passed in front of the van, and when he had got across to where Charlotte Street faces Howland Street, there shot out from beyond the pair-horse van a light cart belonging to Weston, travelling at so rapid a pace that the plaintiff was unable to avoid it, and the horse and shafts of the trap came full into the motor-car, injuring it in various ways. The plaintiff, after having some conversation with the defendant's son and another man named Cavill, who were in the trap, sent for a workman who temporarily put the machine right, and Mr. Edge attended the meet and went to Oxford and back, although the machine was not running as well as usual. On returning to London he found that the motor-car was badly damaged. The repairs necessitated cost £42, and its selling value was greatly depreciated.

Mr. Edge was cross-examined by Mr. A. H. Poyser to endeavour to show that he was in the habit of riding at a high speed. He said that he was not in the habit of riding fast through towns. He had ridden from Holborn Town Hall to Coventry on a motor-cycle at the rate of twenty-three miles an hour.

In re-examination he said that he had never when riding in a motor-car run into, or been run into, by anything until the present occasion.

On behalf of the defendant, evidence was given to the effect that the plaintiff's motor-car was being driven at a furious pace, and that the hooter was not used at the crossing. The two-horse van which was in the road turned to avoid a collision, and the defendant's cart, which was behind the van proceeding at a trot, was run into by the motor-car with such violence that both the shafts were broken and the horse turned completely round, so that his head was where his tail ought to be. The defendant's son and Cavill were both thrown out, and the trap was damaged.

After the addresses of counsel, his Lordship summed up the case to the jury, who returned a verdict for the defendant on the claim and on the counter-claim, with £15 damages. Judgment was given accordingly.

CAVILL v. EDGE.

In this action, which arose out of the facts in the foregoing case, Cavill, who was in the cart when the accident occurred, sued to recover damages for personal injuries sustained by him. By arrangement a verdict for the plaintiff for £15 was taken.

CHARGE AGAINST A DIRECTOR.

AT the Central Criminal Court on Monday, the Recorder (Sir Forrest Fulton, Q.C.), in charging the Grand Jury in the case of Sydney Frederick Atkins, on bail, who stands indicted for that he, being a director of the Automobile Association, Limited, did fraudulently apply to his own use the several sums of £16, £22, and £44, the moneys of the said company, said the accused was formerly in the employ of the company, but was found to be a clever practical man and was made a director with the view of pushing the sales of the company. The charge against him was of having applied three cheques to his own use. It was quite certain the cheques were drawn, and that the money was obtained upon them, but there was no direct evidence that the money went into the pocket of the accused. His defence was that he was given a general authority to draw cheques for the purpose of paying secret commissions, and he apparently pleaded that the money had gone in that manner. The case was one which, he thought, should be fully investigated by a petty jury, and he therefore advised the Grand Jury to return a true bill in order that that might be done.

THE MOTOR MANUFACTURING COMPANY.

THE shareholders of the Motor Manufacturing Company, Limited, met last week, and confirmed the resolutions passed on the 15th ult. for the reconstruction of the company. The chairman moved the following resolutions:—1. "That it is desirable to reorganise the company, and that with a view thereto the company be wound up voluntarily." 2. "That a new company with the same or some similar name, and memorandum and articles of association, to be approved by the liquidator of this company, be formed." 3. "That the draft agreement submitted and expressed to be made between this company and its liquidator of the one part and the said new company of the other part, be and the same is hereby approved, and that the said liquidator be and he is hereby authorised, pursuant to Section 161 of the Companies Act, 1862, to enter into an agreement with such new company (when incorporated) in the terms of the said draft, and to carry the same into effect, with such (if any) modifications as he may think fit." On the motion of the chairman, Mr. J. H. Gretton, seconded by Mr. Buckea, Mr. Alfred Burgess (secretary) was appointed liquidator, without remuneration.

THE Automobile Club meet and dinner at the Sheen House Club takes place to-morrow (Saturday). The start is fixed for 3 p.m. at the Horse Guards Avenue.

THE HON. C. S. Rolls has arrived from Paris with a new 12 h.p. Panhard car which is to run in the 1,000-mile trial. It is fitted with both tube and electrical ignition, which are at times used simultaneously. It is probable that this duplex ignition will be fitted to many Daimler cars in the early future.

MR. EDWARD S. CLARK, of Dorchester, Mass., has just completed a steam-delivery wagon for a firm of bakers in Boston, Mass. The wagon weighs 1,750 lbs. with all supplies on, and has a 63-in. wheel base. The engine is a double-cylinder reversible, giving 8 h.p. at 400 revolutions. The vertical shell boiler contains 650 $\frac{1}{2}$ -in. tubes, giving 90 sq. ft. of heating surface. A double burner is employed, a spray burner heating up the main burner in about two minutes. Steam can, it is claimed, be raised in about seven minutes from the time of lighting the burner. The wheels, 32 and 36 in. respectively, are shod with $1\frac{1}{2}$ -in. solid rubber tires.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

VOL. II.]

LONDON, FRIDAY, APRIL 13, 1900.

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COMMENTS.



THE 100-mile Non-stop Road Trial organised by the Automobile Club took place on Wednesday last, but owing to our going to press a day earlier this week on account of the Easter holidays we are unable to give the results in this issue. The start was fixed to take place shortly after 10.30 a.m., the route being *via* Uxbridge, Beaconsfield, and High Wycombe to the 52nd milestone from London and back. Six cars had in all been entered for the competition, viz., two De Dion voituresses by the De Dion and Bouton Syndicate, Limited, a Marshall phaeton by Messrs. Marshall and Co., an Ariel quadricycle by the Ariel Cycle Company, a New Orleans voituress by Messrs. Burford, Van Toll and Co., and Mr. Mark Mayhew's 8-h.p. Peugeot car, illustrated in our last issue. As Messrs. Marshall and Co.'s driver was taking their motor-car to the start of the Trial in the morning he was run into by a London and North-Western Railway van. The car was seriously damaged and the driver much shaken, whilst the railway van driver is reported to have whipped up his horses and galloped away. We understand that Messrs. Marshall and Co. have put the matter in the hands of Mr. Staplee Firth, with a view of obtaining damages against the railway company.

The Motor-Car Exhibition.

AN application—the Agricultural Hall Company, Limited, *v.* Cordingley and Co.—was heard in the Law Courts on Wednesday, when it was agreed, without prejudice to any further question, “that the defendant may exhibit twenty-five, but not any greater number of bicycles and tricycles. The defendant undertakes not to show or exhibit, or allow to be shown or exhibited at the Hall (1) any greater number of bicycles or tricycles than twenty-five altogether, whether the same shall be moved by mechanical motors or other mechanical means or otherwise; (2) or any accessories other than accessories for or applicable to motor-cars.” This undertaking does not in any way interfere with the exhibition as previously arranged, and will not exclude a single exhibitor.

The Hon. C. S. Rolls.

AMONG automobilists the Hon. C. S. Rolls is well known, and they will read with interest the interview which we publish on another page. Accompanying the report of that conversation is an illustration of the new 12-h.p. Panhard car which Mr. Rolls has recently brought over from Paris. The owner is seated at the helm, and has another well-known automobilist by his side. Mr. Rolls is sanguine with regard to the future of the industry, and gives emphasis to some of the views presented by the Hon. J. Scott Montagu in his recent paper read at the Automobile Club. His views on the value of racing in improving the designs of cars are valuable, but whether motor-car races are likely to prove a permanent addition to our

British excitements is a matter on which difference of opinion is found among automobilists.

Combination Electric and Tube Ignition on Motor-Cars.

IN our last issue we briefly referred to the fact that the Hon. C. S. Rolls' new 12-h.p. Panhard car is fitted with both electric and tube ignition to the motors. In connection with this question our Paris correspondent writes:—“During a capital run that I had with the Hon. C. S. Rolls on his 12-h.p. Panhard from Paris to Havre last Saturday week, not the least interesting feature of the drive was the effect produced upon the speed of the car by the employment of electric in combination with tube ignition. Immediately the switch was put over, the pace of the car increased very considerably, only to diminish instantly that the current was cut off. We had no opportunity of actually noting the difference in time over a kilometre, but I fancy that, comparatively speaking, it must have been very considerable. That the car was not absolutely dawdling along may be judged from the fact that on the level we timed her over many kilometres to be doing from 53 to 56sec. for the kilometre. From Saint-Germain to Havre the distance by road is 200 kilometres, the half-way house, Rouen, being about 108 kilometres from the former place. Leaving Saint-Germain at 9.30 we travelled by way of Chambourey, Flins, Mantes, Rosny, Bonnières and Gaillon, descended the famous “Trou du Diable,” and then *via* Pont de l'Arche to Rouen, where we arrived at midday. Half an hour we spent in that ancient city, and then, resuming our journey, we ran over the last 92 kilometres in 1h. 40min.—fast travelling when it is considered that Mr. Rolls drove slowly through the villages, with the exception of one, where the entire absence of visible inhabitants and the presence of an extremely wide straight stretch of road tempted him to travel at a speed considerably in excess of that permitted in Piccadilly, for example.”

Run to Sheen House.

FIFTEEN cars took part in the Automobile Club's run to Sheen House, Richmond, on Saturday last. The outing was a very enjoyable one, and after tea many of the ladies and gentlemen participating went for a drive round Richmond Park. We were on a De Dion voituress, which had three passengers, and took every hill except one at top speed. The dinner in the evening was well attended, and, as is usual at Sheen House, was well served. Such runs as these are useful, not only as giving opportunity for social intercourse among the members of the Automobile Club, but also as a means of increasing the interest of Society in automobilism. By inviting their friends to participate in such outings members can do much to help the popularisation of the pastime.

London to Paris.

DURING the week a new venture has been started which might, in our opinion, have been improved by the adoption of motor-vehicles. We refer to the trips, “London to Paris by Coach.” Starting from Piccadilly, four-in-hands go to New-haven *via* Brighton, and coach, horses, and passengers are put on

board a steamer to be taken to Dieppe. Then along the valley of the Seine the travellers will enjoy some of the finest scenery in northern France. Not more than thirty miles will be run on any day, and on some occasions the progress will not exceed twenty-five miles. The fare for a box seat is twenty guineas, for a seat facing the horses fifteen guineas, and for any other position twelve guineas. The first coach started on Monday morning, and the party should reach Paris next Tuesday morning or Monday evening. The success, or otherwise, of this idea will probably be keenly watched by automobilists.

Excursions by Motor-Car.

SHOULD there be a sufficient number of patrons for such a venture, the motor-car industry should receive great encouragement, and the inauguration of a similar notion, using motor-vehicles instead of horses, need not be long delayed. For while short trips and day excursions have hitherto been the practical limit of public service enterprise, the automobile is essentially adaptable to longer tours and for such excursions as those which are to be organised by the concern to which reference was made in a recent issue. We hope to see a great extension this summer in the use of motor-vehicles for pleasure parties, and owners of such charrs-à-bancs as the "Balmoral" ought to have little difficulty in securing patronage.

The 1,000-Mile Trial.

OUR Paris correspondent writes:—"I am told by the representative of the Automobile Club of Great Britain that M. Ravenez and MM. Albert and Georges Lemaitre, the three members of the 'A. C. F.' who had signified their intention of participating in the English 1,000-mile trial, have now intimated their inability to take part in this tour. This is to be regretted, for the majority of members of the French club have but a poor opinion of English automobiles, and actual participation in this event would have done much to prove to *chauffeurs* here that English-made cars are not so bad as they picture them. I understand that M. Ravenez, who is chairman of the Decauville Company, will probably visit London in order to witness the start of the tour."

An Enterprising Lady Motorist.

WE have already referred in these columns to that enterprising lady, Miss N. G. Bacon, in entering the ranks of lady motorists, and her riding on a Werner motor-bicycle. Apparently she has now got quite accustomed to the machine and its little ways, for we understand that she has just purchased one on which she proposes to take part in her professional capacity as a journalist in the forthcoming 1,000-mile Trial. Thus we shall have two ladies driving their own conveyances—Mrs. Bazalgette and Miss Bacon—in the coming Trial.

The Scotte Tractor.

ALL visitors to the Paris International Exhibition will certainly not fail to remark in the Siberian section at the Champ de Mars four immense railway passenger cars, built and exhibited by La Compagnie Internationale des Wagons-Lits, and automobilists will give them particular attention if only on account of the manner of their transport from Saint-Denis, the scene of their construction, to the place which they now occupy. Weighing no less than 35,000 kilos each, the work of conveying these monster cars would have been a very difficult operation a very few years ago, but to-day, thanks to the progress of automobilism, their transport was readily effected. A Scotte tractor of 27 h.p. was harnessed to this railway house—mounted on a low carriage—and each of the cars was towed safely over the 13 kilometres of road separating Saint-Denis and the Exhibition. The first journey was made during the night of the 5th inst., and the others followed during the subsequent evenings. Starting from Saint-Denis at 9.45 p.m., the tractor and its load, accom-

panied by another Scotte engine and a steam omnibus, made good progress until the Porte d'Asnières was reached. Here a halt was made until 1 a.m., as the police authorities feared that the huge mass would seriously disturb the traffic of the metropolis. Paris was entered at the authorised hour, and upon commencing the ascent to the Place de l'Etoile the services of the accompanying tractor were called into requisition. Once the hill had been overcome, the rest of the journey was quickly accomplished, and at 3.30 a.m. the first of the *wagons-lits* had been installed in the Exhibition. The transport of the others was as readily achieved.

Motor Races at the Crystal Palace.

MR. F. W. BAILY informs us that the arrangements for the cycle and motor race meeting on the track at the Crystal Palace for Easter Monday are now complete. As last year, it is proposed to divide the races into two separate items. The first will be the motor-cycle races held by the Motor-Car Club at 12.30. These races will comprise a one-hour race for the Crystal Palace Brassard between F. F. Wellington, R. Moffat Ford, C. Jarrott, and S. F. Edge. Besides this, there will be a ten-mile scratch race for racing machines and a five-mile handicap for roadsters. This should make a very attractive programme. The cycle races will take place at 4.30, and in order to complete the programme, and to test the question of the superiority of the French or English pacing motors, races for these machines are being held.

Mechanical Traction in South Africa.

THE enforced delay in the progress of the British troops in South Africa owing to the failure of the horses should prove a weighty argument with our military authorities, especially as so much excellent work in connection with the transport arrangements has been done by traction engines—of which more than a score are now being successfully employed. From an answer given to Mr. MacIver in the House of Commons on Friday, it appears that Lord Roberts is considering whether additional means of traction of that character could be usefully employed. The forced marches latterly undergone seem to have caused great difficulties among the horses—which would never have arisen had mechanical traction been more freely employed.

Cyclists and Motor-Cars.

MR. CHARLES JARROTT does well, before the commencement of the touring season, to call the attention of cyclists to the folly and danger of "hanging on" to motor-cars. To the cycling press he has addressed a letter instancing an accident which has occurred on the Ripley road owing to this bad practice, and every motorist could probably give some more or less painful examples of accidents arising from this cause. We do not object to cyclists taking advantage of the pacing afforded by automobiles, although it is not always pleasant to have a total stranger following in one's wake, but we do object to their approaching within a few feet of the vehicle and then looking angry if knocked down owing to the sudden stoppage of the car. The motorist has quite enough to do in looking ahead without being worried with regard to what is in the rear. Some obstruction on the road may necessitate his prompt stop, and as the motor-car can be stopped in a very short space the cyclist who is following stands a very good chance of "coming a cropper." The warning should be widely given as to the danger cyclists run by persisting in such close attention to automobiles, and it is to be hoped they will not disregard the advice.

"Motor-Car Accidents."

LEADING newspapers have, unwittingly in most cases, done much to deepen the prejudice of some of the public against motor-vehicles by describing every collision or mishap as a "motor-car accident." If a brewer's dray runs into an automobile the incident is reported as a "motor-car collision," the inference

being that the mechanically-drawn vehicle was the offender. Often have we drawn attention to this want of accuracy in the Press in general terms as calculated to inspire feelings of distrust. It is to be hoped that motorists will call the attention of editors to such lapses whenever and wherever they occur, and thus render a service to the industry generally.

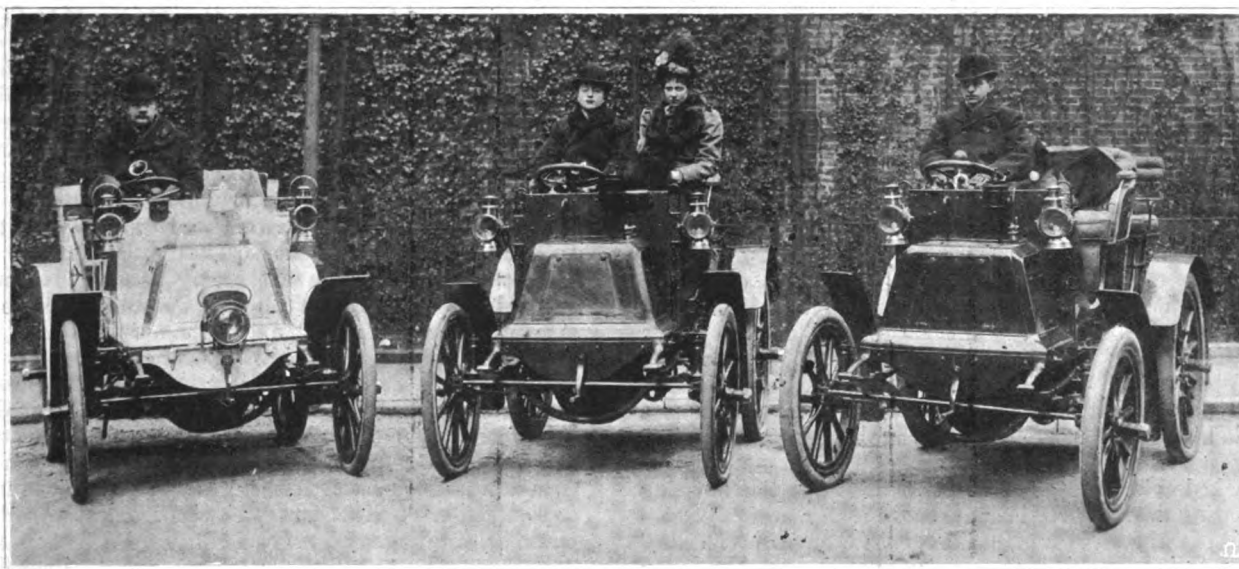
A Case in Point.

ELSEWHERE we report an accident to a motorist, which was duly recorded in the *Birmingham Daily Gazette* as a "motor-car accident." True it may have been, but those who read the report will see that the motor-car was quite innocent in the matter, and the heading we have given the paragraph is, we suggest, far more applicable. The car was going at only a moderate pace, and it was in the effort to avoid a cyclist and tramcar that the motorist was crushed between his own vehicle and another cart. Such an accident would have occurred had the car been drawn by horses, and to imagine that it was in any way connected with the propelling power employed is absurd. And yet such mishaps—regrettable as they are—are generally regarded by the public as inevitable consequences of motor-car behaviour.

such a decision the members of the vestry were largely influenced by the experience of the Strand District Board of Works, whose vehicle has a capacity double that of an ordinary cart, while the increased speed also tends to accelerate business. We understand that the Strand Board of Works has recently ordered a second motor-van, and that the surveyor to that public body estimates a saving of £200 a year with each, as compared with a corresponding amount of work done by horse-drawn vehicles. During the course of the discussion at St. George's Vestry, Colonel Legge said that smokeless coal or coke would have to be used for fuel, and the vehicle was capable of carrying enough fuel for forty or fifty miles. One important consideration in connection with motor-vehicles for such work is that they can be turned in a small area.

A Group of Panhard Cars.

WE are this week enabled to publish a photo of an interesting group of Panhard cars, all of 6 h.p., the drivers of which will be well known to many of our readers, they being all members of the Automobile Club. On the left we have Mr. Frank H. Butler, the popular honorary treasurer of the Club, on the car which he recently brought over from Paris; in the centre we see Mr. and Mrs. T. B. Browne; while at the right is Mr. H.



MESSRS. FRANK H. BUTLER, T. B. BROWNE, AND H. LOEFFLER ON THEIR 6-H.P. PANHARD CARS.

Photo by]

[Argent Archer, Kensington.

The Queen in Ireland.

ON the occasion of the review of 50,000 Irish youngsters by the Queen in Phoenix Park, Dublin, on Saturday last, several motor-vehicles were about the city, and many of the children from the distant towns probably saw such cars for the first time. After the Queen, at some little distance, was Mr. J. McDonald, the local manager of the Cycle and Motor Company, Limited, and he, mounted with his little daughter on an Ariel motor quadricycle, followed Her Majesty through the Park, Blanchardstown, Clonsilla, and back through the Park to the Viceregal Lodge. Prior to the Queen's drive Mr. McDonald had an opportunity of explaining to the Lord Lieutenant of Ireland and his two sons the principle of his machine, and giving them particulars of its power and speed, as well as some idea of its comfort and serviceability.

Motor-Vans for Municipal Work.

AUTOMOBILES continue to demonstrate their serviceability in connection with municipal work, and London vestries continue to show enterprise in their adoption. The St. George's (Hanover Square) Vestry has decided to purchase a Thornycroft motor tip-wagon, with water tank, at a cost of £750. In coming to

Loeffler, who left London on his car on the 3rd inst., on a journey to Berlin. We may add that both Mr. Butler's and Mr. Browne's cars will take part in the forthcoming 1,000-mile Trial.

The Exhibition.

TO-MORROW, Saturday, the 14th, the great Motor-Car Exhibition, under the patronage of the Automobile Club and managed by the proprietors of this Journal, will open, and during the whole of next week automobilists will meet at the Agricultural Hall to compare notes and see the latest developments of the new industry. We have previously set forth the leading features in detail, and there is now no need to repeat them, as the catalogue of the exhibition will give visitors a comprehensive view of the leading events of the week.

The Catalogue.

A FULL and complete catalogue has been prepared, copies of which will be on sale in the exhibition, price sixpence each. As there will doubtless be some who cannot attend the exhibition, we shall be pleased to send copies post free to such absentees, or to readers abroad, on receipt of ninepence. Early application for copies is, however, requested, as there is likely to be a great demand at the exhibition.

THE AUTOMOBILE MEETING AT SALON.

(From Our Own Correspondent.)

AFTER the hill-climbing contest up the famous Côte de l'Estérel at Cannes had been decided on the 1st inst., a general move was made by automobilists to Salon, where two important events were set down for decision. The first of these, that decided upon Tuesday, the 3rd inst., was a "course" open to all voitures and motor-cycles. The distance was 100 kilomètres, or 75 miles, and the route followed was an ideal one for a race. Seventy-five kilomètres of the course were contested over that wonderful stretch of road lying between Salon and Arles, a road running straight as a die, and without a serious grade from end to end. The Automobile Club of Salon had taken measures to secure this route, it being in a thorough state of repair, and seldom, if ever, has an automobile race been contested under more favourable circumstances. To complete the required hundred kilomètres the organiser had added a loop to this straight run, and here too the road surface was excellent. Small wonder then that on a route so perfect and favoured with glorious weather the times made were altogether exceptional. Béconnais set the example, and what an example, too! One hundred kilomètres in 82min.! An average speed of 73 kilomètres, 150 mètres, or 45½ miles per hour, over a distance of 100 kilomètres is not bad travelling even for the "king of motor cyclists." The actual time for the distance was 1h. 22min. 34½sec., which demolishes Rigal's record made on the Etampes-Chartres road on March 22nd last by 8min. 14½sec. Marcellin, too, achieved magnificent times until leaving Arles, when he came to grief through a broken tube, and let up Gasté into second place. The latter continued to travel well, and by finishing less than seven minutes after the leader, he also beat Rigal's record. The other competitors did nothing worthy of note. Turning to the voitures, an exceptional performance by Théry, driving a Decauville car, has to be recorded. He made the distance in 1h. 47min. 47½sec., beating the ancient record of Léon Bollée by 9min., and giving the excellent average of 56½ kilomètres (35¼ miles) per hour. Jules Dubois, who finished second, also drove a Decauville, but a punctured tyre and the consequent delay made his performance but a slow one as compared to that of Théry.

In marked contrast to the weather of Tuesday the morning of the following day, the 4th instant, broke under miserable conditions, and it was seen at a glance that "La Coupe Provinciale" would be contested for under trying circumstances, and not only was the weather stormy, but the equanimity of certain representatives of the competing clubs was also sadly ruffled. M. Chauchard, representing the Automobile Club of Nice, took exception to the representation of M. Cuchelet for Salon, on the ground that he was a Marseilles man. His objection, although apparently well founded, was not upheld by the committee of organisation, and until the very last moment M. Chauchard expressed his intention not to participate in the race. Perhaps it was a little unfortunate that the objection should have been lodged by him, as it appears that he himself had borrowed M. Pinson's well-known 12-h.p. Panhard in order to strengthen Nice's chance of obtaining the trophy. As is generally known, the "Coupe Provinciale" is the result of a meeting of delegates from the various automobile clubs of the south-east of France, held on February 2nd last, at which it was decided to hold a yearly competition among the clubs of that region. Two trophies were procured, one for cars and one for motor-cycles, and it was to decide the first holders of these trophies that the race of the 4th instant was held. The route selected was one of 180 kilomètres (112½ miles), from Salon, by way of la Fare, Aix, Saint-Cannat, Lambesc, Sénas, Orgon, Saint-Andéol, Avignon, Rognonas, Tarascon, and Arles, back to Salon. At a few minutes past 10 a.m. the first of the eight competing cars set out on the journey, the last of them to leave being that of Cuchelet. The competitors were:—Becq (Béziers), Chauchard (Nice), Vaglians and de Fabrègues

(Marseilles), Pansu, Audibert and Eparvier (Lyons), and Cuchelet (Salon). Immediately after they had got clear away, the motor-cyclists—Donjeon and Gibelin (Avignon), Menard (Lyons), Audibert and Cavasse (Salon), started. At Sénas Chauchard held a 13min. lead of Cuchelet and Becq, but this advantage he did not maintain, for Cuchelet finished but 2min. 52sec. after him at Salon, and as the latter had started 3min. later from the "Contrôle de Départ," his time was the fastest by 8sec. The others to finish were MM. Audibert and Fabrègues, both a couple of hours after the leaders. M. Lambex broke a wheel at Lambesc, M. Becq had an accident at a level crossing, and MM. Pansu and Eparvier gave up. The only motor cyclist to finish was Cavasse of Salon, and he took seven hours and a-half to make the journey. Oh! those short circuits! Both cups would, therefore, appear to have been secured by Salon, but subsequently the president of the Federation telegraphed to M. Gondoin, the president of the Nice Club, to the effect that M. Cuchelet was disqualified, and that M. Chauchard would, therefore, be regarded as the winner of the race, and the Nice Club as the holder of the trophy. The racing was witnessed by many well-known automobilists, including MM. René de Knyff, Étienne Giraud, Pinson, Gondoin, Tart, Gleizes, and Darracq, and the Parisian contingent will have many pleasant souvenirs of their visit to Salon.

THE FASCINATION OF MOTORING.

VOLUMES have been written in praise of riding on horseback, and newspaper columns have overflowed with laudation of bicycling. Ballooning, running, and every form of sport have their votaries, ever willing to descant upon the fascination of their favourite hobby. Naturally each class of sportsman exalts his own pastime above the others.

But who has found a motorist willing to yield to any other sport the charm and delight possessed by motoring? The pursuit of automobilism seems a consuming passion hastening its novitiates into ecstasies of pleasure as they become more and more proficient. People point to the intelligence of the horse as something wholly wanting with the motor-car. It may be that the automobile does not possess that almost human quality of temper which gives such a zest to a ride on a spirited horse; but it also has its moods and its little tricks, which have to be studied and mastered. In the motor-vehicle there is something more than a means of pleasure; there is infinite opportunity for the concentration of ideas and the ever-watchfulness which is associated with riding.

Then, too, the motor never tires, and does not flag. Undue heat will not give the sense of depression which animals feel while the delight of coasting up hill and down again, rushing by country farms, churches, hamlets, and grazing cattle without needing to urge the steed forward with whip, lash, and shouts of encouragement, and concluding long rides with refreshing and invigorating feelings is a sensation only possible to automobilists.

Ordinary driving is enervating if long pursued, but the motorist can spend hours on his car travelling considerably faster than any horse could journey, and reach the end of the trip with a sense of new life and rejuvenation which is only describable by one word, fascinating. Motoring is an added opportunity for enjoyment, a new means of excitement, the climax of driving, cycling, and all other sports on land which the ingenuity of man has devised and the force of nature has provided. Such, at least, is the view of all loyal and enthusiastic motorists—and we cannot imagine a motorist to whom these two adjectives cannot, in truth, be applied.

THE Wolsley Sheep Shearing Company, Limited, of Birmingham, have entered another of their voitures for participation in the 1,000-mile Trial. The company will now have two vehicles in the contest.

THE Columbia Motor and Manufacturing Company, Washington, D.C., has purchased the plant of the Crouch Automobile Manufacturing and Transportation Company, of Baltimore, Md., and will move its plant to Baltimore.

The Audibert-Lavirotte Four-Seated Car.



LA SOCIÉTÉ des Établissements Audibert et Lavirotte, Rue des Quatre-Maisons (Monplaisir), Lyons, France, have lately taken up the construction of high powered cars, fitted with motors of either $7\frac{1}{2}$, 12, or 16 h.p. The accompanying illustration shows a four-seated car lately turned out by this firm. The frame, which is of tubular construction, carries the whole of the motor and transmission gear, so that any style of body can be fitted to meet the desire of purchasers. In the car illustrated the engine is of $7\frac{1}{2}$ h.p.; it is of the horizontal two-cylinder type with electric or tube ignition, and water jacket, its location being at the rear of the frame. The crank works in an oil-containing case. The valves are so arranged that they can, by the removal of two bolts, be readily withdrawn for cleaning, etc. The normal speed of the motor is 650 revolutions, but this can be increased by means of the accelerator provided. Coming now to the transmission mechanism, four forward speeds and a reverse motion are available; the motor shaft is connected through a pedal-operated friction clutch to a short shaft carrying a number of pinions of different size, any one of which can be made to mesh with corresponding gear wheels on the differential shaft, the power from the latter being transmitted to the rear road wheels by the usual sprocket wheels and chains. Like the crank, the variable gear works in an oil bath. As the illustration shows, steering is controlled by an inclined hand-wheel; it will be seen that there are two wheels on the steering pillar, one above the other; it is the upper one by which the steering of the car is effected, the lower one controlling the variable-speed gear. The frame is suspended by easy springs on artillery wheels, shod with pneumatic tires. Ample brake power is provided, while to reduce the necessity of frequently changing the cylinder cooling water a radiating coil is fitted in the front part of the car.

MR. E. J. COLES will repeat the performances recently given by him at the Alhambra every afternoon and evening at the Automobile Club's Exhibition at the Agricultural Hall next week.

THE Panhard Levassor Motor Company, Limited, has been registered, with a capital of £100, to carry on the business of cycle, vehicle, flying machine, launch, and motor manufacturers, electrical and general engineers, etc.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

Some New Jenatzy Vehicles.

M. JENATZY, whose "Jamais Contente" electric racing car attracted so much attention in Paris last year, is now carrying out some trial runs with a new car, which can, it is stated, attain a speed of 50 kilomètres per hour, and cover a distance of 97 miles on one charge of the batteries. M. Jenatzy's company is also reported to be at present engaged on the construction of a combination electric and petrol car.

A New Commission.

WITH a view to the amendment of the existing laws regulating the use of automobiles in France, and for the purpose of supplementing them to the extent which the enormously increased number of motor-vehicles renders necessary, Monsieur Pierre Baudin, the Minister of Public Works, has appointed a special commission. In issuing his decree, M. Baudin states that he makes the appointment of this commission because he finds that the application of the law of March 10th, 1899, presents certain disadvantages which he desires to see remedied. He also directs the attention of the members of the commission to the three questions which have of late been so frequently discussed, and the satisfactory solution of which would be so eminently desirable. The first of these is the question of "sonorous signals," as the trumpets are styled in M. Baudin's circular. Are they, or are they not, to be suppressed? Some authorities on the circulation of automobiles advocate their entire suppression, contending that under ordinary circumstances the noise of the motor itself is sufficient to give warning, and that when necessary this can be supplemented by the voice of the driver. This doubtless would be effective enough on quiet country roads, but in towns the hum of the engine passes unnoticed among the noise of the traffic, and the *chauffeur* may shout himself hoarse without attaining his object. As for turning a corner, what a tribulation that would be, and what a strain upon the vocal organs of the motor-man.

Granted that the indiscriminate use of the trumpet is objectionable, nay, more, positively dangerous, for it terrorises the horse in a manner that the motor itself seldom does, still it seems to me that its retention is essential until some equally effective and more agreeable signal shall have been found. The second matter to which M. Baudin draws attention is that relative to the passage of automobiles through towns and villages. There is one very effective method of preventing fast driving through villages, and that is the employment of "pavé" on the route. Except when racing, no automobilist drives fast over "pavé," and the village which rejoices in this commodity need have no fear of cars traversing their streets at anything but a crawl, that is, always provided that the "pavé" is not too good. M. Baudin's third point is the much discussed question concerning distinctive marks for motor-vehicles. While the whole automobile world is against the disfigurement of their cars by the employment of numbers, no serious objection would be raised to the naming of every vehicle. Let the name be painted distinctly and legibly upon each car, and the public and the police will have little trouble in identifying any wrongdoer, although not so easily, perhaps, as would be the case were numbers employed. I am sure that the naming of cars and the intelligent vigilance of the police will safeguard the interests of the public perfectly efficiently without resorting to any such objectionable plan as the numbering of automobiles. M. Baudin has, in appointing his commission, shown sound good sense; for, as will be seen from the following names, the members are all thoroughly acquainted with practical automobilism, and their recommendations are sure to be as moderate as they will be effective. The members are:—MM. Jozon, Forestier, Mourier, Michel Levy, Collomp, De Zuylen, Ballif, Krebs, Pierre Giffard, Rodolphe Darzens, and Walckenaer. It may be noted that eight of these gentlemen are members of the French Automobile Club.

For the Novices.

SUNDAY, April 29th, is the date that has been definitely decided upon for the automobile race known as "La Course du Premier Pas," and which is only open to those *chauffeurs* who have never yet figured as competitors in a race. It is highly probable that a very great number of amateur drivers will avail themselves of this opportunity to indulge in a little excitement, and in order to give all a chance of glory the race promoters have established no less than five categories. These are:—(A) Motor-cycles of one seat; (B) quadricycles of one seat and motor-cycles with trailing car; (C) four-wheeled voituresses, with two seats side by side, weighing less than 250 kilogrammes; (D) Four-wheeled voituresses, with two seats side by side, weighing from 250 to 400 kilogrammes; (E) cars of at least two seats, exceeding 400 kilogrammes in weight. The *Vie au Grand Air* is promoting this event, and has selected as the scene of the contest the Paris-Rouen route. The double journey will be made, that is, a distance of about 135 miles, and among the entries received to date are the Marquis de Lurey, D. Laillault, L. Laillault, Stéphi, Gouchaux, and Klotz.

The Filtz Motor-Tricycle.

A NEW motor-tricycle known as the "Filtz" has lately been put on the market by Les Ateliers de Construction Mécaniques (Turgan and Foy), of Boulevard de Carnot, Levallois-Perret, France. Fig. 1 gives a general view of the machine from the rear. The principal feature lies in the motor (Fig. 2), to the cooling of which, as will be seen, special attention has been devoted. The inlet and exhaust valves are arranged at each side, quite independent of the cylinder; they can be readily taken out, the operation only necessitating the removal of one nut for each valve. The exhaust valve cam works inside a kind of frame to the upper end of which is connected the valve-rod, the lower end forming a guide sliding on the motor shaft. By this means the valve-rod is guided in its course, and cannot, it is claimed, "stick," it being drawn back as well by the springs as by the cam itself. It will be noticed, too, that the

springs are placed well away from the parts where they are likely to be detrimentally affected by the heat.

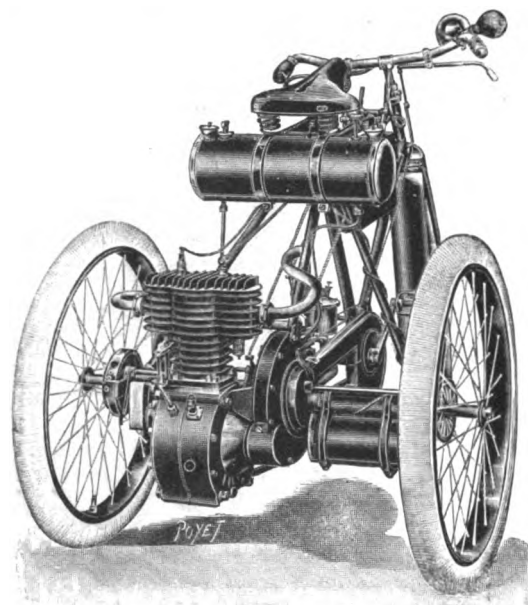


FIG. 1.—REAR VIEW OF FILTZ MOTOR-TRICYCLE.

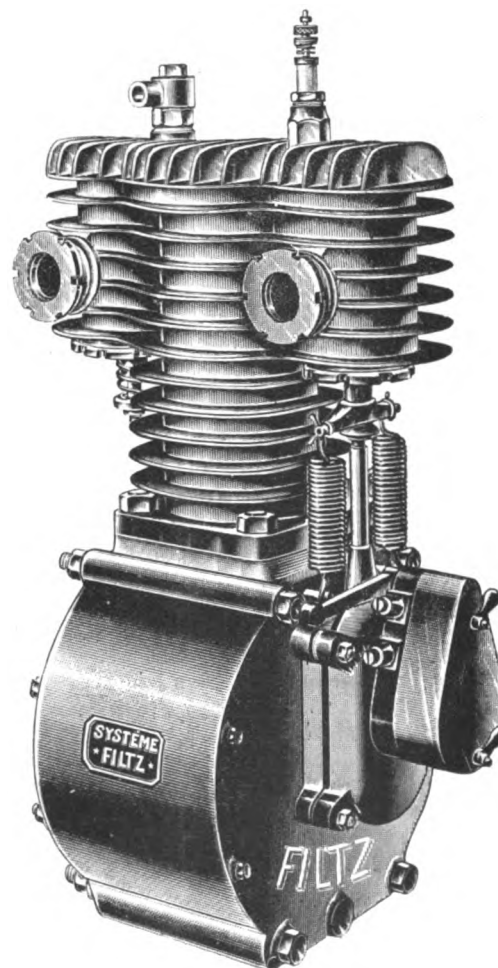


FIG. 2.—GENERAL VIEW OF FILTZ MOTOR.

German Contests.

THE project put forward some time ago of organising a competition for electric vehicles in Berlin has taken definite shape, and Tuesday next, the 17th inst., will witness the first of a series of tests to which the competing cars will be subjected daily up to and inclusive of Monday, the 23rd inst.

Mr. Martin Kallmann, the well-known scientist and electrician, and who, by-the-by, is a very prominent member of the Automobile Club of Central Europe, is organising the competition, which will be on fairly severe lines. After the not very creditable performances made by the majority of competing vehicles in the test which took place after last year's automobile exhibition in Berlin, there exists a certain doubt as to the practicability of electromobiles, and it is largely to ascertain their real capacities that the present competition is being promoted. If, as it is hoped, the cars acquit themselves well, electric traction in the German capital will receive a much-needed fillip. Another event which is set down for decision at an early date is a race from Mannheim to Pforzheim and back, a distance of 103 miles. Promoted by the Rhenish Automobile Club, this *course* will be run off on Sunday, May 13th, and the competitors will be divided into four classes, viz., racing-cars, touring-cars, voiturettes, and cycles. It is anticipated that the race will secure many entries and will be hotly contested.

The Paris-Roubaix Race.

It is on Sunday next that one of the oldest and best known of the annual automobile events will be decided under the management of *Le Vélo*, and as nearly all the crack motor-cyclists have inscribed their names, the contest for the premier place will be a severe one. This fixture is the Paris-Roubaix *course*, which, originally a cycle race pure and simple, became in 1898 an automobile event by the creation of a section for motor-cyclists. The race is an extremely popular one with competitors and spectators alike; indeed, many of the latter go as far afield as Breteuil, some 105 kilomètres from Paris, in order to witness the passage of the racers. The start will be effected from Chatou at 10.30 a.m., and, given fine weather and good roads, it is anticipated that the leaders will arrive at Roubaix at about half-past three in the afternoon. The route is by way of Saint Germain, Conflans, Pontoise, Beauvais, Breteuil, Amiens, Doullens, Arras, Seclin, and Lesquin, a total distance of 268 kilomètres, or about 168 miles. Among the entries I note the names of Meyer, Béconnais, Rigal, Marcellin, Osmont, Baras, Tart, Willaume, Rivierre, Léa Lemoine, Vasseur, Dernester, and Bardin.

MESSRS. TH. BOTIAUX AND CO. is the style of a new firm which has just been formed in Paris (21, Avenue St. Ouen), with a capital of £3,200, to build motor-cars.

THE Anglo-American Oil Company, Limited, has issued a very useful card giving the names and addresses of over fifty agents holding a stock of Pratt's motor-car spirit on the route of the 1,000-mile Trial.

MR. HERBERT J. CROFT, of Kendal, informs us that, besides being agent for Carless, Capel and Leonard's petrol, he can charge accumulators for motor-cars, so that anyone taking part in the 1,000-mile Trial can rely upon having both petrol and their accumulators charged in Kendal.

THE annual general meeting of the shareholders of La Société des Anciens Etablissements Panhard and Levassor will be held on Tuesday, May 15th, at the offices of the company, 19, Avenue d'Ivry, Paris. An extraordinary general meeting will follow the termination of the ordinary business as it is required to affect certain alterations in the company's statutes.

THE Autocar Company, of Ardmore, Pa., have just completed a new petrol carriage. It weighs 635lbs., with water and petrol for a seventy-five-mile run, and seats two persons comfortably. The motor, of the Otto cycle type, has two cylinders, with cranks set at 180 degs., and develops $4\frac{1}{2}$ h.p. Power is transmitted to the rear axle by means of a counter-shaft consisting of a speed drum, to which band brakes are applied, so that any speed, including a hill-climbing speed, may be obtained. The vehicle is entirely automatic, both as to fuel supply and lubrication, and is controlled by a single lever. The frame is composed of steel tubes, with brazed joints. The front axle is flexible to compensate for the inequalities of the road. A condenser cooling the water from the cylinder is placed under the footboard.

THE DELAHAYE MOTOR-VOITURETTE.

CALLING at the Automobile Palace (Messrs. Friswell) on Holborn Viaduct, E.C., the other day we were shown a new two-seated car built by Messrs. Em. Delahaye and Co., of Paris, of which a general view is given herewith. The engine, which is of the horizontal single-cylinder type, is of $4\frac{1}{2}$ h.p.; it is located centrally at the rear of the frame, and is fitted with electric ignition and water jacket, the water circulation being maintained without the use of a pump. Two speeds forward and one reverse are available, the power of the motor being transmitted by a single belt working on fast and loose pulleys to a counter-shaft, and from the latter to the rear axle by the usual sprocket wheels and chains. Wheel steering is



provided, while the variable speed gear is controlled by a single handle. As regards braking power, a foot pedal actuates a hand brake on the counter-shaft, while there are also band brakes, worked by a hand lever, on drums on the rear axle. The water tank is located in the front of the car, while that for the petrol is under the seat. The road wheels are of wood, shod with pneumatic or solid rubber tires as desired. Finished in natural wood the car has an attractive appearance; on the level it can, it is claimed, attain a speed of from eighteen to twenty miles per hour.

A MOTOR-OMNIBUS service is about to be started between Montbrison and Sainte Anthème, France. The vehicles have accommodation for twenty passengers, and can attain an average speed of 20 kilomètres per hour.

THE Waltham Manufacturing Company, Waltham, Mass., have secured the exclusive agency in America for the Aster motor, and in future they will fit their tricycles and quadricycles with either the De Dion or Aster motors.

LA SOCIÉTÉ DE VOITURETTES AUTOMOBILES, of 163, Avenue Victor Hugo, Paris, have gone into voluntary liquidation, and the affairs of the company are now being wound up. The society was manufacturing motor-vehicles under the Léon Bollée and E. Durand patents.

FROM the office of the Conty Guides (12, Rue Auber, Paris) we have received a copy of a new pocket guide to Belgium. The book, which is of a very handy size, opens with a brief history of the country, followed by a number of pages of general information. The guide is based on a fifteen-days' tour in Belgium, starting at Brussels, and including visits to all the leading places of interest. Illustrations are given of the principal buildings, while a useful feature is the provision of maps of the leading cities and towns, including Brussels, Antwerp, Ghent, Bruges, etc.

THE AUTOMOBILE OUTLOOK.

INTERVIEW WITH THE HON. C. S. ROLLS.



THE Hon. C. S. Rolls has come rapidly to the front—on a motor-car. Always interested in mechanical science he devoted much of his time to practical experiments, when at Cambridge, where he took his degree in engineering. When a boy at Eton he fitted up, alone, one of the first complete electric light installations in Monmouthshire, the switchboard, etc., being from his own design. He has also travelled much in Russia, Turkey,

Greece, and North Africa while three months at sea, where he qualified as third engineer, gave him considerable acquaintance with the Baltic. Thoroughness is a characteristic of his nature, and he has studied gas, steam, and oil engines until their mysteries have become clear. Before racing on a modern motor-car he acquired skill in connection with traction engines and locomotives and also won distinction as one of the University cycling team, gaining his half blue and being captain of the University cycling clubs. In his cosy room at South Lodge, Knightsbridge, where I recently spent a couple of hours with Mr. Rolls (writes a representative of the *Motor-Car Journal*), are many trophies of the days when he pedalled and also of the more recent events associated with motoring. In response to my wish to see the latter I was shown a blue paper neatly framed and hung in a conspicuous place among a great collection of old friends, familiar cars and capital photographs taken by my host.

"This was my first distinction as a motorist," said Mr. Rolls, "and I regard it as interesting, for it was a summons issued before Parliament removed the restrictions which had hampered the development of automobilism. In those days I had some sharp runs, mostly at night and was fortunate enough to secure the consent of the authorities in Hertfordshire and Cambridgeshire to my driving without the red flag in front. Great was the astonishment of the natives of the villages passed through, and on one occasion when I was going from London to Cambridge the good people of Royston (which is thirteen miles this side of the University town) sat up all night to see the horseless rider go through their little town. Their vigil was, however, unrequited, for I did not arrive until the next day."

"Curiosity has been materially satisfied since then?" I suggested.

"Yes, but in some distant places we motorists are still objects of interest, and it is remarkable how a motor-car when standing quietly outside a shop is generally regarded as having broken down. Many people have not yet comprehended the fact that the driver of a motor-vehicle must leave his car just as the driver of an ordinary horse and carriage. Whenever they see a motor-car by itself a crowd quickly gathers, and the majority of the observers express surprise to see it glide steadily on under the control of the driver. It is very different in France."

As is well known, motoring is accepted as a matter of course on the other side of the Straits of Dover, and Mr. Rolls has decided views as to the reason for that view of things.

"Racing made the industry in France," he said, "and one of the most hopeful signs at the present time is that English makers are turning their attention to the subject. The result should be seen in a higher class of car, for the maker who can produce a vehicle to stand the strain of a great race is best able to build one for ordinary touring or pleasure. Great care has to be taken in the construction of racing cars, and the introduction of aluminium will show makers where the weight of ordinary cars can be safely reduced."

"But you would not advocate the introduction of automobile racing in this country at the present juncture?"

"Certainly not; although now it has been commenced in France it would be exceedingly difficult to put a stop to it. It receives encouragement from the Press and help from the local authorities of the places through which the vehicles pass, for they

realise the substantial benefit conferred on the district—especially those towns where the competition begins and ends. That will probably be demonstrated here during the forthcoming tour of the Automobile Club, and although the stopping places are large towns where the advantages will be spread over a wide area they will be tangible and unmistakable. But the absence of English races should not deter English makers from the construction of racing cars, for there will be classes reserved for Englishmen, and perhaps, after a while, English cars, in some of the leading Continental races. In France the firm that does not construct racing cars which have won good positions is in a very poor position and held in light esteem by enthusiastic *chauffeurs*—even by those who only require cars for ordinary use."

Asked as to his own experience of French racing-cars, Mr. Rolls, who, needless to say, is not interested in any maker, unhesitatingly placed the Panhard firm's productions first, he having done well with their 8-h.p. car against competitors using 12 or 16-h.p. cars. He recently brought a 12-h.p. Panhard car from Paris to participate in the Automobile Club's trials, and later in the year hopes to take part in some of the French races on a Mors car of greater power—the exact power, however, being tantalisingly kept a secret which not even the most insidious methods of the interviewer could obtain. Whether it will be equal to trying conclusions with De Knyff's new car is another matter—for, if report be true, that will be an exceptional vehicle. Still, the machine is not everything in motor-racing, as some think.

"Mechanical instinct and patience are two important factors," said Mr. Rolls, "and care must be taken with all adjustments so that the motor shall give its greatest power at the critical time. All the great French racing men spend hours with their car before the start, and I have found, in practical experience, that after the car is apparently ready to start one can spend three days on nothing else but making trivial adjustments. The man who takes the greatest amount of trouble, spends the longest time over his car, and makes the greatest number of trial runs is most likely to win the race."

From the general subject we got to the men who take part in the French races.

"They are all, so far as I have observed, thorough sportsmen. In fact, many of the leading motorists of France are owners of the best stables—Baron de Zuylen, for instance. They have only taken to motoring because of the sport it affords, and although the motor-car has sometimes been considered *infra dig.* by English sportsmen that prejudice is likely to pass away. It can only be felt by those who have never enjoyed the excitement of a contest, for, in my view, there is no more fascinating form of sport. This, too, is borne out by the number of horsemen who are taking to motor-vehicles and such lovers of horses like the Earl of Carnarvon and my father—Lord Llangattock—are developing into sportive motorists."

"Apart from the sport of motoring, Mr. Rolls, what is the outlook for the motor-vehicle as a means of transport?"

"Highly encouraging to British industry. The advantages are undoubted; and I have seen the plans of a light engine that could draw a load which requires mules or oxen extending to a length twenty times its own. Such economy in space would be of advantage in war as well as in the crowded streets of our towns. The French have regarded the automobile from the sporting point of view, but our makers have regarded it mainly as a commercial vehicle, with the result that our heavy vehicles are already superior to those of Continental construction."

Seeing that the automobile movement is likely to become an important fact in our national industry I naturally invited Mr. Rolls as to his suggestions to British manufacturers desirous of making up the leeway between French makers and themselves.

"As to the commercial outlook the field is enormous, and I do not know of any other industry which sprang up in France with the same rapidity. The first automobile race in France was in 1894, the course being from Paris to Rouen. The public took an immediate interest in the sport. The continuance of racing has maintained that interest and been a great factor in improving the efficiency of motor-vehicles. Those who have specially applied themselves to the production of cars sufficiently light, strong, and serviceable for racing have reaped their reward. It is now

practically the rule in France to consider that if you can get a car without paying a premium in less than, say, six to nine months the car is not much good. In fact, it absolutely holds good throughout the industry that the longer the time before delivery the more likely is the car to be a good one, and the Panhard Co. cannot promise delivery in less than eighteen months or two years.

So roseate is the position in France that I asked Mr. Rolls if that was also true of other countries of the Continent.

"Well," he replied, "I should not like to particularise save to say that in some other countries wonderfully cheap cars are made, the main claim being their simplicity. But so-called simplicity does not always ensure the highest success in operation. The old grandfather's clocks were simple compared with the delicate mechanism of modern watches—but who would prefer the former to the complicated parts of the latter? Each part has actually some work to do, and intending motorists should remember that less working parts will probably mean a less efficient car while in racing it by no means follows that the simplest car will have any chance. Unfortunately the shop-window view of things is frequently taken by intending owners of motor-cars who look to the painting of the body and of the wheels rather than to the degree of strength or mechanical proportions."

In many circles the continued importation of French cars is occasioning some concern in view of the efforts of English makers to secure the market in their own country. Mr. Rolls regards this as an advantage in the present stage of the industry.

"Nothing," he emphatically affirmed, "can assist English constructors more than the importation of French cars. When our British firms are able to build cars as good as the Panhard, for instance, it will then be time for them to begin and work out ideas of their own. Till then experiments will be only a waste of time and of money. We have first to realise that other countries are very much ahead of us."

"That is not the fault of our engineers," I observed, glancing at some old prints of Gurney's, Church's, and other men's vehicles, which were running on English roads before the Frenchman ever thought of travelling other than by animals. There amidst his photographs of modern cars—Peugeot's, Panhard's, etc.—Mr. Rolls has some interesting old prints of vehicles which, had not a short-sighted Parliament prevented development, would have attained high perfection by now.

"Certainly," I agree, "and but for the opposition of interested factions sixty years ago we should have led the way in automobilism now. But that opposition succeeded, and other nations have had years of experience. Let our people utilise that instead of learning it for themselves. If our makers had been wise they would, three years ago, have bought modern French cars and copied them exactly instead of spending money and time in unnecessary experiments. Having succeeded, that would have been the time to strike out along improved lines. I believe that those who have imported French cars would quickly change their custom to English firms as soon as they produced equally good vehicles. That English *chauffeurs* are anxious to race with English cars has been proved by the Hon. J. Scott Montagu, who took the first English built car into a Continental race."

The views of such a practical motorist on other cars are always interesting, and I questioned Mr. Rolls as to some of the American cars with which he is acquainted. The Whitney naturally occurred first.

"I thoroughly enjoyed a ride on a Whitney car when it was in England last year. It was a lovely thing while it lasted, but great care had to be taken to keep the right amount of water in the boiler. Unfortunately the visible exhaust has not been got over—but, even with these two failings, it is about the best steam car I know. But the very best American car is in my opinion the Duryea petrol car, which I drove for a short time some years ago. It had an extremely silent motor and gear, and the speeds of the car were entirely controlled by one lever. I have often wondered why more has not been heard of it in this country."

While holding to the view that at the present time the petrol car is undoubtedly the most satisfactory, Mr. Rolls does not despair of seeing electrical vehicles—of which he regards the Columbia as the best—about the streets.

"They are perfectly noiseless and clean. There is no smell or

vibration, and they should become very useful for town use when fixed charging stations can be arranged. But for country use I do not anticipate they will be very serviceable—at least for many years to come."

"But," I reminded Mr. Rolls, "even country users of petrol propelled cars have their difficulties. Not perhaps from the nature of their cars, but the density of railway officials in connection with the new motor-car spirit regulations."

"Well, they must act with the supplying firms in a united body to resist the recent innovation. And if the railway companies are not prepared to meet us in the matter one or two of the larger firms supplying motor-car spirit must organise motor-car services to deliver their petrol in country districts. Not only would such do something to popularise automobiles, but it would also show the railway companies the value of motor-cars. In France, many of the companies also own motor-vehicles and in many cases they would prove useful adjuncts in this country."

As a winter pastime motoring has been fully justified during the last few months as the *Motor-Car Journal* has amply shown, and Mr. Rolls is quite enthusiastic on this point.

"The trip I took from Paris to Havre last December was largely over the snow and frequently in the hilly districts of my home in Wales I have seen horses struggling to get a foothold on frozen roads while my car went by with ease and grace. Although we have been inclined to regard the motor-car as a fair-weather vehicle I am not sure whether its greatest service will not be in



THE HON. C. S. ROLLS ON HIS NEW 12-H.P. PANHARD CAR.
[Photo by] (F. Howard Mercer, F.R.P.S.)

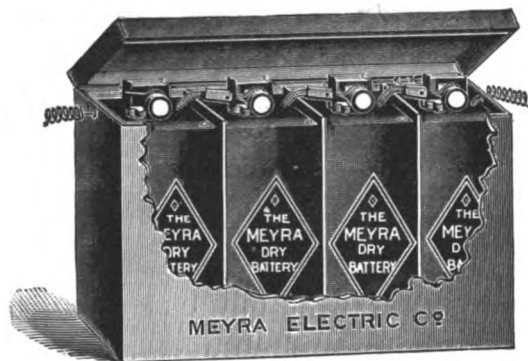
the winter—so far as easing the hardships of horses are concerned, for it is certain that the motor-car can negotiate steep places which are almost inaccessible to horse-drawn vehicles in frosty and severe weather. My only real difficulty in frosty weather was when in Paris the circulating water froze during 20 degrees of frost and the radiator burst. Three hours spent on my back under the car, however, and three hours thawing with burning petrol, enabled me to put that right and resume the journey."

Before leaving South Lodge I was shown the workshop in which Mr. Rolls has often been engaged throughout the night pursuing his hobby and tending his car after a long run, or preparing it for some great feat on the morrow. It is a very business-like apartment, roomy and lofty, and fitted with a variety of tools and appliances, and a pit, while there is kept a duplication of motor-car parts which keep the owner free from some of the little worries associated with the pleasure of motor-car possession. On the walls are ranged the numbers worn by Mr. Rolls in his various competitions, and these are already making a good total. The longest non-stop run he has done in this country was one of 146 miles on the North Road on the occasion of the *Motor-Car Journal's* trials in connection with the Agricultural Hall exhibition last year, when he obtained a gold medal. Other awards obtained in competition include those for the best

motor-vehicle (an 8-h.p. Panhard) at the Dover meeting of the British Association; two first prizes at the Yorkshire show at Bradford a few weeks ago, and a silver medal in the hill-climbing competition at the same place, when Mr. Rolls performed his task in half the time occupied by anyone else. These and successes won in French races made a record in the new sport which well entitles the recipient to a first place among British automobilists and give enhanced value to his optimistic view of the future popularity of the motor-car as a form of sport and of the prosperity of the industry. Between the purely sporting and the solidly commercial aspects there is another which Mr. Rolls regards as equally important—viz., the social influence of the motor-car in enabling country gentry whose visiting is now restricted by the want of railway facilities, or the capacity of their horses, to get across country and do far greater distances without inconvenience, thereby increasing their circle of friends, while its adoption by shooting parties has already commenced. In fact, he told me, as I bade good-day, the "motor-car will probably become universal—at least, every country house will ultimately possess its motor-car, which will be regarded as as indispensable as the present-day horse and pair."

MEYRA DRY BATTERIES FOR ELECTRICAL IGNITION.

THE Meyra Electric Company, of 75, Newman Street, London, W., are introducing electric sparking sets, consisting of four of their patent dry cells of special shape, conveniently arranged in a rectangular or square box or covering to suit the various requirements of motor-carriages and motor-cycles. The makers state that the suitability of sets of dry cells for petrol or gas ignition has been now proved beyond doubt. Most of the successful motor-cars and motor-cycles in the recent exhaustive trials in France were, we understand, supplied with these sparking sets. They are claimed to be more con-



venient, easily replaced, cleaner, less heavy and bulky, and more reliable than secondary accumulators.

The above illustration shows four dry cells of this special type in a convenient case for a motor-tricycle. The covers can be made of wood, leather, cardboard, india rubber, pegamoid, etc., to suit any requirements. These four cells of M.C. size, together in series giving six volts and ten ampères, weigh only about 12lbs., inclusive of case. The life of a sparking set of this type varies from 300 to 500 hours, according to the work required of it by the motor. An important feature claimed for this ignition set is its reliability in wet and stormy weather, and that no amount of heat or cold can effect its sparking.

LIEUTENANT I. N. LEWIS, secretary of the U.S. Board of Ordnance and Fortifications, Washington, has obtained patents on an oil motor for automobiles, of which much is expected.

THE business of Messrs. Cudell and Co., of Aix-la-Chapelle, Germany, is being converted into a company, with the title Die Gesellschaft für Motor und Motorfahrzeug-Bau, and with a capital of £75,000.

MOTOR-CARS IN AUSTRALIA.

(From a Correspondent.)

Melbourne, March 7th, 1900.

THE motor industry is now beginning to make fair progress in Victoria at least, a number of firms having become connected with the automobile. The most important of these is the Thomson Motor-Car Company, Flinders Lane, Melbourne, just formed to manufacture steam and other vehicles. This company has purchased the patents of the Thomson Steam Phaeton, and is said to have orders in hand to the extent of £10,000. The phaeton in question is of handsome design, will seat six comfortably, and weighs only 10 cwt. The motor is 5 h.p., having cylinders 1½ in. and 3 in. diameter and 3 in. stroke. The steam generator is of simple tubular design, and is only 1½ cubic feet, being 12 in. by 12 in. by 16 in., is worked up to 300 lb. to the square inch, and uses ordinary kerosene. Both the fuel and water supplies to the generator are under automatic control, and the phaeton has complete condensing apparatus, so that with a reserve of only 4 gallons the vehicle may be run about 25 miles; the consumption of oil is also very small, 1 gallon lasting the same distance. This vehicle has now run over 2,000 miles, and has been exhibited at the Melbourne, Bendigo, and Maryborough Agricultural Shows. It was recently exhibited at the Congress of the Society for the Advancement of Science, composed of all the leading scientific men of Australia, during which time it carried loads of eight and nine passengers.

Another successful Australian car is that lately completed by Mr. H. Sutton, who has devoted some years to his experiments. The rights of this car are under offer to the Thomson Motor-Car Company, and they should prove of considerable value, as the car is adapted to burning benzine, which is procurable here at about one-third the price of petrol, which costs up to 5s. 6d. per gallon. The oil motor on this car has a cylinder 3½ in. diameter by 4½ in. stroke, air cooled by radiators, with primary electric ignition, which may be advanced or retarded, and may be started from the seat. The vehicle is a doctor's phaeton to seat two persons, and has rear-wheel steering, the motor, which is mounted on the front axle, being connected to counter-shafting and then back to front-driving wheels by chain gear.

The Automobile Company has just landed a Benz car from Germany. The vehicle is not unpacked yet, but it should run successfully. We will then be able to compare the German "last edition" with an Australian "first edition," and some interesting trials should come off shortly.

There are quite a number of motor-cycles running about Melbourne, but the prohibitive price of petrol makes them rather an expensive luxury. The relative prices of fuel are:—Kerosene, 9d. gallon; benzine, 1s. 7d. gallon; petrol, 4s. 9d. to 5s. 6d. gallon; gasoline, 5s. gallon. Petrol is not stocked here, and what is required has to be imported privately. Our Government regulations prevent more than half a gallon being stored at once, placing a further disadvantage on the article.

The Dunlop pacing motors have done a great deal to assist the motor-car industry here, and they have proved to be highly satisfactory, a number of new cycle records having been established.

Both the postal authorities in Sydney and Melbourne are anxious to adopt motor-vehicles, but will not import at the present high prices ruling in England. The vehicles they want are to be made in the colonies, in order to ensure the carrying out of repairs promptly when necessary.

With reference to prices, it is expected that motor-cars will be placed on the market at English catalogue prices, so with a duty of 25 per cent., freight and charges, foreign competition should not be felt for years to come.

Great interest is being centred in a proposed run from Melbourne to Sydney (a distance of upwards of 600 miles) with an imported car yet to be landed. The Thomson Motor-Car Company, however, are pushing on with a light two-seated steam touring car, fitted with engines capable of running to 10 h.p. This car, it is expected, will do the journey in about 30 hours, but the roads are not particularly good.

CORRESPONDENCE.

STANDARD SIZES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The letter of a Cycle Agent in last week's issue deals with a practical matter for the manufacturer and factor. There is another matter I should like to ventilate through your columns, viz., the standardisation of wheels and spokes. Hardly any two builders of automobiles use the same sized wheels and spokes on their vehicles. Consequently, every order for the wheels and spokes is a special one requiring extra expense. Could not something be done to secure uniformity and thus lessen the cost?

Birmingham, April 10th, 1900.

Yours truly,
SPOKES.

MOTOR-CYCLE RACING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—On behalf of the National Cyclists' Union and the Automobile Club of Great Britain and Ireland, we beg of you to permit us through your columns to call the attention of motor-cyclists to the rules which now govern motor-cycle racing, viz.:—(1) Motor-cycle races, in which muscular force may be employed for propulsion, are under the control of the National Cyclists' Union. (2) Motor-cycle races, in which muscular force may not be employed, except before the starting line, are under the control of the Automobile Club of Great Britain and Ireland.

1. As regards races held under the rules of the N.C.U., it is necessary that—(a) all riders, both amateurs and professionals, must hold licences from the Union. (b) Handicaps for motor-cycle races must be framed by an official handicapper of the Union. (c) The rules to be observed in motor-cycle races under N.C.U. rules are the same as apply to other cycle races.

2. In motor racing under the rules of the A.C.G.B.I.: (a) Competitors and their vehicles must both be registered with the A.C.G.B.I. (b) Tracks must be approved by the Competitions Committee; and meetings cannot be held under the rules unless a permit be obtained from the A.C.G.B.I.; (c) Handicaps must be framed by an official handicapper of the A.C.G.B.I., and there are other conditions contained in the rules, copies of which can be obtained from the Automobile Club of Great Britain and Ireland 4, Whitehall Court, London, S.W.

Our committees trust that they may receive the loyal support of motorists of all classes in their endeavours to encourage and protect legitimate motor racing in this country.

Yours truly,

April 7th, 1890. S. R. NOBLE, Secretary, N.C.U.
C. JOHNSON, Secretary, A.C.G.B.I.

A 400-MILE TRIP.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having read some time ago in your journal that you were pleased to receive from your readers accounts of motor-car tours, and having read several very interesting ones from the gentlemen, I thought I would send you an account of a 400-mile tour I had with my husband last summer on a small Benz car. We started from Southend-on-Sea on Sunday at 10.30 a.m., driving through Chelmsford and Epping to Waltham Cross, where we were detained about two hours on account of rain. The weather having cleared a little in the afternoon we ventured as far as Barnet to call on some friends. Continuing through Watford with the intention of running to High Wycombe, we unfortunately took the wrong road from Watford and went several miles out of our way through Uxbridge, consequently we only got as far as Tetsworth, where we put up for the night. Leaving there on Monday about 10 a.m. we drove into Oxford, where we obtained petrol, and visited most of the places of interest. We left about 4 p.m., and after a few miles run on the Woodstock road we stopped to oil up, when a coach passed us. The guard, I suppose thinking it could be nothing less than a breakdown, enlivened the scene with the air of "Oh, dear, what can the matter be?" on his horn; unfortunately we were going in the opposite direction, or could have shown them there was very little the matter. After some

refreshments at Shipston we drove to Chipping Norton and called on friends. I think the whole inhabitants must have turned out to see the car, they being the most enthusiastic of any town we passed through. We then drove on to Stratford-on-Avon, arriving about 7.30, only just in time to secure comfortable quarters. On Tuesday we left Stratford after lunch and visited Leamington, Warwick, Kenilworth, and Coventry, where we obtained petrol, and arrived at Leicester about 6.30, the roads being fairly good. Leaving the Red Lion Hotel, Leicester, 10 a.m. Wednesday, we unfortunately took the wrong road, and found the only way, unless we returned, was by a bridle path over about half a dozen fields. We chose the latter; and fortunately the children were only too anxious to open the gates, which saved us dismounting. We arrived at Uppingham in time to lunch with the farmers, it being market day, and found them very favourably impressed with motor-cars. Resuming the journey through Rutlandshire, we reached Peterborough, where we obtained petrol, and then ran on to Wisbech and King's Lynn, arriving about 7.45 p.m. On Thursday we left King's Lynn about 9.45 a.m. and turned towards home, driving through Downham Market along the banks of the Ouse to Ely, and then on to Cambridge, where we spent three hours visiting friends and obtaining petrol, etc. Afterwards, taking the road through Saffron Walden, Dunmow, and Chelmsford, we arrived at Southend at 11.30 p.m., having had a very enjoyable drive.

The only trouble we had with our car the whole distance was in adjusting the belts, which we were over careful in shortening, having only had our car—a 1898 pattern Benz—a few months, and very little time to devote to it.

Yours truly,

Victoria House, Southend-on-Sea,
April 7th, 1900.

E. W. FOSTER.

A TRIAL OF THE CULASSE-BUCHET.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having recently had an old 1½-h.p. tricycle fitted with a new cylinder 70 mm. bore, provided with the Culasse-Buchet, with the valves at the top of the cylinder instead of at the side, a short account of the first trial run from Manchester to London may be of interest to tricycle users. Starting from near Manchester on Sunday morning the tricycle soon settled down into steady work, and I found that the speed was perceptibly increased and the exhaust seemed to get away particularly clear, very little overheating resulting from the use of the large bore cylinder. The machine also went up hill much stronger, the speed was quite 25 per cent greater, and the petrol consumption was very low.

The roads all through were in excellent condition, particularly south of Coventry, excepting about the last thirteen miles through Middlesex into the City. Altogether the Culasse-Buchet is a very marked improvement on the usual form of engine, and presents no difficulties with it.

Yours truly,

April 9th, 1900.

D. H. SIMPSON.

GUARANTEEING AUTOMOBILES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was much surprised to read in your last issue that a correspondent, signing himself "Cycle Agent," should suggest that guaranteeing motor-vehicles would increase the trade in them.

At the present time it seems to me that quite a sufficient guarantee is given. Most respectable manufacturers guarantee their goods from bad workmanship or material for three months from the date of purchase, and unquestionably this is quite long enough to test these points, and how it is possible for any manufacturer to give any other kind of guarantee I fail to see, as a customer might easily ruin his vehicle within twenty-four hours of buying it.

I myself cannot see why anything more is necessary to try and popularise motor-vehicles than is being done at the present time. Everyone who has a good article for sale has more orders than he can immediately meet, and what is the good of asking a

lot of new people to come and buy good automobiles when good automobiles are not there for them to buy? My opinion is that the whole industry is moving along in a very satisfactory way, slowly—and for a very good reason why—because motor manufacturers are not made in a day, and those who jump into the business and think they are, will surely result in putting bad vehicles on the market, harmful both to themselves and to the industry as a whole. Good vehicles will do the business much more good than large paper guarantees and bad vehicles.

Yours truly,

7, Tavistock Chambers,
Hart Street, W.C., April 10th, 1900.

S. F. EDGE.

THE DAIMLER MOTOR-CAR.

(Concluded from page 70.)

IN connection with the report of the exhibits at the National Show at the Crystal Palace (see *Motor-Car Journal* for November 24th, 1899), we published an illustration of the 1900 pattern Daimler car, which is known as the Daimler Parisian. Compared with the earlier cars the principal departures are the adoption of sloping wheel and screw steering, the

foot lever projecting upward through the floor of the car. A spring at the left end of the clutch shaft keeps the clutch pressed into the fly-wheel when running, and the same is released by pressing the lever down with the foot. This, of course, disconnects the motor from the driving gear, and so cuts off all propelling power, when meeting with a block in the traffic, etc. The driving gear is arranged by means of hardened spur wheels on the clutch shaft which transmit the power to an intermediary shaft above, which again drives the main counter-shaft by means of bevel wheels. There are two bevel wheels on the last-mentioned shaft, one for forward driving and one for reversing. Either of these are put into gear by means of a thrust bearing actuated by a hand lever in easy reach of the driver, which makes the reversing as easy a matter as forward driving. As already mentioned, there are four different speeds, which are arranged by four different gears on the clutch and intermediary shafts (Fig. 13). On the former they are fitted on to a square sleeve (a portion of the shaft, of course, being square), which allows the same to be moved to the right or left along the shaft, so that the speed of the carriage can be changed at will. To obviate any liability of stripping the cogs when changing the speeds it is necessary to press down the foot lever actuating the clutch, throwing out the latter, so as to take all strain off the

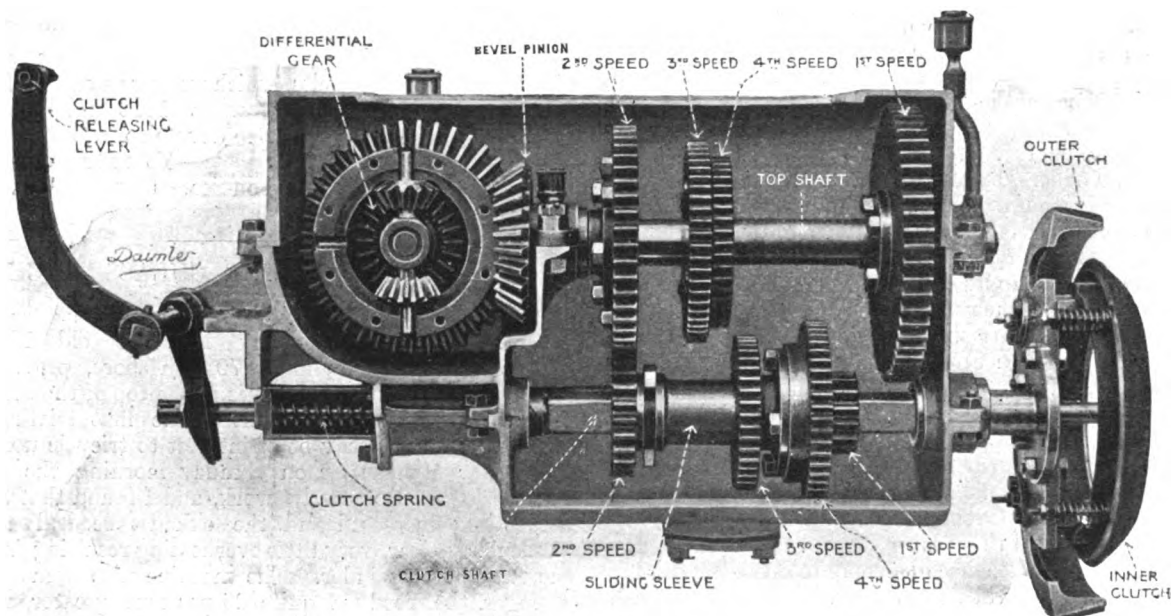


FIG. 12—SECTIONAL VIEW OF GEAR-BOX AND CLUTCH ON DAIMLER 6-B.H.P. CAR.

control of the variable speed gear by levers on the outside of the body at the right hand side instead of by levers working in a quadrant on the steering standard, and the adoption of aluminium wherever possible with the view of reducing the weight of the vehicle. Fig. 13 of the accompanying illustrations gives a rear view of the 1900-pattern car with body removed, which in addition to the features above named shows the Drake pressure lubricators referred to in our last issue, and the cooling coil, with which all Daimler cars are now fitted. Having in previous issues referred at length to the motor fitted on the Daimler vehicles, a few lines may now be devoted to the transmission of the power developed by the engine to the rear road wheels. As is known, four forward speeds and reverse motion are generally provided on this type of car. The motor, which is located in the fore part of the frame, is connected to the driving gear by means of a conical leather-lined clutch fitting into a corresponding recess in the fly-wheel (see Fig. 13). This is arranged in two separate parts, viz., an inner clutch and an outer one. The former protrudes forward from the outer clutch, is of smaller diameter, and is mounted on springs. The latter is perfectly rigid on its shaft, consequently when letting the clutch into the recess of the fly-wheel the inner clutch gives to a certain extent, and so allows the carriage to start smoothly instead of with a jerk, as would be the case if the whole clutch were perfectly rigid. This clutch is actuated by a

gear wheels. The clutch and intermediary shafts run longitudinally down the centre of the frame, and the main driving shaft transversely at right angles across the frame. The latter mentioned shaft is fitted with a differential gear in the centre. At the ends of this shaft are the chain driving pinions, which are connected up to sprocket wheels on the rear wheels of the carriage by pitch chains. All parts of the variable speed, as will be seen, are encased, and run in thick lubricating grease.

THE Construction Liégeoise d'Automobiles, of Liège, Belgium, licensees under the Duryea patent, have completed their first carriages, which weigh 850lb. and have the main mechanical features of the 1898 model of the Duryea Motor-Wagon Company.

THE New York Assembly has passed a bill providing for the licensing of all persons operating automobiles or motor-carriages upon the public highways in the State. Where there is no board in charge of the licensing of stationary engineers, the Board of Supervisors of the county is to appoint a person in each town in the county to examine applicants for automobile licences. The person making the application for the certificate is to pay the examiner 1 dol. The vehicle is to be tested as to its safety.

THE HEALTHY PROGRESS OF THE AUTOMOBILE.

IT would really seem that there is nothing in sight in the mechanical world more sure than the future of the automobile. It is not, even now, something that is yet to come, for it is here. It is coming along in a most healthy and natural way. It is more of a luxury than anything else now, and it may not get far beyond that for a long time, but it will later become a popular convenience, and then a universal necessity of modern civilisation. The other day a lady of wealth with a party of friends visited the New York Navy Yard, and they were conveyed in five automobiles; we hear of many automobile theatre parties, and other similar employments of the revolutionary vehicle. These parties usually make use of the automobile cabs, but, besides these, private vehicles are becoming numerous. A Sunday afternoon walk on the uptown avenues of New York will give a sight of a considerable number of motor-cars of various styles.

The motor-car is, of course, still in the experimental stage, and much money is being spent upon machines soon to be superseded. Wealth, seeking only its own, is still working to produce ultimately the best and cheapest for us all. The public is clamouring, of course, for "useful" vehicles, for auto-trucks that will be cheap and handy for conveying merchandise, for motor-omnibuses and such things. It is just as well to be in no hurry about it. The essentials of the pleasure carriage are not different, after all, from those of the truck or delivery wagon, except that they are more exacting as to speed, endurance, comfort, and convenience. As the greater includes the less, so does the successful pleasure carriage embody the possibilities of satisfying all the conditions of all lines of service, and those, therefore, who are now working only to produce what they consider the highest class of vehicles are really working for all.

The magnitude of this one task which the modern engineer finds himself confronted with is sufficiently shown in the slowness of his progress towards its solution. A writer was saying only a month or so ago that an automobile "must, perhaps, be nearly as complicated as a linotype machine, and its invention calls for as much forethought and simultaneous consideration of a hundred eventualities as was expended on the latter before it became so perfect as it is to-day." Surely no one familiar with the linotype machine could for a moment think of comparing the most elaborate automobile of to-day, with it, and surely, also, no one can think that the line of progress toward automobile perfection is in the direction of increased complication; and yet the latter part of the above quoted assertion is certainly understated. Vastly more thought and planning will be demanded and expended upon the automobile than was put upon the linotype machine to even approach the satisfactory accomplishment of the proposed results.

The task of producing the linotype machine and the automobile are quite different in kind. There is nothing that we are waiting for to put into the automobile. No startling invention is called for, and none probably is coming to solve our problem. All the mechanical essentials are complete and ready to our hand, and combination and adaptation, rather than pure invention, are what is called for. Many of the things, however, have come to hand only within a few years, and especially as to the materials to be used, and the ready parts of the machine in detail. The bicycle has throughout its marvelous development been preparing the way for a vastly greater machine than itself. The tubing, the wheels and tires, the ball bearings, perhaps the sprocket and chain, the steel for every part, the numerous products of the screw machine—all come in as essentials of the manufactured automobile. The motor is, of course, the central and pre-eminant requisite of the machine, and it is only a matter of choice or of resolute insistence as to which to use. Lighter motors than it is now possible to produce could scarcely be asked for, and economy of fuel for the power developed is also satisfactory. Vehicles employing different types of motors may develop side by side with special advantages for each.

The enthusiastic designer of automobiles may easily be led to forget what is wanted, and the purchasers of the first automobiles also may forget precisely what they want. We want, perhaps least of all, a racing machine. Speed records will never establish permanently any type of machine, because we will seldom be able to use them at high speeds, and will less frequently want to. The typical horse, who has been such a valued helpmate of man, is not the racehorse. Neither is the making of long runs over rough roads the thing alone to be kept in sight in designing the vehicle. Thousands of horses, especially around our cities, never go more than ten miles from home, and never see a piece of rough road. As to running upon rough roads, there may be such a thing as being altogether too accommodating. Let the roads, to some extent at least, be smoothed for the machine, and let not all the concessions be made by the machine. Let us first try to produce serviceable, ever-ready, and easily-managed vehicles that will run upon good roads without costing too much, either at first or for repairs, and let us use them and find pleasure and

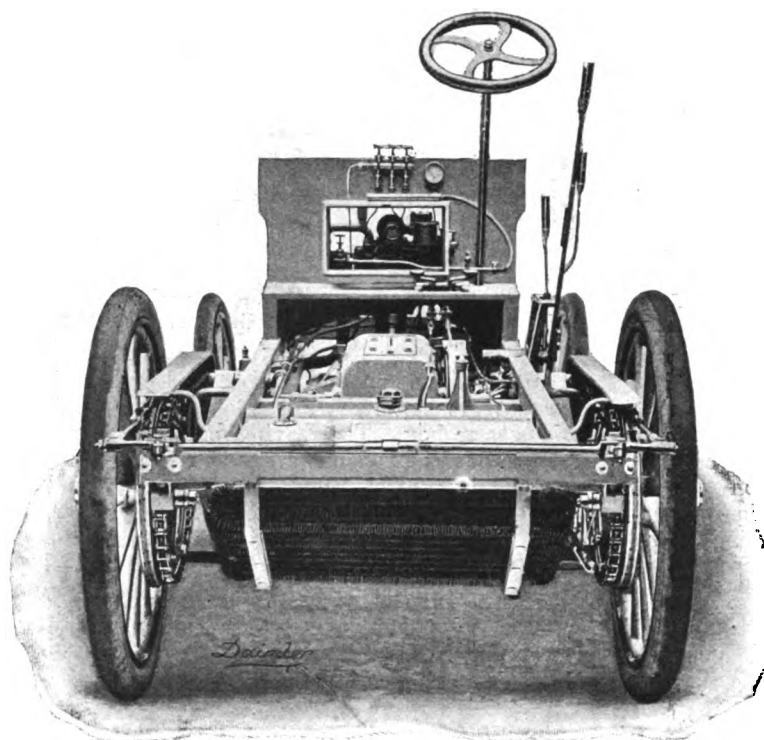


FIG. 13.—REAR VIEW OF FRAME OF 1900-PATTERN DAIMLER 6-H.P. CAR. (For description, see opposite page.)

comfort and convenience in them upon our good roads and for comparatively short runs, and when this service is fully established improvements will follow rapidly, until we will be able to go everywhere and do everything with them.—By TECUMSEH SWIFT in *American Machinist*.

DIE DORTMUND MOTOR UND MOTORFAHRZEUGFABRIK (LUTZMANN AND HAGER) is the style of a new concern which has just been formed at Dortmund, Germany.

The American Cycle Company, Wausau, Po'and, would like to secure the agency for some manufacturer of petrol motors and motor-vehicle parts. They report a demand for $\frac{3}{4}$ -h.p. motors to propel bicycles.

THE Bavarian and Austrian Automobile Clubs are planning a race from Munich to Vienna, to take place early in June. The participating vehicles will be classed in four groups: Class 1, racing cars; 2, touring cars, weighing over 400 kilogrammes; 3, voituresses, under 400 kilogrammes; 4, motor-cycles. The race will be carried out according to the new racing regulations of the Austrian Club.

THE MERCIÉ TWO-SPEED GEAR.

AN ingenious two-speed gear for use on motor-cycles and light voituresses has lately been devised by M. Jules Mercié, and is being put on the market by Messrs. Malicet and Blin, of Rue des Quatre Chemins, Aubervilliers (Seine), France. As will be seen from the general view (Fig. 1) the gear which is entirely enclosed occupies but a very small space. From Figs. 2 and 3, which give respectively a view of the gear with cover partly removed and a sectional plan, and the following

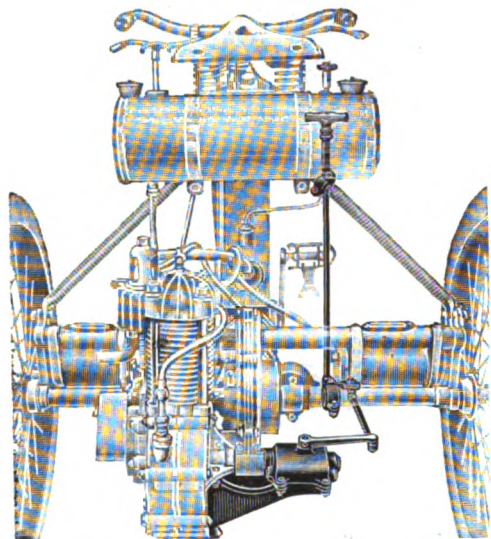


FIG. 1.—GENERAL VIEW OF MERCIÉ TWO-SPEED GEAR AS APPLIED TO A MOTOR-TRICYCLE.

description, the operation of the apparatus will be easily followed. It will be observed that the motor shaft *M* is longer than usual, and extends into the gear box. The driving pinion *P* is not keyed on this shaft, but is fixed on a sleeve running loose on the shaft—this sleeve terminates at its inner end in a number of *griffes* or equally-spaced projections *G*, similar *griffes* being also formed on the exterior close to the end as shown at *G*². On the motor shaft to the right of this sleeve is a second sleeve, *A*, provided at both ends with *griffes*, *G*¹ *G*⁴, similar to those marked *G* (Fig. 3). This sleeve *A* is

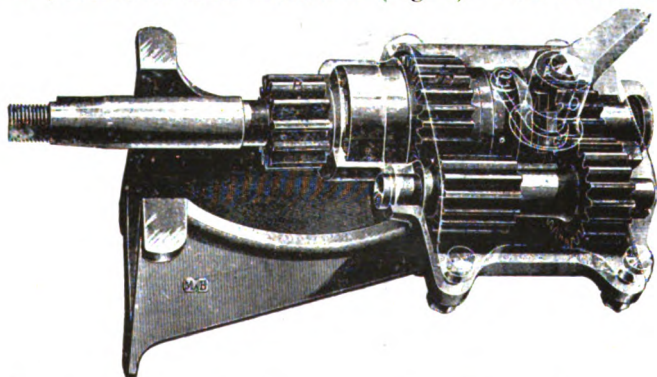


FIG. 2.—VIEW OF GEAR-BOX WITH COVER PARTLY REMOVED.

so fixed that while it must rotate with *M*, it is free to be moved either to the left or the right along it. Surrounding the sleeve *A* is still another sleeve *B*. The last named is provided with *griffes* *G*³, a spur pinion *D*¹, and a groove *F*, in which the operating lever works. It should be explained that the sleeve *B* does not rotate with that marked *A*, but, like the latter, can be made to move either to the right or left, the two sleeves *A* and *B* in this respect acting in unison by means of the key *K*. To complete the description of the various parts shown in the gear box, we find a special pinion *D*¹, special so far that it also is provided with *griffes* at *G*⁵; parallel with the motor shaft is a second shaft carrying a pinion *D*² continually in mesh with *D*¹, and another pinion *D*³ gearing with *D*⁴.

Let us now examine the operation of the gear. To allow the motor to drive the tricycle at its normal speed—the high gear—the sleeves *B* and *A* are pulled over to the left. This brings the *griffes* *G*¹ *G*⁴ into contact, with the result that the sleeve *A*, which always rotates with the shaft *M*, drives the sleeve on which the pinion *P* is keyed. It will be observed that when this is done none of the additional pinions, although in mesh with one another, are rotating. To pass from the high to the low gear the lever is moved so as to pull over the sleeves *A* and *B* to the right. This brings the *griffes* *G*⁴ and *G*⁵ into contact, and at the same time the *griffes* *G*² *G*³; when this is done the power is transmitted through the sleeve *A*, the pinions *D*¹, *D*², *D*³, *D*⁴, and the *griffes* *G*² *G*³ to the sleeve on which the pinion *P* is mounted, the latter—on the low gear—being only rotated at half the speed of the motor. Not only does the gear give two speeds, but there is a central position for the sleeves *A* *B*, in which none of the *griffes* are in contact, so that it is possible, in this way, to instantly throw out the motor from the transmission, when meeting a block in the traffic, etc. Another advantage is that it enables the motor to be started by means of a detachable handle. To allow this to be done the shaft carrying the pinion *D*¹ is made hollow, allowing the stem of the starting handle to be fixed on the end of the motor shaft *Q*. Among the many points of advantage claimed for the Mercié gear is that it is not attached, except by the controlling levers, to the frame in any

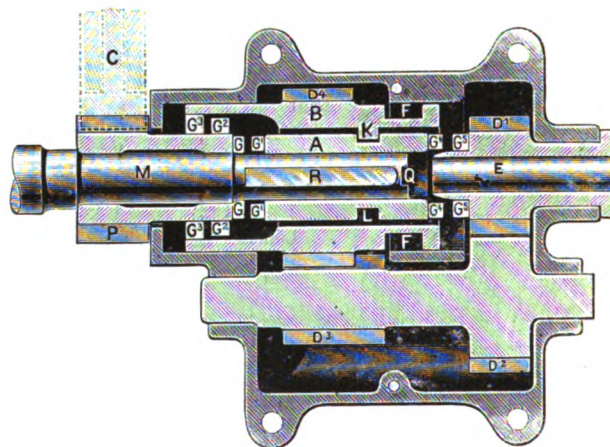


FIG. 3.—SECTIONAL PLAN.

way, but is supported by the crank-case of the motor, so that the effect of any jolting is transmitted equally to both motor and variable gear.

TWENTY-TWO licences have been granted to drivers of motor-vehicles in Chicago. It is said there are fifty-three yet to be examined.

TICKETS for the special dinner to be held at the Agricultural Hall on Wednesday, April 18th, in connection with the 1,000-mile Trial may be obtained from the offices of Messrs. Cordingley and Co., at the Exhibition, or from the Steward of the Automobile Club, price 2s. 6d. each (without wine).

THE first road test of the racing machine which Mr. Alexander Winton is to take to France to compete for the Gordon Bennett Cup has been made at Cleveland, Ohio, U.S.A. The car is long and low in build, has the customary sloping wind cutter in front, and is provided with a single cylinder motor of the same construction as usual, but of higher power. The trial is said to have given very satisfactory results.

THE Motor Manufacturing Company, Limited, has been registered with a capital of £200,000 in £1 shares, to acquire and turn to account certain patents, patent rights, and inventions; and, generally, to carry on in all or any of their respective branches the businesses of engineers, manufacturers of and dealers in rolling stock and engines. The first directors (of whom there shall be not less than two nor more than seven) are to be elected by the company. Remuneration, £200 per annum each (chairman £300) with a percentage of the profits, divisible.

THE MOTOR-CAR EXHIBITION.

THE "man in the street"—a definite phrase referring to a rather indefinite quality—who, having in view the great show opening at Paris on Saturday, asks an automobilist if he is going to the exhibition, will probably receive a shock on learning that "the" exhibition is held at the Agricultural Hall in Meade Islington, and that automobilists are not thinking of "gay Paree" at all. At least, they will give no thought to French exhibitions, or Easter, or anything else, until the Automobile Club's exhibition closes on April 21st.

For the annual exhibition of motor-vehicles at the Agricultural Hall is regarded by those interested in the development of mechanical traction on the highway as the event of the year, when they have an opportunity of reviewing the advance of a twelvemonth and confirming their steadfast faith in the future of the industry. Since the last exhibition there have been many improvements not only in the design of cars but also in many parts of their construction, and greater reliance can be placed upon the vehicles generally than has hitherto been the case. In fact British makers have rapidly gained ground, and are now turning out vehicles fully equal to any produced on the Continent. Some are also now wisely turning their attention to voiturettes—in which there has been a profitable boom in France. In this department there is room for further enterprise, experience showing that there is a demand for these light two-seated vehicles for ordinary use.

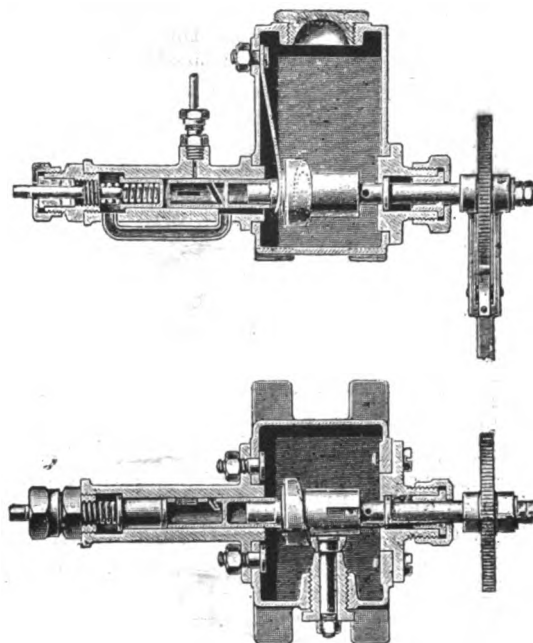
To anticipate the impressions of visitors to the exhibition next week would scarcely serve any useful purpose. Our readers have been kept well informed of the general scope of the display, and it remains but to be said that our columns next week will contain a full and complete illustrated report of the various stands which will go to make up the most representative exhibition of motor-cars held outside France.

The following is a complete list of the exhibitors:—

Adams and Co.	Lafayette Engine Co., Ltd.
Ailsa Craig Machine Co., Ltd.	Lane and Fitte.
Albone, Dan.	Le Carbone
Allard and Co.	Locomobile Co., of America.
Anglo-American Oil Co., Ltd.	London Autocar Co., Ltd.
Apprin, P.	London Motor Van and Wagon Co.
Automobile Association, Ltd.	Marshall and Co.
Automobile Mfg. Co., Ltd.	Maxim Syndicate, Ltd., Hiram S.
Automobile Supply Co.	McLachlan Engine Co.
Bayley's, Ltd.	Meyra Electric Co.
Bilbie, Hobson, and Co.	Monarch Motor Co.
Blake, F. C.	Mossberg Roller Bearings, Ltd.
Brampton Bros., Ltd.	Motor-Car Co., Ltd.
British Bundy Co., Ltd.	Motor Carriage Supply Co.
Brown Bros., Ltd.	Motor-Car Journal.
Burford, Van Toll, and Co.	Motor Manufacturing Co., Ltd.
Burgess, Ltd., W. H. M.	Motor Power Co., Ltd.
Burns, J.	Mulliner, A. F.
Carless, Capel, and Leonard.	National Gas Engine Co.
Champion Friction Clutch Co.	New Grappler Tyre Co.
Churchill and Co., Ltd., C.	North British Rubber Co.
Clarkson, Capel, and Co.	Opperman, Carl.
Clipper Pneumatic Tyre Co.	Peto and Radford.
Collier Twin Tyre Co.	Price's Patent Candle Co.
Connolly, J. W. and T.	Progress Motor Co.
Cordingley and Co.	Radax Tyre Co., Ltd.
Crowden, C. T.	Remington-Sholes Syndicate, Ltd.
Curzon, Robey and Co.	Roots and Venables.
"Cycling."	Rottenburg, L.
Daimler Motor Co., Ltd.	Rubery and Co.
De Dion Motor Co.	Salsbury Lamp Co.
Dennis Bros.	Selig, Sonnenthal and Co.
Dunhill, A.	Service Motor Co.
Dunlop Tyre Co., Ltd.	Shippey Bros.
Eadie Manufacturing Co., Ltd.	Simpson and Bodman.
Electrical Undertakings, Ltd.	Sirdar Rubber Co.
Endurance Motor Co.	Slingsby and Co.
Farman and Co.	Smith, Holroyd.
Fleet Wheel Works Co.	Star Motor Co.
Friswell, Ltd.	Stern Bros.
Gamage, Ltd., A. W.	Stirling Motor Carriages, Ltd.
Hall and Sons, J.	Thornycroft Steam Waggon Com-
Hart Accumulator Co.	pany, Limited.
Headland Battery Co., Ltd.	United Motor Industries.
Hewetsons, Ltd.	Wellington, F. F.
Hiffe, Sons and Sturmev.	Wellington Motor Co.
International Motor-Car Co.	White and Poppe.
Joel Engineering Co.	Wolseley Sheep-Shearing Co., Ltd.

SOME NEW LUBRICATORS.

SO numerous are the parts to be lubricated in an automobile that, for the sake of simplicity and convenience, it is customary to employ a single oil-feeding device by which the moving parts of the driving mechanism are automatically oiled. Among the many devices of this type may be mentioned the



FIGS. 1 AND 2.—SECTIONAL ELEVATION AND PLAN OF SERPOLLET LUBRICATOR.

lately introduced Serpollet lubricator, noteworthy for the ingenious, simple means provided for feeding the lubricant. The lubricator is essentially a pump which forces oil from a reservoir into passages leading to the parts to be oiled, and which contains

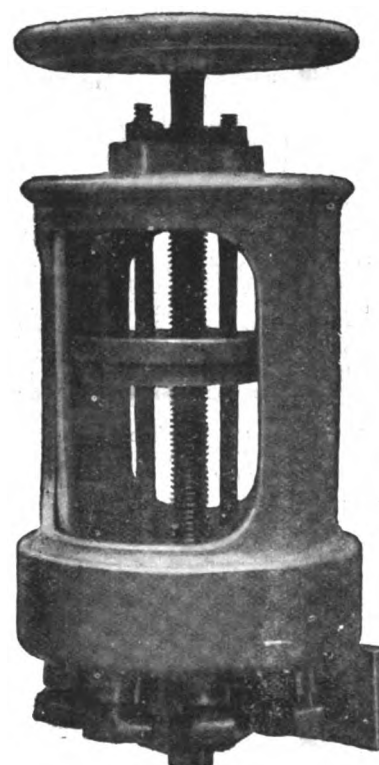


FIG. 3.—GENERAL VIEW OF ELGIN LUBRICATOR.

no easily-deranged, delicate valves. The oil is constantly returned to the pump and used anew. The lubricator which is illustrated in Figs. 1 and 2, consists of an oil-reservoir, through the lower part of which passes a shaft driven by the motor. Within

the reservoir this shaft carries a piston, which, besides the rotary movement of the shaft, has also a reciprocating motion imparted by a cam spring pressed on a roller rotating about a fixed axis. The piston at one end is provided with a hollow, perforated cylinder having a simultaneous rotary and reciprocating motion within another cylinder constituting the body of the pump, from which the various oil-ducts lead.

During the period of admission, that is, when the piston enters the cylinder, at the same time making a semi-revolution, the admission orifice of the piston-slide communicates with the reservoir: the return orifice at this period corresponds with the entire wall of the pump-body. During the period in which the oil returns, that is, when the piston is on the return stroke and is making the second semi-revolution, the admission-opening is closed, while the return opening passes successively before the orifices of the return passages, discharging into them the oil pumped during the previous stroke. The oil can be returned at a pressure varying between two and fifty-five pounds, by adjusting the tension of a spring pressing on the piston. The lubricator, which is being made with from two to nine lubricating passages, is being manufactured by Messrs. Schaeffer and Budenberg, of London and Paris.

Fig. 3 shows a new lubricating device, made of aluminium recently introduced by Messrs. Eldin and Lagier, of Place Bellecour, Lyons. It is arranged to be fixed within convenient reach of the driver and can be fitted with any number of lubricating pipes, the one illustrated being fitted with eight outlets. The lubricator is operated by the hand-wheel at the top. This does not alter its position, but operates a screw by means of which a compressing piston is moved up or down.

FURIOUS DRIVING CASES.

IN the Edinburgh Police Court, on the 6th inst., Mr. T. Roland Outhwaite admitted driving a motor-cycle in Bruntisfield Place at an over-regulation speed. Mr. Isaac Connell, S.S.C., on Mr. Outhwaite's behalf, stated that the motor-cycle had only been in the latter's possession for two hours. He desired to try it uphill before accepting delivery. He went out to test it on the Bruntisfield gradient, and the speed was not such as to cause inconvenience or danger to anybody. No policeman checked him, and no person was incommoded. The magistrate, however, inflicted a penalty of £5, which was paid.

IN Edinburgh City Police Court, on the 9th inst., James Collins, 20, a motor-car driver in the employment of the Edinburgh Autocar Company, was charged with driving a motor-car in a reckless and careless manner in Lothian Road on the 27th March last; in consequence of this it came into collision with the private carriage of a Leith doctor, damaging the carriage to the extent of £10, and throwing off and injuring the coachman, William M'Iver, who had his left arm sprained. Evidence was given at considerable length, and Billie Forbes Mackay found the charge proven, and imposed a penalty of £5, with the option of twenty days.

At the Bournemouth Borough Police Court, on Monday, before the Mayor (Councillor C. J. Webber), Dr. J. A. Hosker, and Mr. J. A. Parsons, William House, a motor-omnibus driver, of Somerset Place, Boscombe, was charged with furiously driving his motor-car in the Derby Road on March 26th. He pleaded not guilty. General Sandilands, who was standing talking to Colonel Garrett at the time the car turned into the Derby Road, said he noticed the vehicle was going at a swinging pace, and he shouted to the boy conductor, "You're going too fast," but the only response he got was a laugh. Before he called to the conductor he had said to Colonel Garrett, "That's dangerous," referring to the pace which the car was going. Two women with two perambulators and some children crossed the road just before the car passed. The car was coming up the Christchurch Road at a fair pace, and the driver sounded the hooter before he turned into the Derby Road. He believed that if he had had a bicycle he could have caught up with the car as it turned out of the Knyveton Road into the Christchurch Road if he had ridden straight down the Boscombe Hill. Cross-examined by Mr. Bone, who defended House, witness said he would refer him to the fifth proposition of the first book of Euclid if he wanted to know as to the base of the triangle formed by the Knyveton, Derby, and Christchurch Roads. Colonel Garrett corroborated General Sandilands' evidence. P.S. New gave evidence of seeing the defendant after the complaint had been made to him by the first witness, and to his saying he was very sorry. He also said he was always as careful as ever he possibly could be, and if that was going on here he should have to clear out and go back to America again, as he could not do with it. Mr. Bone, in defence, called House, who said that the maximum speed that he could drive the car was twelve miles an hour on the level road. On the day in question he was coming along the Christchurch Road at about eleven miles an hour, and he slowed down to nine to turn the corner. This was a precaution he always took. He considered that speed was perfectly

safe. He had received no complaint from any of the passengers who were riding in the car at the time of the alleged furious driving. He did not hear the prosecutor (General Sandilands) call out to him as to the speed. He had had three months experience of motor-car driving in Bournemouth, going backwards and forwards to Bournemouth eighteen times a day, and had had considerable experience of electric car driving in the United States.—By Dr. Hosker: The gear of the car would only allow her to go at 12 miles an hour on the flat road.—Mr. Bone, in addressing the Bench on behalf of House, pointed out the seriousness of the charge as regarded his client, but the Bench convicted and fined the defendant 6s. and 4s. costs, the Mayor saying he hoped this case would be a warning to the defendant.

ACCIDENT TO A MOTORIST.

GEORGE LEWIS, a professional footballer, of Kirkwhite Road, Nottingham, was removed to the General Hospital, Birmingham, on Monday suffering from a contused abdomen, which resulted from the following circumstances. Accompanied by Harry Sampson, an ex-champion cyclist, also of Kirkwhite Road, Nottingham, Lewis was driving the car at a moderate pace down Hill Street. He attempted to avoid a tramcar and a cyclist at the corner of John Bright Street, and the motor-car ran into a ginger beer cart, Lewis being crushed between the tail-board of the cart and the car. He was advised to remain in the General Hospital, whither he was taken, but preferred to go home.

DE DION v. AUTOMOBILE ASSOCIATION, LIMITED.

THE motion for an injunction restraining the defendants from issuing or causing to be issued any circular or advertisement representing that Messrs. Cudell and Co. are the sole agents of Messrs. De Dion and Bouton, Puteaux, France, or that Messrs. Cudell hold the patents of Messrs. De Dion and Bouton, or representing that the plaintiff syndicate are not the agents or are not the sole agents in England of the plaintiffs De Dion and Bouton, or making any other representation calculated to injure the plaintiffs in their business, came before Mr. Justice Stirling on the 6th inst. The plaintiffs were represented by Mr. C. F. E. Jenkins, Q.C., and Mr. O. Leigh Clare, M.P., and the defendants by Mr. S. O. Buckmaster. Mr. Jenkins proceeded to open the case, and whilst he was doing so Mr. Buckmaster offered to give an undertaking until the trial of the action that the defendants would not issue any circular representing that Messrs. Cudell and Co. were the sole agents of Messrs. De Dion and Bouton. Mr. Jenkins expressed his willingness to accept this with the addition that it should be extended to any representation that Messrs. Cudell and Co. hold the patents of Messrs. De Dion and Bouton for the United Kingdom, but Mr. Buckmaster would not agree; the Judge, however, after referring to the affidavits, said that the defendants must undertake not to represent that Messrs. Cudell and Co. were the holders of the patents for the United Kingdom, and Mr. Buckmaster gave way. The Judge accordingly directed the motion to stand until the trial, the defendants undertaking until judgment or further order not to represent by circular or otherwise that Messrs. Cudell and Co. are the sole agents of Messrs. De Dion and Bouton, or that Cudell and Co. hold the patents for the United Kingdom of Messrs. De Dion and Bouton, the undertaking being given without prejudice to any question.

A SQUAD of police automobilists is, according to the New York correspondent of the *Morning Leader*, about to be established in that city.

DURING the last financial year La Société des Automobiles Peugeot, of Audincourt (Doubs), turned out 300 motor-vehicles as compared with 175 in the preceding year.

AT a recent meeting of the Electrical Section of the American Institute in New York, Mr. R. A. Fliess, engineer, gave a historical account of the development of the automobile. He stated that the first idea of the automobile originated among the ancient Egyptians, and that attempts to build a self-propelled vehicle could be traced through the Middle Ages.

The toll for motor-tricycles at Dunham Bridge on the Retford-Lincoln road will in future be sixpence, and for cars one shilling and sixpence. The former charge was four shillings per vehicle, and for the reduction thanks are due to Mr. Wilkinson, hon. sec. of the Lincolnshire Centre N.C.U., who has been acting as local secretary for the Automobile Club 1,000-mile Trial.

THE Detroit Automobile Company, Detroit, Mich., have finished their first motor delivery van, which is now undergoing tests for the collection of mails in that city. The wagon weighs about 1,200lb., aluminium and gun metal having been liberally employed in its construction. The axles are of nickel steel. The company has several other styles in process of construction and expects to be turning out ten vehicles a week by the middle of April.

THE Motor-Car Journal.

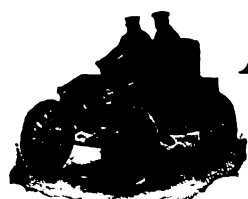
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COMMENTS.



ALTHOUGH the "exigencies of the situation"—to quote a much-repeated phrase—require the enlargement of the *Motor-Car Journal* this week, the price has been maintained at the popular penny. Without seeking to discourse upon the merits of the current number, we feel that the enterprise evidenced in our pages will be appreciated by our readers, who will regard our present issue as an interesting and valuable souvenir of the great exhibition, in which their interest has been aroused. In addition to a complete report of the many stands at the Agricultural Hall, we publish the impressions of an exhibitor as they occurred to him day by day. Naturally he regards the matter almost wholly from a business standpoint. In our "Exhibition Echoes" are a series of chatty notes on many points of more or less interest, and, altogether, the exhibition predominates largely in our pages. The forthcoming 1,000-mile Trial is also responsible for our bulkier proportions this week, and the paper by Mr. Rolls will provide suitable reading for those who venture thereon next week. In consequence of these matters our usual features have been necessarily somewhat curtailed, but there is sufficient of general interest to sustain the position attained by the *Motor-Car Journal* as a representative organ of British automobilism.

The Exhibition.

OUR issue this week is mainly devoted to the exhibition at the Agricultural Hall, Islington. Doubtless those of our readers who have been sufficiently near London to pay the display a visit have already done so: while the applications for catalogues (post free 9d.) show the interest felt in the exhibition by many distant automobilists unable to come to town. It remains but to be said that the exhibition will continue open to-day (Friday) and will close to-morrow (Saturday), when the exhibition of the vehicles entered in the 1,000-mile Trial will give an additional feature of great interest—sufficiently interesting to lead many people to pay a second visit to the Agricultural Hall.

The 1,000-Mile Trial.

INTEREST in this great event is quickening every day, and our issues for the next month will record its progress and chronicle its incidents. This week we publish the latest arrangements made for the Trial, which will start punctually at 7 a.m. next Monday from Grosvenor Place, W. On another page we give the final list of entries and also a rough plan of the arena at the Agricultural Hall, Islington, where the vehicles will be exhibited on Saturday. In connection with this we are asked by the Committee of the Automobile Club to say that all vehicles entered for the Trial should be at the Hall not later than 10.30 a.m. to-morrow for examination by the judges, and that no vehicles are to be removed until they have

been sealed. No vehicle is to be withdrawn before 9 p.m.—so that visitors to the exhibition at any time during the day will have an opportunity of seeing all the carriages, etc.

Petrol or Motor-Car Spirit.

FOR the convenience of those who are going on the 1,000-mile Trial, both the Anglo-American Oil Company, Ltd., and Messrs. Carless, Capel and Leonard have issued a list of agents for Pratt's motor-car spirit and petrol, respectively, in the various towns through which the forthcoming 1,000-mile Trial will take place. These lists should be extremely valuable to all motorists, and both firms will be pleased to supply them to those who tour.

Annual Police Notice.

THE Commissioner of the Metropolitan Police has issued a notice to automobilists. It is not, says *Country Life*, of a special character in any sense, but merely sets forth in detail the regulations of the Highway Act and the Local Government Board in so far as they concern the driving of motor-vehicles. Presumably it will be issued annually, in the same way as the Commissioner's 'notice to cyclists,' and will be equally superfluous, inasmuch as every automobilist knows well enough what the provisions of the law are in regard to the use of his vehicle on the highway. Moreover, these placards are merely hung up as a rule inside a police station, so that even if they contained any item of valuable information they would not reach the parties to whom they refer. It is a pity, by the way, that when the Commissioner does issue a special placard, instead of those which merely summarise the regulations of certain Acts, some means could not be arrived at by which not only would it be more widely circulated, but also that its provisions should be enforced. Last year, for example, the Commissioner published a request to the drivers of slow-moving vehicles that they should keep near the kerb instead of encroaching upon the trotting line, a request which, if rigidly adhered to, would do more to relieve the congestion of traffic throughout the metropolitan area than anything but the whole ale introduction of motor-cars could possibly accomplish. As a matter of fact, however, the drivers of slow carts, which are the curse of London traffic, continue to go on in the same old way, and appear likely to remain a nuisance for a long time to come.

Motor Racing.

ELSEWHERE we report the conversation of one of our representatives with Mr. Charles Jarrott, whose record race at the Crystal Palace on Monday places him in the foremost position among riders on the British track. His views with regard to the progress of automobilism are of special interest at the present time, and those who accept the ideas of the Hon. C. S. Rolls on the subject will be interested in the opinions of Mr. Jarrott on the same matter. Mr. Rolls is an enthusiast with regard to racing. Mr. Jarrott restrains himself, and is

rather inclined to regard motor racing as a more or less transient sport. There must certainly be a limit somewhere, and on the Continent that limit is fast being reached. With Mr. Jarrott as record-breaker we shall probably soon reach finality on the English track.

Motor-Cycle Racing in America.

ARRANGEMENTS have, we learn, been made for a motor-tricycle race to take place at Boston, about May 1st, between Mr. Kenneth A. Skinner, United States agent for the De Dion motors, and Mr. Albert Champion, an expert French racer, who will ride an "Orient" tricycle, propelled by an Aster motor. The distance will probably be 100 miles, and the motors employed will, states the *Horseless Age*, be limited to 2½ h.p. in order that the speed attained may not be too great. From the same source we also learn that Mr. C. G. Wridgway has accepted the challenge of Mr. Skinner to race any motorist in America for a distance of fifty miles and upwards, either upon a track or road, to be ridden off within a month.

A New Benz Car.

DURING the week Mr. E. J. Coles, of Messrs. Hewetsons, Ltd., showed us in the yard at the Agricultural Hall a new type of Benz car, which he is going to drive through the 1,000-mile Trial. The car possesses several new features, but as it is as yet only in an experimental stage, we are not permitted to publish the details. We may mention, however, that the



MR. E. J. COLES ON A NEW BENZ CAR.

Photo by]

[A. Cornell, Tonbridge.

water tank is placed in front instead of at the rear, as in the ordinary Benz cars, and that a radiating coil and pump are provided. Mr. Coles drove the car illustrated from the Agricultural Hall to Tonbridge on Good Friday last, a distance of 35 miles, in 2 hours and 10 minutes without a stop. Its behaviour during the coming Trial will be watched with interest.

A Scotch Motor-Car Service.

MUCH has been heard of the competition that is likely to be felt between tramways and motor-cars in the future, and in some places the latter are coming to the front to the detriment, or in place of, the former. At Torry, near Aberdeen, considerable feeling has been caused by a Parliamentary Select Committee having blocked a proposed tramway service between that place and the City of Aberdeen. Instead, however, of merely bemoaning their fate, the traders and householders of the district have bestirred themselves with a view to the formation of a motor-car service. Already estimates of the price of motor-cars have been secured from the leading motor-car depôts in Aberdeen.

The intention of the syndicate which has been formed is to begin by purchasing four motor-cars and establishing a system which shall provide full facilities for the inhabitants in every part of Torry to reach Union Street, Aberdeen, cheaply and expeditiously. It is estimated that the capital requisite to float the syndicate at the outset will amount roughly to £4,000. That sum has been promised—a guarantee has not yet been considered necessary—by twelve house proprietors, and the gentlemen who constitute the syndicate are inclined to limit the number of the "trust."

To Commence at Once.

AFFAIRS have reached the stage when, if all things favour, the service may be started at once. The only hindrance is the provision of motor-cars. There are only one or two cars for sale in the city depôts which would meet the requirements of the syndicate. It is confidently asserted, however, that motor-cars, capable of seating from half a dozen to a dozen passengers, will be procured immediately, and the service formally opened. The whole project is in the hands of the energetic committee armed with practically full powers, and, unless something unforeseen occurs, the system of motor-cars between Aberdeen and Torry will be in full running order within a couple of weeks. Of course there is no doubt in the minds of the promoters that the scheme will succeed at first; whether it will continue an attraction remains to be seen—the probability seems to be that it will. At any rate there can be no doubt that it will have the hearty support of the inhabitants of Torry and of the public of Aberdeen generally.

Fire at a Motor-Car Stable.

OWNERS of motor-car stables should pay particular heed to the lamps used when cleaning operations are in progress, a fact which has just been emphasized by the fire at a depôt at Pokesdown, Bournemouth. It appears that Mr. C. Goodridge, the second engineer in charge of the night workers, was engaged overlooking the cars and getting them ready for the day's work about two a.m., in company with another employé, when a lighted paraffin lamp he was using exploded, burning him rather severely about the hands and body. The blazing oil spreading over the floor set the place in flames, and the uninjured employé ran out and gave the alarm. Several of the police hurried to the spot and endeavoured to put out the fire. The fire brigade came on the scene with commendable speed, and securing a good supply of water from the hydrant soon put out the fire. The motor-car stable was formerly known as Parkwood Hall, and had been used by Mr. Bell for some months. It is a galvanised iron structure, with match board lining, and the woodwork was very much scorched in places. Two of the motor-cars were badly damaged, but can be repaired in due course. Another car was slightly injured. The car services will be continued as usual, except that for a time there will only be four cars running instead of five. Visitors to the exhibition at the Agricultural Hall will see some useful lamps specially designed to prevent such accidents.

Proposed Motor Union.

PRESSURE on our space prevents us from publishing a long and interesting letter we have received from Mr. A. G. Wilson with regard to motor-racing rules. After reviewing the present position of those who indulge in motor-racing he invites all interested parties—i.e., motor owners who have raced, or who intend to race, and race promoters who have promoted, or intend to promote, motor races—to write to him their views upon the question of whether it is desirable to inaugurate races under the rules of the N.C.U. or the A.C.G.B.I., or to form a Motor Union and "chance the consequences."

AUTOMOBILISM IN AMERICA.

—8—
VIEWS OF MR. C. JARROTT.

INSULAR Englishmen are inclined to regard their climate as one of the least favoured in the world, looking upon it as a variety of displeasing circumstances with few mitigating pleasantries. That other countries have equally unaccommodating weather conditions has, however, often been demonstrated, and the latest witness to that fact is an automobilist of renown. Mr. Charles Jarrott lately returned from a trip to the United States (writes a representative of the *Motor-Car Journal* who interviewed him), and the opening of our chat turned on the weather—a very conventional introduction, but one that, nevertheless, must be regarded as quite natural under the circumstances.

"Unfortunately," said Mr. Jarrott, "the weather during my stay was not only unsuited for much motoring, but its variability was more a question of degree than of actual change. Some nights the temperature dropped 46 degs., and from the middle of January, when I landed at New York, to the first week of March, when I left, we had a succession of icy cold winds and blizzards."

"But such inconveniences need not discourage the automobilist," I meekly suggested, having in mind the scores of vehicles which were seen in the Metropolis during the bad days of the early year.

"Perhaps not, when there are mitigating circumstances. But we had no consolation. Why, often the snow was a foot deep, and it was necessary to empty the water from one's motor every night, or it would have been frozen by the morning. This was essential after each run. Besides, New Yorkers skate and sleigh when such conditions prevail, and I, being in New York, and remembering the old adage as to following the custom of the country, also indulged in skating and sleighing a good deal of the time."

But Mr. Jarrott did not wholly abandon himself to the new delight, and, mounted on his Ariel quadricycle, disported himself on the bumpy roads of New York whenever possible.

"Evidently my quad was somewhat of a novelty," he remarked, "for as much curiosity was evidenced as would have been the case in England two years ago, and whenever I stopped a crowd gathered with the alacrity with which a London crowd can be got together. You see my quad was a novelty, electric vehicles being the most familiar automobiles in the United States."

"What particular car is to the front just now?" I asked.

"I should say the Winton carriage is the most popular. Certainly very few other gasoline carriages are to be met with. Some very handsome electric vehicles are always to be seen in the streets of New York, and the fact that there are plenty of charging stations throughout the city leads me to suppose that electricity will for a long time have advantages for town work. A great feature is being made by American makers of little cars on the lines of the American 'runabout,' to carry two persons. These are driven by ladies with apparent ease and safety. I expect that ere long a vehicle of a light construction made by the American Bicycle Co.—an amalgamation of more than forty of the bicycle companies of the States—will be upon the streets, that company having recently taken up the subject of motor manufacture."

"Is not the Columbia company well to the front?"

"Yes, and among the interesting motors I saw in New York was that of a parcels carrier built by the Columbia people. The gasoline motor was a single cylinder, water-cooled, with very large radiating plates. I was informed that these carriers are capable of carrying four to five hundredweights, and can attain a very good speed of from twelve to fourteen miles an hour. I understand a considerable number of these are being built."

"Are steam vehicles much employed in the States?"

"They are certainly in use, as may be seen by the inevitable trail of steam which marks their course. They are light in construction and pretty in appearance, but little good for long continuous runs."

"But will electricity always have the practical monopoly?"

"Most certainly no, although the capital invested in its development and the number of charging stations in the United States will give it a great advantage. In the parks I never saw anything but electric carriages. Still I believe the prospects of gasoline are decidedly improving, and many of the manufacturers are turning their attention in that direction, and the eventual recognition of gasoline as the right thing must take place. Perhaps it will come with the greater development of automobiles for delivery work."

"I suppose the outlook for the employment of mechanical traction in such work is promising?"

"Decidedly so, and also for public services. Electric buses are popular in New York, and for comfortable travel I would recommend the electric cabs. A large number of these, fitted with pneumatic tires, are plying for public hire; and, although I do not know much about their financial results, their excellence as a means of conveyance is undoubted. They certainly are a great contrast to the stage-coaches which perambulate up and down Fifth Avenue. These are the greatest funniosities I have seen, with their broken-down and miserable horses looking as though they had been tied up for the purpose of going."

"Did you see anything of the new American Automobile Club?"

"Yes, and found the members keen enthusiasts, and fully determined to secure the advance of the industry—both for purposes of recreation and also of business. I attended one meet of the club, having a seat on Mr. A. C. Bostwick's Winton gasoline carriage. The assembly took place at the Waldorf-Astoria, and I counted about a score of vehicles, mostly electric. Only eleven, however, started for our run of twenty-five miles, the vehicles including four Winton cars and two or three Stanley steamers. The outward journey occupied us one hour and fifty minutes, and we returned in about ten minutes' less time. Only the Wintons and a Stanley steam car survived the test."

"And a short test, too, seeing the runs to Brighton are here regarded as small affairs, and it requires a 1,000 miles trial to arouse enthusiasm and startle Clubland."

"I don't know how far some of the American vehicles would go on a 1,000 miles trial," mused Mr. Jarrott. "But you must remember that the conditions for motoring are very different in the United States to those prevailing in this country. Runs of 150 or 200 miles are there regarded as phenomenal performances, and practically all the motoring that is done takes place in towns."

"What about the roads?"

"Worse than most of the bad roads we know in England. In New Jersey and the State of Massachusetts there are some very good ones, but the ordinary American road is terrible. The main roads are in summer particularly dry and dusty, while all are of very uneven surface. There is no doubt that the development of the automobile will bring about a reform in that direction—for which all men and horses should be thankful. The chief advantage of the city roads of New York, as compared with those of London, consists in their length, and this is especially true of the Fifth Avenue, which runs out along the side of Central Park right into the country. But that is bumpy in many places. Why, even the Broadway is paved with cobble stones."

"Do the local authorities show any encouragement of automobiles?"

"Well, their view of the matter is about as varied as one finds in this country. The police authorities, however, are uniformly keen and watchful, and those mounted on horses or bicycles are particularly observant of their duties. It is no use slowing down to salute the policeman, and having proceeded a hundred yards quicken pace, for the officer invariably follows. And there is no opportunity of being summoned, for automobilists exceeding eight miles an hour are simply locked up. A system prevails, however, by which substantial security can be left for the appearance of the victim in the police court, and the automobile is frequently left by motorists as security."

Mr. Jarrott was much struck with the excellence of the automobile factories he saw—both structurally and in arrangement they bore evidence of skill and thought in design. After

telling me of some of these, he continued: "I also had the opportunity of going over, under the personal guidance of Mr. J. Brisbane Walker, the works of the Mobile Company of America at Kingsland Point, where they are building light steam carriages of the locomobile type. It is one of the prettiest situations for a works I have ever seen, built right out on the banks of the Hudson, a handsome structural appearance, situate in a big clearing with pine trees all round, and fitted up with the latest American machinery. It certainly appeared in every respect a model factory. I was exceedingly interested here to see the very quick manner in which the construction and erection of the carriages took place, and they seem to have a tremendous amount of work in hand."

"By the way," said Mr. Jarrott, as I rose to go, "I have seen it stated that while in America I indulged in racing. Just let me have this opportunity of contradicting that. Much as I should like to have had the opportunity I found no adequate chance. There is a very fair track at Morris Heights, but when I went there with Mr. Wridgway we found it covered with snow, and racing was out of the question. I had hoped to have done something at Madison Square Gardens, but there, again, I was thwarted, as the banked track for cycling races is but a temporary erection. Motor racing to any extent—even to the extent to which it is practised in this country—is not known in the United States."

Recent speeds on the Continent have caused some automobilists to doubt the wisdom of any great encouragement of the idea of racing, and Mr. Jarrott, although one of the fastest British motorists, is not greatly enamoured of the future of that particular section of the sport. His views on this point are interesting and valuable.

"I can see finality to speed in the distance, and even in France I do not think it can go on without some special regulations being made. In track racing the tendency is towards sameness, and that must result in tameness, unless, of course, there is a constant accession of new blood to the ranks of the racing men. And, so far, their number—I refer to the track-racers—has been limited. But the public will not attend mediocre motor races; they will want to see the best racing where the highest speed is allowed and the greatest excitement given."

"And with banked tracks the possibility of danger will increase?"

"Exactly so, and even the most skilful men will run very great risks. Apart from that I doubt the value of such excessive speeds in assisting the maker to improve upon the construction of his vehicle, although I fully recognise that, up to a certain point, racing experience can, and has been, very useful indeed. But it can be overdone."

Although thus not very optimistic with regard to the prospects of racing at home, Mr. Jarrott is sufficiently attracted to racing that he intends to take part in some of the French races this year, and will probably be seen on a 16 h.p. Napier car across the Straits ere long. Looking all round the industry he is naturally convinced of its continued progress, and feels that the United States will quickly make up any leeway it has lost. And by reason of the tariff, which is 45 per cent. *ad valorem* on all automobiles imported, the industry thus created will be purely a home one, little in the way of imported machines being done. In the United States there is the capital and the ingenuity to quickly develop the motor-car, and the many experiments now going on with electric, gasoline, and steam vehicles should result in satisfactory vehicles before many months have passed.

And then, shall we have another American invasion?

THE British and Colonial Motor-Car Company, Limited, has been registered with a capital of £10,000, to acquire the benefit of an agreement between Mr. J. H. Adams and the Aacheuer Stahlwaarenfabrik (vorm. Carl Schwanemeyer) Actien Gesellschaft, and to carry on the business of motor-car, motor and cycle manufacturers, and merchants, engineers, etc. The first directors are Messrs. J. H. Adams, E. C. Barton, O. Selback, and M. De Breyne.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

Nice Mathematicians.

WITH the view of aiding the automobilist who desires to find the machine which will give him the maximum of speed and carrying capacity for the minimum of running expenses, Monsieur H. W. Bartol, of Nice, initiated a scheme which was duly carried into effect by the "A. C. N." last Monday. Primarily, M. Bartol's idea was a race, but careful note was made of the weight of each competing vehicle, as well as the quantity of petrol used during the run. The average speed per hour was then multiplied by the weight of the car, and the result divided by the quantity of petrol employed. Under these trying mathematical circumstances it is, perhaps, as well that only nine competitors put in an appearance at the start, while the judges were only required to make their elaborate calculations in the case of six vehicles at the finish, the three remaining cars obligingly breaking down. The itinerary was from Nice by way of Colomars, Vence, and Cagnes, and then through Vence again to Nice, the total distance being 100 kilometres 600 metres, including a hill 9 kilometres in length. The first man home was Pinson, who took 2h. 22min. 59sec. to cover the course, which equals an average speed of 42kil. 21m. per hour. He employed 14.75 litres of petrol *en route*, and if the above quoted formula be applied one obtains the mystic figures—9.329! P. Chauchard was second, averaging 27 kilometres per hour, and using 12 litres of petrol. MM. Johnson, Gondoin, Vogel, and Cléricy finished in the order named, while MM. S. Gondoin, Stead, and Desjoyaux abandoned for various reasons. This class of race, however useful it may be, is not likely to become popular with "course" promoters in France, as it would be far too great a strain upon the mental capacities of all concerned.

Electric Passenger Cars in Paris.

DURING the next six months in Paris the capacities of the public vehicular service will be taxed to their utmost, and exceptional efforts will require to be made by the various public carrying concerns to meet the demand. We have heard that the electric cabs formerly used in London were about to be introduced on the streets of Paris, and now it is asserted that a well-known German tourist agency has definitely decided to put a dozen electric cars in circulation during the Exhibition, in order to assure facility of transport to the clients of the firm. Each of these electromobiles will carry twelve persons, and they are being constructed by a German firm. The idea is undoubtedly an excellent one, for even now it is difficult to get from place to place in Paris readily and cheaply. The number of omnibuses in circulation is perfectly inadequate, and one may wait a considerable length of time before securing a place.

At Antwerp.

THE Automobile Club of Antwerp announces its intention to hold a series of speed trials on Sunday, May 6, these trials to be open only to members of the Belgian Automobile Club and to members of societies recognised by it. Every competitor will be required to make a trial over a kilometre from a stationary start, and another over the same distance with a flying start. The route selected for these tests is that of Putte, the exact place being at Calmpthout, where the road is perfectly straight and in excellent condition. No less than seven categories will be provided for, these being: 1, Motor tricycles; 2, Voiturettes weighing less than 250 kilos.; 3, Voiturettes exceeding 250 but less than 400 kilos.; 4, Cars exceeding 400 kilos. in weight and fitted with motors of less than 10 h.p.; 5, Cars exceeding 400 kilos. in weight and fitted with motor of more than 10 h.p.; 6, Electric cars and voiturettes; 7, Steam cars and voiturettes.

CORRESPONDENCE.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In a multitude of counsellors there is wisdom, and perhaps your correspondent, "Engineer," would also like to have my views of a Werner motor-bicycle. I can speak feelingly on the subject as I have had many falls from my machine, the last one laying me up with a broken leg. However, to be just, this fall was not entirely due to the bicycle, as I was run into by a butcher's cart which shot into me from round a corner, but had I been mounted on my motor-tricycle I could have doubled out of the way. On an ordinary bicycle I can do most things, having been an ardent cyclist for years, but, unfortunately, you can do no evolutions on a motor-bicycle of the Werner type.

To begin with, I strongly advise "Engineer"—if he can possibly afford it—to buy something else, at least something with three wheels. The Werner bicycle is a dangerous machine—everyone says so here in France, especially those who have ridden them. At the same time, as motor-bicycles go, the Werner is the best—that is to say, the motor is the best that has as yet been adapted to a bicycle. Also, more of them have been sold than of any other make.

The motor is placed in the best possible position as regards the cooling, but in the worst possible position as regards stability, the centre of gravity, etc. It is very high, which makes the machine top-heavy, and it throws all the weight on the front wheel, which makes riding both difficult and dangerous.

It is all right when you are going along straight ahead with both wheels in the same straight line, but beware of making any movement with the front wheel to go round a corner, or even to avoid anything on the road. You can't move the front-wheel without moving the motor with it, and the sudden weight, over on one side of the machine, has a strong tendency to make the front-wheel skid, and bring down the machine. The balance is very delicate and there is no playing any tricks, or going fast round a corner with a lean on. But the veriest purgatory for the poor motor-bicyclist is wet places—mere damp spots—on the road. You could not ride one yard in mud, so there is nothing to be said about that. You are spinning along quietly at a grand speed, very pleased with yourself, when, without any warning—Crash! and you're down! You then discover you have crossed some slightly damp place.

Sometimes by extraordinary gymnastic feats I have succeeded in sticking on to my machine, but those happy times have been few. Now, whenever I observe a damp spot I jump off and walk, experience having taught me that it is a sheer impossibility to ride on a wet road. I heartily recommend "Engineer" to do likewise.

The great safety in an ordinary bicycle is that you have got the front-wheel light and free and therefore you can remedy almost the worst of side-slips of the back-wheel. But the skidding of the front-wheel on an ordinary bicycle is a very different thing. On an ordinary bicycle it is all you can do to keep your balance when that happens. What then on a motor-bicycle where your front—besides being most inclined to skid itself—cannot possibly help you if you begin skidding with your back!

Of other makes of motor-bicycles here in France the two best known are the Pernoo and the Labre. The former has its motor behind the back wheel, leaving the front part of the machine absolutely clear and light. It is hard to skid on this machine, and you are as safe as on an ordinary bicycle. The only thing there is against having the motor so placed is that the rider and the whole bicycle are directly in front of it, screening it from the necessary draught required for cooling. In spite of that, however, a Pernoo machine won the great French race for motor-bicycles last year, "Le Critérium des Motocyclettes, 1899," beating the Werner and all others. Nevertheless, the Werners have won every other important race. Two of their riders rode in the Nice-Marseilles race, and did very well. Although they had only 1½-h.p. motors, and had to compete in the same class with tricycles up to 6 h.p., Bounard came in close on the heels of the last tricycle of 4 h.p., a very fine performance.

The motor-bicycle built by Lamaudière et Labre carries the motor in the ideal position as regards stability and safety, for it is between the pedals. But I have not had the actual experience of testing one.

A motor-bicycle certainly should be an excellent and extremely useful thing to have. It is the least expensive motor conveyance, it does not take up much room, it costs little to use and to keep up, and also you are sure of getting to your destination—a point of particular merit—because if the worst comes to the worst you can always pedal.

On the other hand, the Werner bicycle is, in my opinion, only a fair weather and dry road machine. It rained the day after the Nice-Marseilles race, when the race should have been completed from Marseilles to Nice, and the Werner professionals rode back—in the train!

If "Engineer" gets a Werner, the two best tips I can give him are to keep his strap as tight as he can get it—a new strap constantly requires pieces being cut off as it stretches very considerably—and not to put in more oil than is absolutely necessary. Remember also that the faster you go with air-cooled motors the better it is for them, and the less likely are you to heat the motor with the consequent damage to the piston. Going slowly for any length of time will ruin your motor. It is rather unfortunate, but that is the worst of air-cooled motors.

My machine is 1½ h.p. with accumulator electric ignition, and was made for me specially for the races this year, in none of which I could take part owing to my having previously broken my leg. It does 31½ miles an hour on the flat and takes most hills without the necessity of pedalling.

"Engineer" should well consider the *pros* and *cons* and if he decides upon getting one I can give him no better advice than what was given me by many French friends when first I had my machine. "Méfiez-vous!" they all said and reiterated "Méfiez-vous! C'est très dangereux!" (Take care, it is very dangerous!)

Yours truly,

LEOPOLD CANNING.

Villa Mascotte, Juan les Pins, Alpes Maritimes, France.

April 12th, 1900.

THE HORSE-POWER OF MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was greatly interested in the article in one of your recent issues on the Testing of the Horse-Power of Motors, and hope at an early date to try the plan suggested by Mr. Oliver. As this gentleman suggests, it is no doubt true that the horse-powers of many of the motors in use are rated—not by how much work they are capable of doing, but by how much work their builders think they ought to do. As the motor-vehicle becomes more popular however, automobilists will not be content with the mere statement of the builders, but will want some proof of the actual capacity of the engine and in this connection it may be interesting to mention that one American concern—the Autocar Co., of Ardmore, Pa.—has decided to take an indicator card from every engine and give it to the purchaser as a guarantee of the horse-power of his motor.

Yours truly,

T. S. S.

Middlesbrough, April 19th, 1900.

THE FIRST MOTOR-TRICYCLE CONSTRUCTED IN IRELAND.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am the owner of the above, and with your permission I should like to give a short description of the machine as I am sure it would interest many of your Irish readers and others, besides give credit where credit is due, namely to Mr. F. Pease, of Waterford, who made the machine. The framework, bearings, wheels, carburettor, induction coil, in fact everything metal, was made by some firm in (I think) Birmingham, at any rate in England, not in France—a dead copy of the De Dion frame; all except the bearings, which are improved upon. The engine is a 2½-h.p. genuine De Dion.

As to running this "trike" has never given me the slightest trouble, and as to speed she proved herself slightly faster than the very most up-to-date De Dion tricycle of same gear. This

speaks volumes, as my opponent was mounted on the latest De Dion, specially chosen for him by Mr. S. F. Edge, and in the hands of such an experienced jockey as Mr. W. G. D. Goff, of Glenville, Waterford, no more need be said. With regard to tires, 3-in. Dunlops are what I use; one of these proved faulty. I pointed this out to Mr. S. F. Edge, who, I understand, represents the Dunlop people in London. Without a moment's hesitation, Mr. Edge wired to Coventry and in a very few days a brand new set arrived. A firm that treats customers like this is worthy of custom.

Yours faithfully,

H. R. LANGRISHE.

76, Queen's Gate, S.W., April 17th, 1900.

DE DION v. AUTOMOBILE ASSOCIATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to your report respecting the action of De Dion and ourselves in your issue of the 13th April, we would take it as a favour if you would kindly insert this letter in explanation.

The undertaking our counsel, Mr. Buckmaster, gave was to the effect that we would not advertise or circularise the statement that Messrs. Cudell were sole agents for the United Kingdom, but this in no way deters us from stating that Messrs. Cudell are sole agents for Germany and patent holders for that country—nor does it in any way prevent us from dealing in and delivering the De Dion-Bouton voiturettes in this country or imply that we are infringing any patent, the fact being that the plaintiffs have taken no action for infringement.

We beg, therefore, to inform you that we are still supplying De Dion voiturettes at the price quoted and that we still guarantee our customers against any costs in defending any actions, etc., as per our advertisement.

Trusting you will insert this short letter in justice to ourselves.

Faithfully yours,

THE AUTOMOBILE ASSOCIATION, LTD.

April 14th, 1900.

A PROCESSION AT RICHMOND.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We are organising a military tournament and illuminated procession to take place at Richmond (Surrey), on Saturday, April 28th, and should esteem it a great favour if owners of motor-cars would take part in the procession. The funds collected are to be devoted to the Surrey War Fund. I shall be glad to hear from any owners or manufacturers able and willing to assist.

Yours faithfully,

1, The Little Green, Richmond, GERALD FITZGERALD,
April 15th, 1900. Hon. Sec.

AT the Police Summons Court at the Guildhall, London, last week, George Field was summoned for causing a motor-car to stand longer than was necessary for loading or unloading. The boy left in charge could not move the car. Mr. Field was transacting business at the time in a warehouse. The defendant was fined 2s., and costs.

AT a recent meeting of the Automobile Club of America Mr. Clarence Dinsmore was elected delegate to represent the Club at the Gordon-Bennett Cup races in June, and Mr. John H. Flagler was elected vice-delegate to serve in the event of the delegate's absence or disability. Mr. Albert C. Bostwick was chosen delegate to the International Motor Congress at Paris.

MESSRS. CARLESS, CAPEL, AND LEONARD have issued an attractive little handbook of useful information, which also gives a list of the agents for their petrol. We notice a convenient table giving the readings of the densimeter for petrol of standard quality (viz., '680 specific gravity at 60 degrees Fahr.) at various temperatures, from 30 degrees to 90 degrees Fahr. By means of this motorists will be able to tell at once that they have petrol of the right quality and to make the necessary correction if the temperature should not be at exactly 60 degrees Fahr.

THE 100-MILE TRIAL.

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AS announced last week, the 100-mile Non-stop Road Trial organised by the Automobile Club took place on the 11th inst., the route being *via* Uxbridge, Beaconsfield, and High Wycombe to the fifty-second milestone from London and back. Six cars had in all been entered for the competition—two De Dion voiturettes by the De Dion and Bouton Syndicate, Limited, a Marshall phaeton by Messrs. Marshall and Co., an Ariel quadricycle by the Ariel Cycle Company, a New Orleans voiturette by Messrs. Burford, Van Toll, and Co., and Mr. Mark Mayhew's 6-h.p. Peugeot car. When proceeding to the start Messrs. Marshall and Co.'s car was run into by a horse-drawn vehicle and did not take part in the competition. The records of those completing the course are given below.

The De Dion-Bouton British and Colonial Syndicate's De Dion voiturette carried the driver and one passenger; used three gallons of petroleum spirit, which, at 1s. 3d. per gallon, is equivalent to '45 of a penny per mile. The speed on both the outward and return journey was up to the legal limit of twelve miles per hour. There were two stoppages: (a) to adjust trembler and fill up petrol tank as the pipe from temporary oil tank had broken; (b) for restive horse, but further adjustment of trembler was necessary before car could be restarted. The speed over one mile, including Dashwood Hill, was 10.58 miles per hour, and in ascending Aston Hill (1 mile 1,100 yards) 8.2 miles per hour.

The Ariel Motor Co.'s "Ariel" quadricycle carried the driver and one passenger; used 1 gallon 5½ pints of petroleum spirit, which, at 1s. 3d. per gallon, is equivalent to '24 of a penny per mile. The speed on both the outward and return journey was up to the legal limit of 12 miles per hour. There were two stoppages: (a) because the vehicle failed to ascend Dashwood Hill until the passengers had alighted, and (b) to tighten screw in mudguard. The roads were heavy and sticky over the greater part of the journey, and there was a strong contrary wind on the outward journey. The engine gave no trouble whatever. There were no heated bearings, and no extra lubrication was required during the journey. On Dashwood Hill (commencing at the thirty-third milestone and terminating at the thirty-fourth milestone, having a total rise of 241 feet in one mile including 275 yards of a gradient of 1 in 21.7 and 600 yards of a gradient of one in eleven) the average speed was 4.6 miles per hour, the passenger's seat being vacant. On Ashton Hill (a distance of one mile 1,100 yards having a total rise of 386 feet and including 1,910 yards of a gradient of one in twenty-one) the average speed was 12.18 miles per hour. Muscular aid was given to the motor by pedal propulsion at times.

Mr. Mark Mayhew's 6 h.p. Peugeot vis-à-vis carried the driver and one passenger; used 4.46 gallons of petroleum spirit, which, at 1s. 3d. per gallon, is equivalent to '67 of a penny per mile. The speed on both the outward and homeward journey was up to the legal limit of twelve miles per hour. There was only one stop of about thirty seconds to listen if the engine was governing properly. The speed over the Dashwood Hill mile was 6.92 miles per hour, and over the Aston Hill, one mile 1,100 yards, fifteen miles per hour.

The New Orleans car had the misfortune to get some dirt into the petrol tank, from which it got into the jet of the float feed carburettor, which was choked. When this was cleared, however, the run was abandoned.

THE Walden Ridge Automobile Company has been formed at Chattanooga, Tenn., to organise a service of motor-carriages at that place.

WE learn that Mr. R. E. Phillips, the well-known patent agent, has purchased a Petit Duc Mors from the Automobile Association, Ltd.

THE suggestion has been made that a motor-car service should be run from Darlington to Reeth and Richmond. Such a venture, says the *Middlesbrough Evening Telegraph*, during the summer could scarcely fail to be a paying one, considering the very fine scenery to be witnessed *enroute*.

THE PARIS-ROUBAIX RACE.



ON Sunday last the doors of the Exposition Universelle were thrown open for the first time to the general public, but even this event of national importance had no diminishing effect upon the attendance of spectators who assembled to witness the start of the fifth annual race from Paris to Roubaix; indeed, on the contrary, the gathering was larger than any yet recorded on an occasion of this kind. And the reason was not difficult to find, for the usual crowd of cycle and motor enthusiasts who faithfully attend all these *réunions* was on Sunday greatly augmented by the presence of hundreds of people whom the glorious weather had tempted to spend a day in the country, and who eagerly seized the opportunity of witnessing what was to them more or less of a novelty. After the last few weeks of cold and rain which we have of late experienced in Paris the sudden change to warmth and sunshine was very welcome and rendered cyclists and motorists so supremely content that not even the awful journey over that bumpiest of routes which lies between the capital and Saint Germain failed to ruffle their temper. Doubtless the authorities purposely leave this road in as bad a condition as practicable, for its surface restrains motor-men from indulging in high speeds in a way which no laws and regulations could ever attain. Even as it is, vehicles are occasionally driven over it much too fast, and as probably some hundreds of cars make use of the road every Sunday to get out into the country, many of the good people of Rueil, Chatou, Le Pecq, Le Vésinet, and other environs of Paris which border this route feel that they have rather too much automobilism, and that since its coming their suburban homes have lost some of their peacefulness. Our run out on Sunday was, apart from the bumps, quite uneventful, and we ultimately arrived at Saint Germain somewhat sore but otherwise perfectly happy. There we found that, following the now established custom where early starts are the order of the day, a goodly number of competitors had journeyed out from town the previous evening, thereby securing a comfortable night's rest previous to setting out upon their wild career of speed. In this particular instance these were nearly all bicyclists, for whom the *contrôle* opened at 7.30 a.m., the hour of departure being timed for nine o'clock. And here I would remind English readers that there exist in this Paris-Roubaix race two categories, one reserved for bicyclists and one for motor-cyclists; or, in other words, one for muscle and one for motor. Sunday last was the fifth annual occasion upon which the bicyclists have contested the race, and the third upon which the motor men have battled for victory. It was in 1898 that the *Vélo* first included the latter category, and upon that occasion eighteen motorists competed, the victory ultimately going to Degrais, whose time for the 268 kilomètres (167½ miles) was 7h. 29min. A year later the race was much more hotly contested, and after a great struggle between Osmont, Vasseur, and Béconnais the former *chauffeur* gained the award, covering the distance in 5h. 35min. 30secs., a marked advance upon the time made in 1898. This year it was generally anticipated that another slaughtering of the record would take place, and as will be seen later on this expectation was fully justified. But let me get on to the *contrôle de départ*, and as the ordinary cycling contingent probably interest but little English automobilists, I will just permit them to take their departure with but a few remarks, and those relating more particularly to their pacing machines. Each of these latter was provided with a huge wind shield, that upon Levegh's car assuming gigantic proportions. The famous French rider Bouhours was particularly happy in the number and quality of his pacers, as MM. Clément, Gilles Hourgières, Heron, and René de Knyff all lent their valuable assistance. M. Levegh rendered similar services to A. Garin, Voigt and Degrais paced M. Garin, Prince Sagan and Huguet led Fischer, Maurice Farman helped Mion, and Corre paced Lepoutre. At nine o'clock exactly the nineteen competitors were despatched upon their long journey, and the only accidents were a couple of falls made almost immediately by Mion, the second of which caused him to abandon

the race. The first was occasioned by his touching Farman's car, which was pacing him, and then, after mounting a spare machine, his original cycle being damaged, he shortly afterwards again ran into the back of his pacer and was compelled to relinquish the contest.

Once the cyclists were out of sight the officials commenced to busy themselves with the preparations for the motor men, and learning that the level crossing at Achères would be shut until 11.10 a.m., it was decided to postpone the start until that hour. By that time the crowd of spectators had been slightly reduced in numbers, but the officials and police had all their work cut out to preserve a clear course for the first few hundred yards through the forest, at the entrance of which the *contrôle* was placed. The competitors themselves were ranged up in trios, the front rank consisting of Béconnais, Osmont, and Marcellin. They numbered thirty all told, but at the last moment Rigal found it impossible to start, the piston of his engine having come to grief. Another notable non-starter was Teste, whose accident at Pontoise the previous Sunday had rendered him *hors de combat*. The actual participants were—Béconnais, Marcellin, Osmont, Lerod, Baras, Tart, Bathiat, Martin, Lemoine, Vasseur, Demester, Bardin, Girardot, Montbel, Didier-Nauts, Nielsen, Rolland, Collignon, Bardaux, Fournier, Chénard, Labadie, Battaiellie, Villemain, Delisle, Bertin, Prévost, Cousin, and Bonnard, the three latter riding motor-bicycles. Upon the signal being given Béconnais jumped off with the lead, hotly pursued by Baras, and in a moment the whole crowd of "coureurs" was tearing down the road at 80 kilomètres to the hour, leaving in its track a great white cloud of smoke, from the depths of which one heard a roar of motors like the spluttering of many Maxim guns. It is at that moment that one is apt to ask oneself what would happen should any living thing chance to stray across the route before that squadron of motors, which have not yet had time to tail out, but which are simply travelling down the road in a compact column. Should the first man come to grief the consequences would be too terrible to think of; for, by reason of the pace at which they travel and their inability to see ten yards ahead on account of the dust, the following "chauffeurs" could not possibly avoid an accident. On Sunday a very grave mishap did occur, and but for the fact that the competitors had already drawn out somewhat, the consequences would have been even more serious. The accident came about at the famous Croix-de-Noailles, that landmark of all Parisian cyclists, which stands at the point where the Saint Germain-Achères road is crossed by that leading from Maisons-Lafitte to Poissy. Here a considerable crowd had assembled on Sunday to see the racers take the corner at express speed, and fortunately the majority were sufficiently prudent to station themselves well away from the route. Some, however, massed themselves around the foot of the cross, that is to say, practically in the middle of the road, and there waited impatiently for the arrival of the racers, whose departure from Saint Germain, as I have already stated, was somewhat delayed. Suddenly Béconnais appeared, followed by Baras, and one after another the "coureurs" successfully negotiated the corner, until Martin and Dorel arrived practically together. The latter had the inner berth, and would appear to have endeavoured to pass his opponent on the bend, a truly extraordinary idea. At the pace at which he was travelling he could not negotiate the corner, but ran into Martin, and both motor-cycles dashed into the crowd stationed at the foot of the cross. The incident came so unexpectedly and so quickly that the unfortunate people had no time to seek safety in flight before the two machines were into them, and fully twenty were knocked down and rolled in the dust. Fortunately, a number of bicycles lying on the ground before the spectators slightly broke the violence of the collision, but as it was much damage was done. Madame Bos, wife of the Deputy for the Seine, sustained a compound fracture of the leg, M. Biehle a similar injury, and Martin, one of the racers, a broken collar bone. Other persons were shaken and contused, but happily no bones were broken. As for Dorel himself he escaped almost scatheless. Dr. Henri de Rothschild, who happened to be near in his car, immediately came to the assist

ance of the wounded, and after the fractured limbs had been temporarily bound up, Madame Bos and M. Biehle were conveyed to the hospital at Saint-Germain, the former being subsequently conveyed in the evening to the Tenon hospital at Paris. Both are doing well, and their condition gives rise to no misapprehensions. Martin's broken collar bone did not deter him from attempting to renew the race, but after a few attempts he found his machine too damaged to permit of his proceeding, and he was therefore compelled to abandon the idea. Meanwhile the race had, of course, been proceeding, and at Pontoise, 19 kilomètres from the start, Béconnais was leading Baras by one second. At Beauvais, 51½ kilomètres further on, the positions were reversed, while the other men well to the front were Marcellin, Bertin, Girardot, and Rolland. Breteuil, which marked the termination of the first 100 kilomètres, was reached by Baras at 12.37 midday, he having covered the distance in 87 minutes. Marcellin, Bertin, Tart, and Demester followed in the order named, and ultimately Béconnais

It was during this last portion of the journey that both Marcellin and Girardot's machines failed them, while Vasseur broke one of his electric connections, and so permitted Tart to secure the second place. When ultimately Baras made his appearance on the Roubaix track just before three o'clock the tremendous crowd which encircled the arena could scarcely believe their eyes. Three hours and 48 mins. for a journey of 263 kilomètres, the last 62 kilomètres of which were over simply villainous *pavé*—an average speed of 69 kilomètres (43 miles) per hour over such a route! No, it was not to be believed! But there was the proof positive before their eyes—Baras smothered in dust—and then they cheered him until they were hoarse. And what did Baras do? Why, he simply commenced to make the obligatory six rounds of the track on his machine, and promptly toppled over at the very first corner. Fortunately, he was not damaged, but his machine was in a woeful plight, and the winner was compelled to make his six laps of honour mounted on an ordinary bicycle. Forty minutes

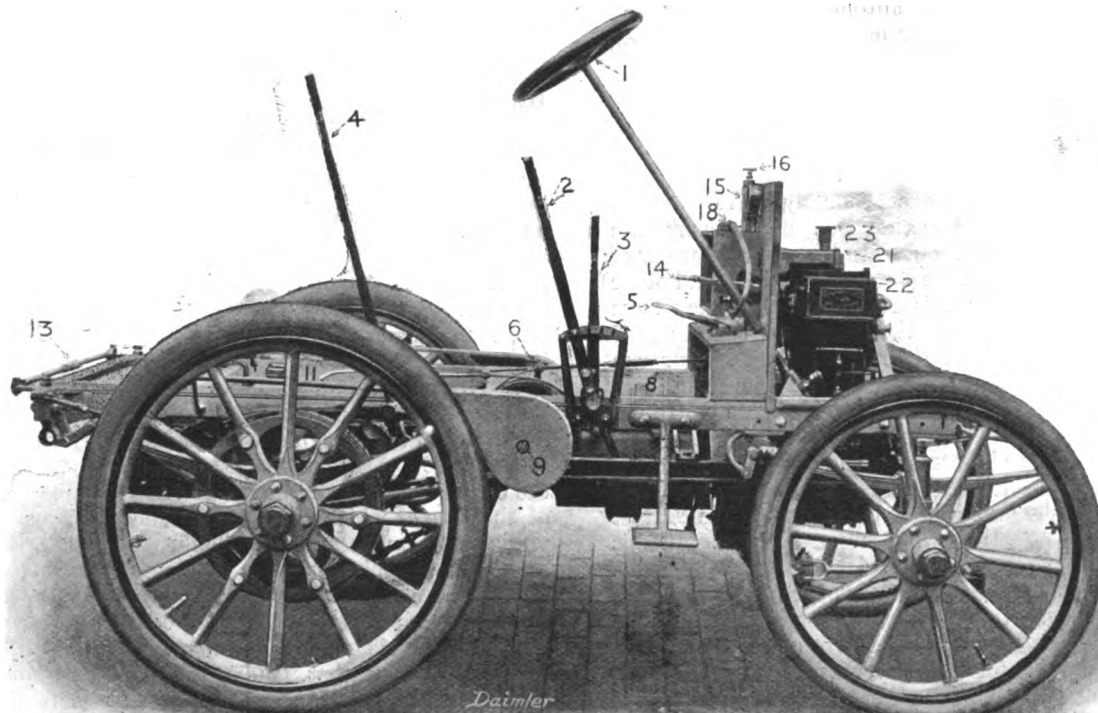


FIG. 1.—SIDE VIEW OF STANDARD 1900 DAIMLER FRAME. (See opposite page).

put in an appearance after experiencing many troubles. He decided to dismount his motor, and then found that some unscrupulous individual had doctored his engine by inserting five small balls in the cylinder. The game would appear to be about to be played very low indeed when this sort of thing commences, and we shall soon have competitors sleeping with their machines and safeguarding them with all manner of precautions to prevent tampering. With Béconnais out of the hunt, Baras' position was considerably strengthened, and he continued to increase his lead from the other competitors. At Amiens he had covered 131½ kilomètres in 111 minutes, being 14 minutes ahead of Marcellin. He reached Doullens at 1.34 p.m., and it is worthy of note that at this point Mlle. Léa Lemoine was tenth, her time for the 161½ kilomètres being 188 minutes. I fancy that there are not many lady motor-cyclists who would care to drive a machine at that speed. The order at Arras, which marked the finish of the 200th kilomètre, was: Baras at 1.58 p.m.; Marcellin at 2.20 p.m.; Girardot at 2.23 p.m.; and then Tart, Vasseur, and Demester. Baras had thus made the 200 kilomètres in 168 minutes. Average speed, 70 kilomètres, or nearly 44 miles per hour. During the next 36 kilomètres he gained a couple of minutes more on Marcellin, and it is interesting to observe that in the same distance he gained 40 min. over the cyclist Bouhours, who had left Arras with him. From Arras right away to Roubaix the route consisted of *pavé*, and yet these last 62 kilomètres were covered by Baras in exactly an hour.

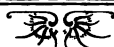
later Tart put in an appearance, followed twelve minutes afterwards by Vasseur. The official placings were:—

				Time.	
				H.	M.
1.	Baras	...	...	3	48
2.	Tart	...	...	4	28
3.	Vasseur	...	...	4	40
4.	Battaille	...	...	5	2
5.	Collignon	...	...	5	16
6.	Delisle	...	...	5	50
7.	Chenard	...	...	6	19
8.	Bathiat	...	...	6	29

And by way of comparison it is interesting to observe that the time achieved by Bouhours, one of the finest distance riders in the world, was 7h. 10min. 30sec., and this, too, with the aid of most efficient motor pacing. Another interesting comparison is afforded by noting the time of the fastest train travelling between Paris and Roubaix. This express makes the journey in exactly the same time that Baras occupied in racing over the road, but then the locomotive has twelve kilomètres *less* to travel than had Baras. Still it is not bad time for a train, and with practice it may be brought up to the equivalent of Baras' performance. And now a rest for the motor-cyclists until Sunday week, when Paris-Lille will be decided.

ERNEST M. C. INSTONE.

The Motor-Car Exhibition at the Agricultural Hall.



THE wisdom of holding "two exhibitions in one" has been amply demonstrated at the Agricultural Hall, Islington, this week, and greater interest than ever before has been shown in the display of automobiles there got together. Under the auspices of the Automobile Club of Great Britain and Ireland, and directed by Mr. Charles Cordingley, of the *Motor-Car Journal*, the motor-car exhibition which opened on Saturday last must be pronounced a great success. Not only has public attention been well maintained, but the comprehensive character of the display has fully sustained the interest of automobilists. The Easter excursions have brought a good many people from the provinces, and the arena has been a great centre of attraction throughout the week. Cars have never lacked passengers, and at times there has been quite a rush for seats on the vehicles. The performance of Mr. E. J. Coles has been well received every afternoon as well as evening, while the Ladies' Band has discoursed an excellent programme of music twice daily.

Doubtless the last day (tomorrow) will present the busiest scene of the week, for then the vehicles which are to participate in the forthcoming 1,000-mile Trial will be paraded, and the ceremony of sealing will take place. This event, together with the ordinary attractions, will probably cause many who have already visited the Exhibition to pay a second visit on that day.

One of the most imposing displays in the show is undoubtedly that of the Daimler Motor-Car Company, Limited, London and Coventry. All the cars shown are mounted on the company's standard frame, fitted with 6-h.p. Daimler motor. First we have an elegant four-seated wagonette, with a body painted in light blue, solid rubber tires, and tiller steering. Next to this we find an example of the company's latest production—a mail phaeton with pneumatic tires and wheel steering. Then another four-seated wagonette; a Wyley phaeton to seat five; a ten-seated wagonette bearing the legend "Edinburgh Autocar Company, Limited," several of this type of car being used for public services in the Scottish capital and elsewhere. To those interested in the details of the Daimler motor and transmission gear the northern end of the stand should prove most interesting. Here we find a car with the body removed, so that the motor and driving gear may be inspected. At the side of this

is a Daimler motor, part of which has been cut away so that the operation of the valves may be examined, while another interesting exhibit is that of the variable speed gear. Briefly referring to the other things to be seen, there is a 2-h.p. Daimler engine suitable for 20ft. launch, which it will drive at a speed of 7 miles per hour, a four-cylinder 12-h.p. gravity feed motor, and a couple of light "bodies" constructed mainly of aluminium. Altogether the Daimler Company's exhibit is one of the most interesting and instructive in the exhibition. In several of our recent issues we have illustrated various parts of the Daimler motor and cars, to which we are now able to add a side view of the 1900 standard frame (Fig. 1).

One of the first exhibits to attract attention on entering the exhibition is that of the Motor Manufacturing Company, Limited,

of 47, Holborn Viaduct, E.C., and Coventry. The display is of a very varied character. First we find motor-tricycles fitted with a 2½-h.p. English-built motor of the De Dion type and with the Boon system of opening the exhaust valve from the handle-bar. A two-seated motor-quadracycle enamelled in khaki is also displayed. Of the Motor Manufacturing Company's Panhard vehicles fitted with 6-h.p. motors several are shown. First we see a ten-seated wagonette fitted with omnibus top, built for the

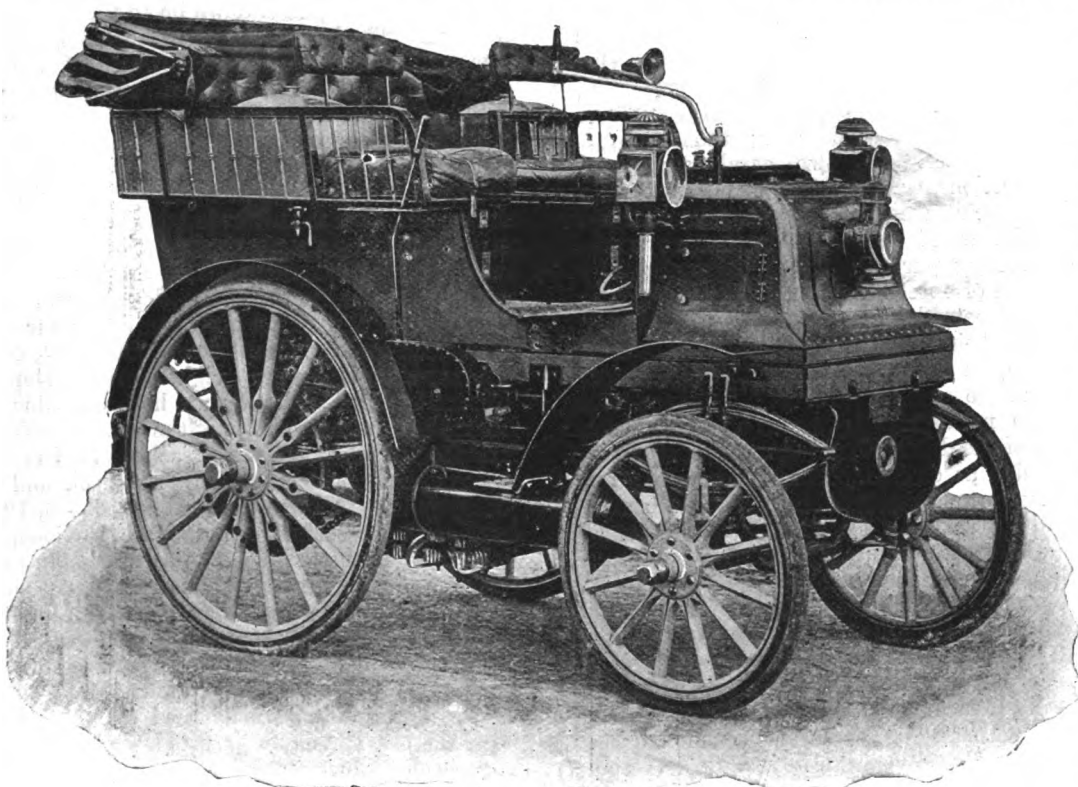


FIG. 2.—THE MOTOR MANUFACTURING CO.'S MARLBOROUGH PHAETON.

Merthyr Motor Car Company. The car is fitted with a 6-h.p. motor, four speeds and reverse, tiller-steering, solid tires. The body of the car is painted in red and black, the omnibus top being in natural wood. A feature of the latter is the adoption of windows of xylonite instead of glass, these having been found to be much more free from rattle than glass. Other cars on view are the Iveagh phaeton, with seating accommodation for five persons, built on the company's standard 6-h.p. frame, and a Granville ten-seated wagonette, with body of natural wood. An example of the latest production of the Motor Manufacturing Company is to be found in the 6-h.p. Panhard phaeton, built to the order of Mr. Charles Cordingley. The car is fitted with all the latest improvements, such as wheel steering, water-cooling coil, speed lever handles at the side. The vehicle is propelled by a 6-h.p. motor, four speeds and reverse motion being provided. Ample brake power is

available, for, in addition to the hand and sprocket brakes, tire brakes, operated by a hand-wheel and screw-gear at the side, are fitted. The car is provided with two bodies, either of which may be fitted to the frame. One is a two-seated racing body of aluminium, with ample room at the back for a spare petrol tank or detachable tiger seat; the other body is known as the "Marlborough" (Fig. 3), having ample accommodation for five persons, and finished in royal yellow and black. The road wheels are of stout construction, shod with solid rubber tires vulcanised on the rim. Other exhibits of the Motor Manufacturing Company comprise specimens of their English-made De Dion motors, both air and water cooled, ranging in sizes from $2\frac{1}{2}$ h.p. upwards; also accessories and small parts of all kinds for De Dion and Panhard motors. Ere the exhibition closes the company hope to have on view one of the large Balmoral char-à-bancs built on the George Iden system, and recently illustrated in these columns.

The Lanchester Engine Company, Limited, of Armourer Mills, Birmingham, exhibit two of their cars which attracted so much attention at the Exhibition last year. One car is a two-seated phaeton, the other a four-seated hooded mail phaeton. The motor, which is arranged at about the centre of the frame, under the seat, comprises two horizontal cylinders, 5in. diameter by 5in. stroke, facing each other in the same line; it is capable of indicating 8 h.p. Two connecting rods are attached to each piston. There are two cranks independent of each other, and two fly-wheels also independent of each other but keyed respectively to the two crank shafts, one of which is 3in. above the centre line of the engine, the other 3in. below it. One connecting rod from each piston goes to the upper crank pin and one to the lower, a kind of diamond-shaped linkage when the pistons are at mid stroke being thus formed. It may also be stated that the two crank shafts revolve in opposite directions, while to counteract any vibration balance-weights are attached to the connections of the crank webs. Another feature of the motor is that no water-jacket is employed for cooling purposes, this being replaced by an air-jacket and a system of forced draught. The ignition is electrical, an ingenious magneto-electric device being employed, the rim of the fly-wheel being utilised to carry or form a permanent magnet, which, in revolving, produces an electrical current in a small armature geared near it. A hit-and-miss governor is fitted to the motor, and by means of small levers within convenient reach of the driver's hand the rate of sparking can be advanced or retarded as desired. The sparking plugs are arranged with an instantaneously detachable joint, and can be removed, examined and replaced in a few seconds. The electric current is conveyed to the sparking plugs by a brass bar of heavy section substantially insulated; no wire connections being employed. A special safety oil tank and carburettor is employed. The motor is fitted with automatic lubrication; a central tank is provided of sufficient capacity for 250 miles run; the oil is distributed to all parts of the motor by a system of tubes, and the supply automatically ceases when the engine is stopped. The normal speed of the motor is 800 revolutions. While all the working parts are enclosed, the covers can be readily detached. Another feature of the Lanchester car is to be found in the transmission gear. The vehicles are fitted with two gears and two brakes. The gears and brakes are actuated by two levers, which when forward drive ahead, and when backward apply the brake; in the intermediate position both are idle. The brake actuated by the low gear lever acts as a reversing gear if the application is continued after the car has come to rest. The motor drives a friction disc, against which a plate is held by depressing a lever; this plate is keyed to a shaft carrying a worm, which gears with a large worm wheel, inside which is mounted the differential gear on the rear road-wheel axle. When the worm shaft disc is pressed against the motor disc the worm rotates normally at the same speed as the motor; when the disc is drawn back it is forced against fixed stops, which act as a powerful brake. The steering is effected by a lever, fixed at the right-hand side of the car body, the wheels being mounted on independent axles, and coupled by a new design of compensating gear. The "body" is designed separately from, and is admir-

ably supported by springs on the tubular frame of, the vehicle, so that different types of body can be fitted to the same frame. The road wheels are of the suspension type, with pneumatic tires, the rear pair being provided with shoe brakes.

So large and varied is the exhibit of the Automobile Association, Limited, of Prince's Road, Holland Park Avenue, London, W., that it is difficult to know where to begin and where to end. It is simply impossible to attempt to fully describe all the vehicles on view, the brief epitome given in the catalogue alone occupying nearly six pages. We must confine ourselves, therefore, to a mere mention of the better known types, and to a brief description of the newer vehicles. Dealing first with motor-tricycles, in addition to the ordinary tricycle we find a racing tricycle fitted with a 3-h.p. De Dion motor, built with a view to cutting the records lately made by that daring motor-tricyclist Béconnais on his tricycle driven by a 4 h.p. Soncin motor. The "Orient Express" type of car is shown in two forms—one seating two and the other three persons. They are fitted with 6-h.p. motors. The ignition is magneto-electrical, the cylinders are water cooled, and the transmission is by means of belts with jockey tighteners. The "Orient Express" cars, which are of German construction, are exceedingly elegant in design, and by reason of their relatively low cost should become very popular. Three forward speeds and one reverse motion are available, belt transmission being adopted. The speeds are actuated by a jockey pulley, which is pulled down on to the belts by a lever worked by hand. The highest speed attainable on the level is 23 miles. The car is easily driven, the whole of the levers, etc., being close to hand. It is fitted with artillery wood wheels, shod with either pneumatic or solid rubber tires as desired. Prominent among a number of the now well-known 3-h.p. De Dion voiturettes is one fitted with a four-seated phaeton body. The two rows of seats—one of which is fitted with a hood—are interchangeable, so that the hooded one may be at the front and rear as desired. The steering and control levers are so mounted that the driver in all cases occupies the front seat. Several Mors vehicles are shown, including the $7\frac{1}{2}$ -h.p. dog-cart and one of the two-seated 4-h.p. "Ducs" illustrated and described in our issue of March 10th, 1899. The productions of Messrs. Ducrest, of Grenoble, France, are represented by an eight-seated "Hercules" wagonette. This car is fitted with a 10-h.p. horizontal double-cylinder motor, located in the front portion of the car. The ignition is electrical, and the cylinders are water-jacketed. The transmission is by means of belts, which normally run slack and are tightened by jockey pulleys. Three forward speeds—6, 12, and 20 miles per hour—and one backward motion are provided. The car appears to be built on sound lines, and seems likely to fulfil the requirements of anyone needing a motor-vehicle of so large a character. Quite a new car to this country is the Mors six-seated phaeton. The car is fitted with a two-cylinder vertical motor located in the fore part of the frame. It is fitted with electric ignition (similar to that in the well-known Mors dog-cart) and water jackets, and at the normal speed of 900 revolutions will indicate 10 h.p. The motor is fitted with a compression cock and a governor which operates on the exhaust valves. A special form of segmental friction clutch is introduced between the motor and the transmission mechanism. Four speeds forward and one reverse motion are provided, the maximum speed attainable being twenty-four miles per hour, the transmission being very much on the lines of that adopted in the Panhard cars. The steering is controlled by a hand wheel on which the switch for cutting off the electrical current for the ignition is mounted. A radiating coil is provided in connection with the water circulation, while there are three brakes, a feature being that the application of the hand brakes also causes the disengagement of the clutch. This car is a *fac-simile*, so far as the motor and mechanism are concerned, of the racing car, ridden by Levegh, in last year's French races, and which won the Paris-Ostend, Paris-St. Malo, and other races. Other exhibits comprise the Waverley Runabout, an electrical car of American construction, and a large range of motor-car accessories, including magneto-electric ignition devices, carburettors, batteries, etc.

The most prominent feature at the stand of the United Motor Industries, of 64, Holborn Viaduct, London, E.C., and Paris, is a four-seated Hurtu dog-cart (Fig. 3), finished in maroon and black. The car is fitted with a 5-h.p. horizontal water-jacketed motor, which drives a countershaft by belts working on fast and loose pulleys. Two speeds forward—8 and 20 miles per hour—are provided. A two-seated 5-h.p. Hurtu car is also to be seen. A neat looking voiturette is that known as the Didier. This car, which has seating accommodation for three persons, all facing forward, is propelled by a 3-h.p. water-cooled De Dion motor, suspended at the rear of a tubular frame. It drives the rear axle direct through the medium of a two-speed pinion gear. A feature of the car is the method of suspending the body. The latter is in two parts; the additional front seat is rigidly attached to the frame, while the main seat is supported thereon by plate and C springs. The car is fitted with wheel steering and two brakes, and has an attractive appearance. Of motor-cycles we find the "Empress" motor-tricycle, manufactured by the United Motor Industries, fitted with genuine De Dion 2½-h.p. motor, and Dunlop or Clipper tires, as also a Components motor-quad. There is also on view a complete range of frames, lamps, parts, and accessories, of which we may draw attention more particularly to the "D" lubricating oils for high-speed motors, sets of parts for building the frames of motor-cycles, even to the lugs and tubes to fit the same.

The principal exhibit, on this occasion, of the London Motor Van and Wagon Company, Limited, Tottenham Street, Tottenham Court Road, London, W., is a couple of "Hurlingham" voiturettes to carry two or three persons. This is the same car as was illustrated and described under the name of the "Brierre" in our issue of March

23rd last, so that a lengthy notice at the present time is unnecessary. We may mention, however, that the car is propelled by a 3½-h.p. horizontal petroleum-spirit motor, and that three speeds—6, 12, and 18 miles per hour—are available, the transmission of the power to the road axle being effected by spur gearing. The car, one of which has been entered for the 1,000-mile Trial, has a neat appearance, and seems to run very well, judging from its performance in the arena. It weighs only about 4 cwt. complete. This company also exhibit a Parisian touring phaeton fitted with 5½-h.p. Daimler motor, and a ten-seated wagonette with an engine of the same size and make, the latter being a type of car now largely used for the conveyance of the public at many seaside resorts.

The main feature of interest at the stand of the Progress Cycle Co., Limited, Foleshill, Coventry, is the new two-seated voiturette, shown unfinished so far as the body is concerned. Indeed, in the course of a chat with Mr. West, we learn that it was only by great exertion that they were able to get the car ready in time for the Show, to which it was despatched ere it had been properly tried and adjusted. So far as one can judge from its

running in the arena, the car meets all the designer's expectations, and when properly finished it will have an attractive appearance, and should soon become a very popular type on the road. The frame is of tubular construction, while to allow for uneven roads compensating coil springs are introduced in the vertical pivots on which the front axle rests. The motor is a 3-h.p. water-cooled vertical cylinder De Dion; it is located at the rear of the frame, and drives by pinions a small countershaft carrying the two-speed gear. The latter is enclosed in an oil-containing case. Through the same box runs a second small shaft carrying pinions always in mesh with those on the first shaft, either pair of which can be made to transmit the power by means of clutches. From this second shaft the power is conveyed through a small pinion to a large pinion centrally located on the rear axle. Ample brake power is provided, there being a band brake on the differential gear, and band brakes on each of the rear wheel hubs. The body is suspended by C springs at the rear; steering is controlled by a bar, on the standard of which all the various levers are mounted. The water tank is located in front of the dashboard, a radiating

coil being also fitted, the circulation being maintained by a pump. Provision is made for the starting of the motor from the driver's seat. The wheels are of the cycle type, shod with pneumatic tires. The car, which weighs complete only 5½ cwt., is geared up to a maximum speed of about 17 miles per hour. Of interest to motor-cyclists are the Progress motor tricycles and quadricycles for one or two persons. These machines are fitted with 2½-h.p. English made De Dion motors, and are of high-class finish throughout. The front-seat attachment on the two-seated quad is well suspended, and is connected by but four bolts, so that it can be quickly detached.

Other features of in-

terest in the machine are the rim brakes fitted to the rear wheels, and a saddle fitted with back rest for the rear rider. An interesting machine is the quadricycle for one rider. The advantages claimed for this machine over the ordinary motor-tricycle are numerous. In the first place the conversion to a two-seated quad is so simple that anyone can do it in ten minutes. No extra wheel is required, and no front forks, while nothing is detached except the front seat and the C springs belonging to it. The frame of the machine is not touched, and the elliptical springs underneath the front axle remain to absorb the front vibration. The machine is said to steer steadier than a tricycle, and owing to its running in two tracks instead of three, is more suitable for rough roads. Furthermore, a large basket, or portmanteau, can be attached in front, resting on the front axle in place of the seat, and with a hundred-weight of luggage in front the rider need not be inconvenienced nor the running of the machine be affected. A regular tradesman's carrier, similar to that fitted to what is now known as a carrier tricycle, can be fitted if desired, thus adapting the machine for business purposes

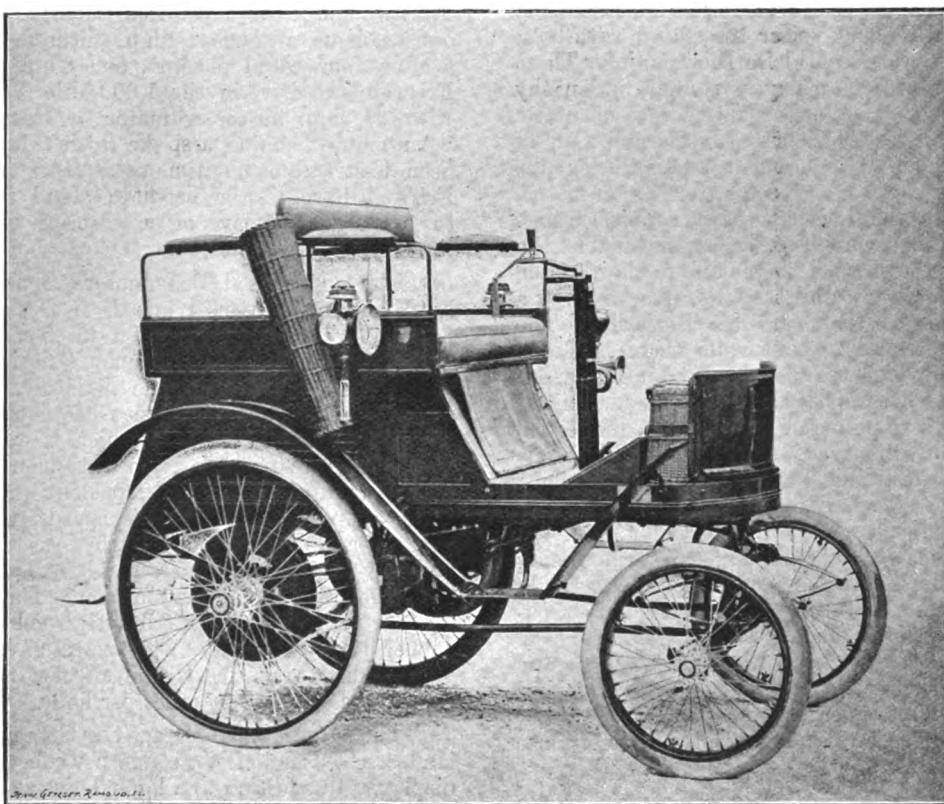


FIG. 3.—THE HURTU DOG-CART.

either for the delivery of parcels or, in the case of a commercial traveller, for carrying samples.

One of the many novelties at the exhibition is to be found at the stand of Messrs. S. Leuchters and Co., of 41, Aire Street, Leeds. It takes the form of a motor-tricycle fitted with a water-cooled motor. The tricycle, while of strong construction, follows the generally adopted lines. The engine is of 2½ h.p., but in future one of 3 h.p. is to be fitted. Only the cylinder is water-jacketed, the valves and combustion chamber being provided with radiating fins. The circulation is by gravity, the water being stored in two tanks supported beneath the saddle. The capacity is three pints, and this is stated to be sufficient for a run of 100 miles without it being necessary to change the water. The application of the water-jacket is claimed to have given excellent results in practice, and no doubt motor cyclists will feel inclined to inquire into the merits of the arrangement on their own account. The tricycle is arranged so that it can be fitted with a clutch to disengage the motor from the driving axle if desired. Messrs. Leuchters have also on view a Butler motor-quadracycle, which type of machine is too well known to need description at this time.

At the stand of Messrs. Farman and Co., of 25, Rue de la Paix, Paris, we find several Renault voituresses, fitted with both 2½ h.p. air-cooled and 3 h.p. water-cooled De Dion motors. These cars have been illustrated in these pages, so that a lengthy description is unnecessary at this time. Quite a new voiturette to this country is that made by Messrs. Hanzer and Co., of Petit-Ivry (Seine), for whom Messrs. Farman are sole agents. The vehicle is propelled by a water-cooled 3-h.p. De Dion motor, located under a bonnet in the fore-part of a tubular frame. Three speeds forward and one reverse motion are available, the power of the engine being transmitted by pinions to the variable speed shaft, and from the latter direct to the rear axle by a longitudinal universally-jointed shaft and bevel gearing. The car is provided with a water-cooling coil, while there is also a friction clutch by means of which the motor can be instantly cut out from the transmission. Steering is controlled by an inclined hand wheel. Three brakes are provided, one on the differential shaft and one on each of the rear wheel hubs. The car is equipped with cycle type wheels and pneumatic tires, and weighs complete about 5 cwt. The top speed is about 25 miles per hour. Messrs. Farman are also showing a Soncin motor of 4½ h.p. It is of the air-cooled single vertical cylinder type, comprising several special features to which we hope to refer to later. It was on a machine fitted with a motor of this type that the well-known motor-cyclist Béconnais made his recent wonderful performances in the way of speed. A new wheel-steering gear is also to be seen, the feature being the employment of a rack and pinion gear to transmit the movement of the hand-wheel to the steering levers. In addition there is a big display of motor-car accessories.

Since the foregoing was written a frame complete with motor and transmission gear, made by Messrs. Daniel Augé and Co., has been added to the stand of Messrs. Farman. We can only briefly refer to this addition this week. The frame, which is constructed of channel steel, carries a two-cylinder horizontal motor at its front end. The engine, which is of 5 h.p., is fitted with water jacket and electric ignition. Two speeds forward and one reverse motion are provided, the power being conveyed by a belt to a countershaft, and by pinions working in an oil-containing case. The pinions mesh with similar speed wheels on a second shaft, which at its ends carries sprocket wheels which convey the power to the rear axle by the usual chains.

A neat car is shown by the Wolseley Sheep Shearing Machine Company, Limited, of Sidney Works, Alma Street, Birmingham. It has seating capacity for two persons, but the motor is said to be powerful enough to carry four at a slightly reduced speed. The weight of the car with full equipment and tanks full, is 12 cwt. Three speeds forward—six, fourteen, and twenty-two miles an hour, and a reverse motion are available. The motor is of the horizontal single-cylinder type with water-

jacket to both the cylinder and explosion chamber, electric ignition and two fly-wheels. The power is conveyed by a single belt to a variable gear counter-shaft, which is geared by pinions to a second parallel shaft, chains and sprocket wheels conveying the power to the rear axle. All the bearings are lubricated from a sight-feed lubricator, fixed to the splash-board in front of the driver, and which carries sufficient oil for a run of about 150 miles. The steering is controlled by a lever through gearing, which is claimed to possess all the advantages of wheel-steering, being locked in every position. Two brakes are provided, these operating on a special rim secured to the side of the ordinary rim of each hind wheel, operated both by a foot pedal and a hand lever. The petrol tank has a capacity sufficient for a run of 100 miles. Only a small amount of water is carried—one gallon—this having been found to be sufficient with the Wolseley system of forced circulation, large radiating coils and the breech of the engine being exposed to the air. The car is fitted with cycle type wheels and Dunlop motor pneumatic tires.

Messrs. Friswell, Limited, of 18, Holborn Viaduct, London, E.C., have a large exhibit of motor-vehicles and motor-cycles. First we notice the two-seated Delahaye voiturette illustrated in our last issue, a Peugeot 4-h.p. voiturette, two Mors Petit Ducs, a Mors four-seated phaeton, one 8-h.p. Peugeot car which Mr. Friswell is to drive in the 1,000-Mile Trial, a Renault voiturette with 2½ h.p. air-cooler motor, a Rochet motor-tricycle with "Auto-moto" engine, and the Rochet dog-cart, all of which have been dealt with at one time or another in these pages. Messrs. Friswell have also a separate stand in the Arcade devoted to a large display of accessories for automobiles of all kinds.

The largely-used Benz motor-cars are kept well to the front by Messrs. Hewetson, Limited, of Dean Street, Oxford Street, London, W., who have nearly a dozen cars of different types on view. It is difficult to say much that is not already known of these cars. The various details have, however, been modified and strengthened as experience has shown to be necessary, the result being a neat carriage, which is well intended to maintain the already great popularity of this firm. Glancing at the cars on the stand we notice a 1900 Benz three-seated vehicle, fitted with 3-h.p. motor and three speeds, two No. 1 cars for three persons, a No. 1 Doctor's Car, a special No. 1 3-h.p. car with a body by Messrs. Mulliner, a 5-h.p. Duke Victoria with three speeds forward and reverse motion. This car has accommodation for four persons, and is fitted with wood wheels shod with solid rubber tires. Finally, we have a 9½-h.p. four-seated dogcart. This car has three speeds and reverse motion, and is capable of attaining a speed of 25 miles per hour.

The International Motor-Car Company, of 106, Great Portland Street, London W., is another concern making a very large display. In addition to a light delivery van and three or four of their well-known International cars on Benz lines to seat two and three persons, the company are showing two frames fitted with motors and transmission gear complete, which comprise several special features. It has often been complained of by exhibition visitors that the working parts of automobiles are not exposed to view, but nothing can be said against the International Company on this score. The cars are now too well known to need a lengthy description at this time, so we devote the space at our disposal to the brief mention of the new frames and motors that are now being adopted, and which bear the legend "Made in England." The first we inspected was one intended for a heavy car; it is fitted with a 10-h.p. tandem motor mounted on a channel steel frame. The motor has two cylinders, the pistons of which work on to a common crankshaft; the cranks work in an oil containing case. Three speeds, by means of belts working on fast and loose pulleys, are provided, as also a reverse motion. A new feature is the arrangement of the pedal controlling the band brakes, the belts being all shipped on to the loose pulleys on the application of the brakes. This under-frame is fitted with cycle type wheels and solid rubber tires. The motor-cylinders are water-jacketed, two cooling coils being

fitted—one at the front and one at the rear of the car. Steering is controlled by a hand-wheel, so placed that the driver may sit either on the right or left hand. Automatic lubrication is provided throughout; while another new feature is the employment of a double exhaust silencer. The car, which weighs complete about 12 cwt., has petrol and water storage capacity sufficient for a run of 120 miles. A complete four-seated car, mounted on a frame similar to that described above, is also shown. A light two-seated road racing car next attracted our attention. This is built low, and is provided with a 5-h.p. single-cylinder horizontal motor, water-cooled, two speeds, wheel steering, cycle type wheels, and pneumatic tires. Two hand brakes are provided, while a special device, permitting the chain to be rapidly adjusted, is fitted. The motor and mechanism are mounted on a channel steel frame, the weight, exclusive of the body, totalling a little over 4 cwt. It may here be mentioned that no asbestos is used in the ignition plugs on the "International" car, metallic joints only being employed. The International Company also display a frame fitted with a 5-h.p. two-cylinder tandem motor, three speeds forward and reverse motion. Altogether this is an interesting and instructive exhibit.

Mr. Dan Albone, of Biggleswade, confines his display to the "Ivel" 4-seated car (Fig. 4), which is now shown for the first time at any exhibition. As this car was fully described in our issue of December 1st last, it is only necessary to briefly allude to the leading features. One of these is the under-frame,

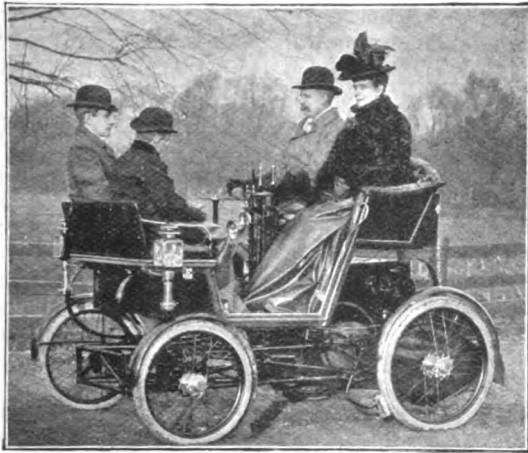


FIG. 4.—THE "IVEL" CAR.

which is constructed of steel tubing after the same style of that of the ordinary cycle, the arrangement of the tubes being such that the various strains to which the frame is exposed, both from the road vibration and that caused by the motor itself, are scientifically taken up, a double cantilever system being adopted. The frame is carried upon four spiral springs, those from the rear axle being contained in steel cylinders, which are raked slightly rearwards, so that the action of the springs may coincide with the lines of vibration from the wheels. The front axle springs are vertical, and are designed to allow the wheels to rise or fall to accommodate themselves to the inequalities of the roads traversed. The motor, which is of the Benz horizontal type of 3 h.p., with water jacket and electrical ignition, is located about the centre of the frame, the combustion chamber being at the rear. Two speeds forward and one reverse motion are provided, the power being transmitted by straight belts from the motor shaft to an intermediary shaft behind the rear axle, and from the intermediary to the hind road wheels by duplicate Renold "silent" chains. The "body" of the car is mounted upon four C springs, and is entirely separate from the frame and working parts. The occupants are thus completely insulated from the vibration not only of the road, but from that due to the motor. Through the floor of the car, in the centre, rises a tripod of three tubes, which carry a round fibre flat plate, upon the face of which are three small levers for the mixture, throttle-valve, and electric ignition. Upon one of the uprights are the two levers for controlling the variable speed gear. The plate is slotted, and

through it pass two long levers, one being that of the reversing gear, and the other for applying the tire brakes. This lever, when pushed forward, automatically opens a switch, thus breaking the electric circuit and so stopping the motor. The steering is controlled by means of a handle and a disc, after the manner adopted in the Benz cars, but the standard is located well on the right-hand side, the connection to the front wheel steering lever being made underneath the frame by means of a chain. Provision is made for the motor-car to be started from the driver's seat. Both water and petrol gauges are fixed in front of the driver, and everything is so placed that all the working parts can be easily got at without undue trouble. The bearings of the wheels are very large, ball bearings being employed wherever possible. The petrol tank is carried under the front seat, and contains about nine gallons, while the water tank is also large, enabling the car to run a hundred miles without a fresh supply of water being required. Four cooling tubes with large mouths pass through the tank, and as the tank is well above the motor, no pumps are required to maintain the circulation. The chains and the motor are entirely enclosed—although in the illustration the casing is removed—so that the amount of cleaning required is reduced to a minimum. The accumulators and induction coil are carried on the car in a box placed at the rear, and all the necessary tools are also provided for in this arrangement. The car is fitted with cycle-type wheels and pneumatic tires; it weighs complete about 9 cwt., and is speeded up to a maximum of from 16 to 17 miles per hour, Mr. Albone's object having been the production not of a racing car, but of a comfortable, easy-running vehicle, capable of maintaining a fair speed.

A South of England firm which is going extensively into the automobile business is Messrs. Dennis Brothers, of High Street, Guildford, who are showing several motor-cycles of their own construction. The tricycles are fitted with De Dion air-cooled motors, one of which we noted was provided with the Buchet *cylasse*, or explosion chamber. The quadricycles are propelled by 2½-h.p. De Dion motors, and, judging from the machine shown in the rough, are of sound construction. The machines are fitted with a comfortable pattern of saddle, to which a back rest is attached. A point of interest in the quadricycle is that the lever controlling the compression tap is also connected up to the exhaust valve in such a way that the latter is also opened after the compression tap is turned. The machine is convertible to a tricycle by simply removing four bolts. The "Speed King" trailer is another article worthy of notice at this stand; while of larger proportions than usual, they are very light but strong and extremely comfortable. Among the miscellaneous accessories we notice a two-speed gear for use on motor-tricycles and quads, and a 3½ h.p. petrol motor with air-cooled cylinder and water-jacketed combustion chamber.

At the stand of Messrs. Wm. H. M. Burgess, Limited, 9, Farringdon Road, London, E.C., we find a Victoria Combination voiturette, fitted with a 2½-h.p. De Dion motor, several Marot-Gardon motor-quadricycles, a "Burgess" tricycle frame, and fore carriage, all of which do not call for a lengthy description at this time. Messrs. Burgess also make a display of tanks, carburettors, etc., for tricycles and light cars.

The Automobile Manufacturing Company, Limited, of North Street, Manchester Square, had hoped to show their new Express automatic steam carriage, but which unfortunately could not be completed in time. They also expected a new 7-h.p. "Georges Richard" car from Paris, but up to the time of writing (Wednesday night) this had not put in an appearance. They display, however, a 2½-h.p. De Dion tricycle and a large array of accessories for De Dion "trikes" and Benz and Daimler cars. They also have on view a benzoline soldering lamp of a new and useful type.

We have been greatly impressed during the week with the quiet running of the New Orleans two-seated voiturette exhibited by Messrs. Burford, Van Toll and Company, of the Orleans Works, Twickenham. This is another car which has already been illustrated and described in these columns, so that but a brief description will suffice at the present time. The motor is a single cylinder one of 3½-h.p., with electric ignition, and cooled by means of a fan driven from the periphery of the

flywheel. The power from the 4in. metal pulley and motor shaft is transmitted to the countershaft by a crossed belt. On the countershaft are three wood pulleys, that on the left hand side being the fast speed, the centre the loose, and that on the right hand the slow speed pulley. The last named is carried on the countershaft and the fast speed pulley on a sleeve, upon which the loose pulley runs. The two speeds are obtained by spur and pinion gear wheels, which are always in mesh. The cars have two speeds, six and a half miles and sixteen miles, and are fitted with two brakes. The motor is securely and simply carried by six bolted brackets on a strong tubular rectangular steel frame upon which the body is mounted. The whole car weighs about 4cwt. The car, too, is fitted with a simple and ingenious method of taking up the slack of the belt by means of a lever placed conveniently in front of the driver. In addition to showing several of these cars in a complete state Messrs. Burford, Van Toll and Co. also display a frame, a specimen of the motor, and samples of the motor castings, etc.

Since the "Star" motor-car of the Star Motor Company, of Wolverhampton, was first brought to the notice of the public about a year ago it has been considerably improved, both as regards construction and design, as will be seen from an examination of the three vehicles on view. One is finished in varnished light wood, while the other two have painted bodies. They are fitted with a 3½-h.p. single-cylinder horizontal motor, two speeds, by belts, and are claimed to be capable of mounting all ordinary gradients with a full load. One of the novel features is the employment of a new form of spray-type carburettor, the claim for which is its regularity of working, obviating the employment of a mixing valve. The new carburettor is so arranged that it can be quickly detached if necessary, and its location renders the sparking plug more accessible than usual. A new device has also been adopted for the adjustment of the chains. Two of the cars are arranged to seat three persons, while one is adapted for four persons, all facing forward. We may mention that one of the cars on view has been entered for the 1,000-mile Trial. An example of the "Star" motor and countershaft with pulleys can also be seen at the stand.

Mr. C. Clifford Potier, of Sutton, Surrey, shows a De Dion 3-h.p. voiturette with unfinished body. He also displays a component 2½-h.p. motor-tricycle, and a 2½-h.p. Allard tricycle fitted with Clipper tires. In addition he makes a big display of motor-tricycle and car accessories of all kinds.

Messrs. Marshall and Co., of the Belsize Works, Clayton, Manchester, are present with a couple of their well-known

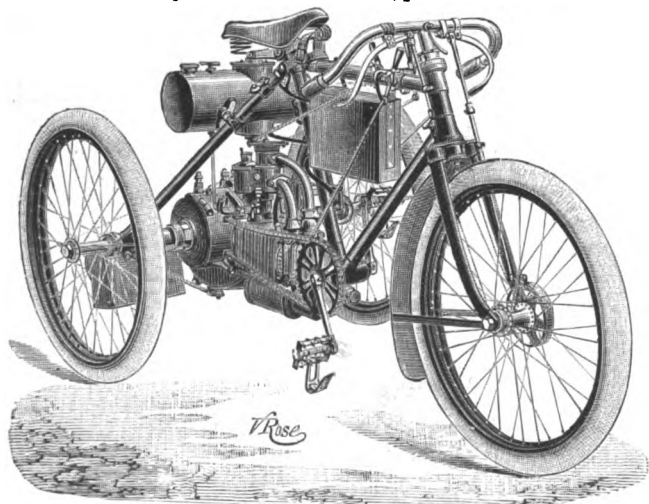


FIG. 5.—GENERAL VIEW OF RENAUX MOTOR-TRICYCLE.

Marshall cars. One takes the form of the three-seated phaeton. It is fitted with a 5-h.p. horizontal petroleum spirit motor, with electric ignition and water jacket. The circulation is maintained by a small pump, radiating coils being now fitted to all cars. Three speeds forward and reverse motion are available, the transmission being effected by belts working on fast and loose pulleys. The car shown is entered for the 1,000-mile Trial. A

neat car is the Marshall four-seated dogcart. This, with the exception of the body, is similar to the phaeton, being fitted with 5-h.p. motor, radiating coil, three speeds forward and reverse, etc. It is claimed for these cars that they can make a 200 miles trip without renewing either water or petrol. It may be interesting to mention also that Messrs. Marshall are now prepared to undertake orders for 8 and 12 h.p. racing and touring cars, with three and four cylinder engines, gear driving, inclined wheel steering, etc.

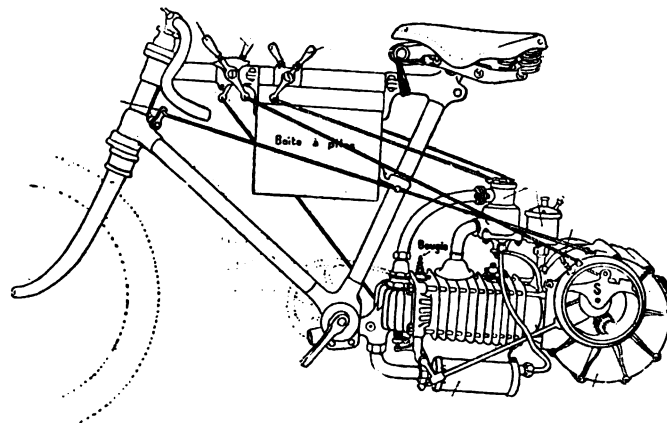


FIG. 6.—VIEW OF MOTOR ON RENAUX TRICYCLE WITH CONTROL LEVERS.

An interesting machine shown by Messrs. Marshall is the Renault motor-tricycle (Figs. 5 and 6), on one of which M. Renault won the Paris-St. Malo race last year. As we described this machine at length in our issue of August 18th last it is only necessary to briefly refer to it now. The machine differs from those of the De Dion type in that it is provided with a horizontal motor. It is stated to be capable of working up to 3½ h.p. at a normal speed of 1,200 revolutions per minute. It is located between the bottom bracket and the rear axle, its horizontal position being claimed to greatly reduce the amount of vibration experienced in motor-tricycles. There are a number of special features in the motor, one of which is that the piston rod is connected by means of a satellite pinion to two toothed wheels which form the differential. The motor is started in the usual way by the pedals, a clutch mechanism being provided to the bottom-bracket chain wheel. The ignition device and exhaust valve is controlled by a toothed wheel which gears with a pinion on the motor shaft. The toothed wheel is provided with two cams, one serving to complete the primary circuit in the induction coil at the requisite moment, and the other to lift the exhaust valve every second revolution of the motor shaft. The carburettor is located near the exhaust box, and possesses some novel features. The chain connecting the pedals with the motor bears slightly on a roller, connected with which, in the carburettor, is a miniature paddle-wheel on which falls the petrol, the latter being instantly vaporised. Altogether the Renault motor-tricycle is an interesting machine, and, as we announced some time ago, the English patent rights in it have been acquired by Messrs. Marshall and Co., who, we understand, will be able to supply in about eight weeks.

The Eadie Manufacturing Company, Limited, Redditch, exhibit several of their motor-cycles, including a tricycle, a convertible quadricycle, and a non-convertible quad. The tricycle is fitted with genuine De Dion 2½-h.p. motors, and the quads with engines of 2½ h.p. of the same make. Of any of these machines it is now hardly necessary to say much, seeing that they are being so largely used. We may mention, however, that the front seat or *avant-train* of the quadricycle is comfortably suspended on springs, and that rear axle hand brake and patent foot brake, detachable mudguards, and long distance motor saddle are provided. The Eadie Company are building a two-seated voiturette on the lines of the Renault car, and fitted with a 3-h.p. water-cooled De Dion motor. The variable speed gear is of a special type, giving three speeds and reverse. They had hoped to have the car at the exhibition, but were unable to complete it in time.

The Yorkshire Motor-Car Manufacturing Company, Limited, Hipperholme, Bradford, Yorkshire, show the Jackson car. This

is a two or four-seated car with long wheel base. It is propelled by a 4-h.p. two-cylinder horizontal petroleum-spirit motor, located in the fore part of the frame. The cylinders are water-jacketed, while the ignition can be either by incandescent tube or Simms-Bosch magneto-electrical, as desired, the car at the exhibition having tube ignition. The engine has two fly-wheels, and runs at a normal speed of 800 revolutions per minute. The cranks work in an oil-containing case, while the carburettor is the well-known Longuemare type. Three forward speeds—6, 10, and 18 miles per hour—are provided, the power being transmitted to a first counter-shaft by means of a belt, which can be tightened or slackened as desired by means of a jockey pulley, this device taking the place of a friction clutch. The pedal which actuates the jockey pulley also applies a band brake on the differential shaft. From the first counter-shaft the power is conveyed to a second shaft by two chains and one belt, any one of which can be brought in operation, according to the speed, by means of clutches controlled by a single lever. From this second countershaft chains and sprocket wheels transmit the power to the rear axle. The frame of the car is built up of channel steel, to which any type of body can be attached by means of four bolts. In addition to the car the company also show a van body which can be attached to the same frame. Steering is controlled by a hand wheel; provision is made for the starting of the motor from the driver's seat. The road wheels are of the cycle type, fitted with pneumatic tires. The water tank, which is located in the front of the car, holds 8 gallons, while the petrol tank has a capacity sufficient for a run of 60 miles. A useful provision is that for taking up any wear of the driving chains, this being effected by means of an eccentric adjustment. The car complete weighs 8½ cwt.

The Automobile Supply Company, 56, Broad Street, Birmingham, exhibit three vehicles which, while all are of an interesting character, are now all fairly well known to automobilists, and have been described in these columns. The first is a Renault two-seated voiturette with 2½ h.p. air-cooled De Dion motor, a 4-h.p. Peugeot voiturette fitted with three forward speeds and one reverse, and a convertible motor-tricycle with 2½-h.p. De Dion motor.

One of the new cars seen for the first time is the two-seated voiturette of the Wellington Motor-Car Company, Limited, 32, Victoria Road, Battersea Park, S.W. The frame is of tubular construction, the body being suspended thereon by springs. The motor is of special construction; it is of the vertical single-cylinder type with electric ignition and water circulation, and is located at the rear of the car. The cylinder is 3in. diameter by 4in. stroke. It is water-jacketed, as is the cylinder cover. These jackets are quite independent of each other, and the cover can be easily removed for inspection, the joint between the cover and cylinder head being metal to metal, no packing of any kind being used. The crank or fly-wheel chamber is in two portions, which are united by horizontal flanges bolted together. It is thus very easy to get at the main bearings and cranks. Ball bearings are used in these important parts. The inlet and exhaust valves are arranged so that either can be quickly overhauled without disturbing the other, the admission valve being placed immediately over the piston. The make and break mechanism of the electrical ignition is so arranged that no oil can possibly get on to it to so spoil the contact, as it is placed high up on the side of the cylinder, another feature being that there are no moving wires connected with the timing gear. Its weight is, exclusive of induction coil and batteries, 110 lb., the normal speed being about 1,400 revolutions per minute. The carburettor employed is of the Longuemare type. The water cooling is effected by a radiator on the front of the car, and the circulation is maintained by a small pump, driven by chain gearing. The transmission of power is effected by gearing solely, and the car is fitted with two speeds ahead and one astern, the speeds being eighteen and six miles per hour ahead and three miles astern. On the first motion shaft a patent clutch is fitted, which allows the car to be stopped without stopping the engine, and also changes the speed at will by "slippage," and a definite change of the gears. In use all the gears are running, so there is no pushing of gears into mesh whilst running, with the great liability of damaging the teeth.

The pinion on the motor shaft drives a pinion on the first motion shaft. This shaft also carries three pinions, gearing with corresponding spur wheels on a second shaft. While always in gear, the pinions run idle until any one of the pair is made to drive by means of a segmental clutch of a special design, which grips one of three rings connected with the pinions on the first motion shaft. From the second shaft, which extends across the rear of the car, the power is conveyed to the rear axle by duplicate sets of spur wheels. Two powerful brakes are fitted; one works on the balance gear box and is actuated by a foot lever, and the other works on the rims of the back wheels and is actuated by a hand lever on the right-hand side of the car. The steering is controlled by a hand-wheel. Ball bearings are fitted on all pivots connected with the steering gear, which enables wear to be taken up and so reduces the lost motion and noise of loose parts to a minimum, at the same time making the steering very sensitive and positive. The starting of the motor is effected by a special rack and pinion starting gear, by means of which, on pulling a lever near the driver's seat, the engine at once starts into motion without trouble. For purposes of inspection, repairs, etc., the car body is made so that by undoing a few bolts the entire body can be taken off. The whole of the working parts are enclosed in a dust-proof aluminium case.

Dealing first with the novelties on the stand of Mr. F. F. Wellington, 36, St. George's Square, Regent's Park Road, London, N.W., we find a new two-seated voiturette made by Messrs. Fernandez and Co., of Paris, and named the "Sirene." The feature of the car is that it is propelled by means of a two-cylinder motor of 4 h.p., the two cylinders being set at an angle to each other, and working on the same crank shaft. The motor is air-cooled, and is provided with electric ignition. Four speeds forward and reverse motion are available, the power being transmitted by a universally-jointed longitudinal shaft and bevel gearing direct to the rear axle. A clutch is provided, by means of which the motor can be cut out from the transmission gear at will. The frame is of tubular construction; steering is controlled by a hand-wheel, on the standard of which all the control levers are mounted. Two brakes are provided. The car, which weighs complete about 6 cwt., is stated to be capable of attaining a speed of thirty miles per hour on the level. The next exhibit of unusual interest is the Gladiator and Phébus motor-tricycles fitted with two 3½-h.p. Aster air-cooled motors, used by Mr. F. Wellington and Mr. Jarrott at the race meeting at the Crystal Palace on Monday last. A number of Gladiator and Phébus motor tricycles and quadricycles fitted with 2½-h.p. Aster motors are also to be seen, as also specimens of the Aster 2½ h.p. air-cooled and 3-h.p. water-cooled motors, for which Mr. Wellington is the English agent. Other exhibits comprise sparking plugs for electric ignition, tubes for incandescent tube ignition, and accessories of all kinds.

The Motor Power Company, Limited, 14, Regent Street, London, S.W., were, according to the catalogue, to exhibit an 8-h.p. Napier car, but up to Wednesday evening the vehicle had not arrived at the Agricultural Hall. At the stand we find examples of the well-known Ariel motor-tricycles and quadricycles with the

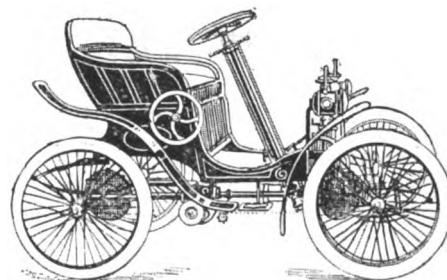


FIG. 7.—THE GLADIATOR VOITURETTE.

motor fitted inside the rear axle. Those interested in light two-seated voiturettes would do well to examine the little Gladiator car (Fig. 7) exhibited by this Company. The frame of the

car is built up of steel tubes, and is suspended on the axle by plate springs. The motive power is supplied by an Aster $3\frac{1}{2}$ -h.p. water-cooled engine located in the front part of the frame. The ignition is electrical, the carburettor is of the Longuemare type, while the water circulation is maintained by a small pump, a Loyal radiating coil being also provided. The power of the motor is transmitted to a countershaft by a chain, a friction clutch and a two-speed gear being provided. From the variable-speed countershaft a centrally-located chain transmits the power to the rear axle. Steering is controlled by an inclined hand-wheel, on which is fitted the electrical switch, while the remaining control levers are fixed on the steering standard. The car measures 6 $\frac{1}{2}$ ft. in length by 3 $\frac{3}{4}$ ft. in width, and weighs 500 lbs. Three brakes are available, while a speed of from twenty-five to thirty miles per hour is said to be attainable.

The exhibit of the De Dion-Bouton British and Colonial Syndicate, 14, Regent Street, London, S.W., is confined to a couple of the now very popular 3-h.p. De Dion three-seated voiturettes. This car, which was illustrated in the *Motor-Car Journal* last September, is now familiar to most automobilists,

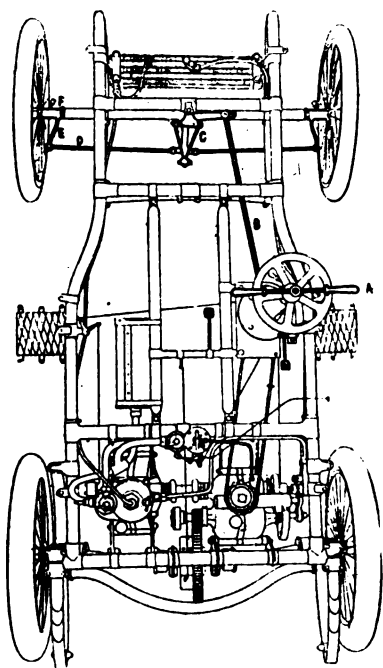


FIG. 8.—PLAN OF DE DION VOITURETTE.

so that a brief description will suffice on the present occasion. The motor is of the well-known De Dion vertical type, capable of working up to 3 h.p.; the ignition is electrical, fitted with a water-jacket. A small pump is employed to maintain the circulation, the heated water being passed through a condensing coil ere it returns to the storage tank. The carburettor employed is of a new form, and is of the spraying (pulverising) type. Two speeds are provided—12 and 30 kilometres per hour—controlled by a hand wheel on the steering column. Any intermediary speed can be obtained by regulating the sparking device in the usual way. As will be seen from the plan (Fig. 8), the motor is situated at the rear of the car, and drives the rear road axle through centrally-located gear wheels, a friction clutch, controlled by a foot pedal, being provided, by means of which the motor can be instantly cut out from the transmission gear. For the rear axle Messrs. De Dion and Bouton have adopted the Cardan method of construction as used in their heavy steam cars, the axle being built up in several pieces connected by four universal joints, all vibration due to uneven roads being in this way, it is claimed, overcome. The frame of the car is constructed of steel tubing, while the road wheels are of the suspension type, of equal size, and fitted with pneumatic tires. Two hand brakes, controlled by foot pedals, are provided, one acting on the intermediate shaft and

one on the differential drum. The variable speed gear is enclosed, and works in an oil bath. The car, which weighs about 600 lb., is mounted on springs fore and aft, and is described as being a most comfortable vehicle. Another feature to which attention is drawn is that very few parts of the motor and transmission gear are visible, and that all the control gear, except of course the pedals controlling the friction clutch and band brakes, is mounted on the steering column. The makers claim that even at the high speed the car will mount gradients of from 5 to 6 per cent., and that on the low gear any hill can be negotiated.

The stand of the Motor Car Company, Limited, 168, Shaftesbury Avenue, London, W.C., has been the centre of a large crowd of spectators all the week. The exhibit is confined to a display of voiturettes, all of which are now well known in the automobile world. First we have the "Eureka" two-seated car fitted with 2 $\frac{3}{4}$ h.p. De Dion motor and weighing complete only 3 $\frac{1}{4}$ cwt. Next we have several of the Decauville 3 $\frac{1}{2}$ h.p. voiturettes, then the Renault car with 2 $\frac{1}{4}$ h.p. air-cooled De Dion, and finally the "M.C.C. Triumph" car illustrated in these columns a fortnight ago. The vehicle on the stand was driven over from Paris by Mr. Dick Farman, whose journey is referred to in another part of the present issue.

The exhibit of the Motor-Carriage Supply Company, Limited, of 17, Balderton Street, Oxford Street, London, W., is of a varied character. A German-built Daimler Universal Sporting Car occupies a prominent space on the stand. It is fitted with a 5 $\frac{1}{2}$ h.p. Daimler motor in front, with a special water-cooling arrangement and Simms-Bosch magneto-electric ignition. Four forward speeds and reverse motion are fitted, controlled by one lever. The steering gear is mounted on ball bearings, while the tires are of solid rubber. The body of the car has been built in this country by Messrs. Mulliner. The Motor-Car Supply Company also exhibit their "motor-wheel"—a three-wheel vehicle—with seating accommodation for two persons. The vehicle is fitted with a 2 $\frac{3}{4}$ h.p. Simms motor, carried under

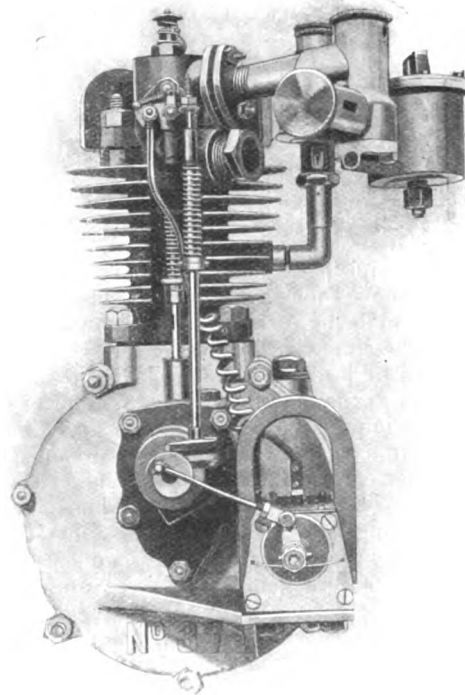


FIG. 9.—THE SIMMS 2 $\frac{3}{4}$ -H.P. AIR-COOLED PETROL MOTOR.

and between the front wheels, which are the drivers, while the steering is effected by the rear wheel carried in a strongly-trussed back fork. The motor is carried securely below the axle, and is horizontal, the cylinder being ringed with wide wing flanges, and exposed to a full current of air when the machine is running. The motor runs at an average speed of one thousand revolutions per minute, and the gear on level ground gives the vehicle a speed of

14 miles an hour. The variations of speed are obtained by the use of Simms's magneto electrical ignition gear, which has already been described in our columns, and a two-speed gear; there is also a pedal gear for starting the motor. The machine, one of which has been entered for the 1,000-mile Trial, is arranged to be controlled by the rear rider. A big display of the Simms 2½-h.p. air, cooled vertical and horizontal and 3-h.p. water-cooled vertical petrol motors is made, all fitted with the Simms-Bosch magneto-electric ignition. The following are the most important weights and dimensions of the 2½ h.p. motors (Fig. 9):—Length (or height if vertical) over all, end of crank chamber to end of compression cock, 21 in.; width over all, end of crank shaft to end of magneto machine spindle, 14 in.; diameter of piston 71 m/m, stroke 78 m/m; compression, 60 lbs. per square inch; weight of motor complete and ready for running, including two fly-wheels of 16 lbs. each, magneto machine and timing gear, float-feed, vaporiser, cylinder, lubricator, etc., 90 lbs.

An exceedingly neat two-seated car of new design is shown for the first time by Mr. J. Burns, of 44, Berners Street, Oxford Street, London, W. The car, which closely resembles an American buggy, is propelled by means of a 3-h.p. water-cooled De Dion motor, located in the front part of the frame. The Benz type of ignition with trembling coil and accumulators has been adopted, a new departure being the control of the variable ignition by a foot pedal. The frame is of special tubular construction, there being practically two

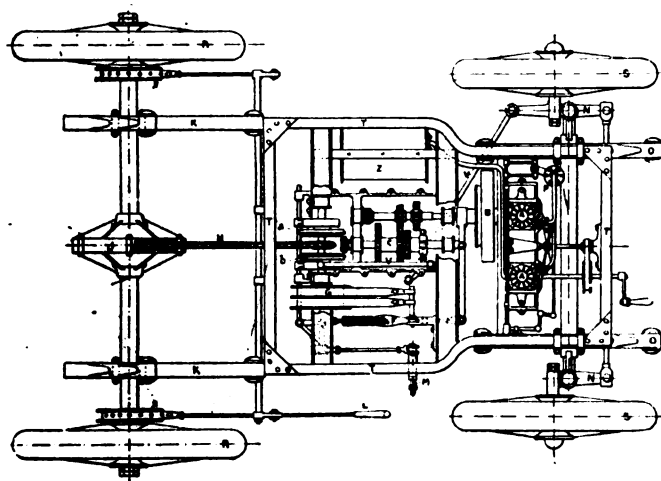


FIG. 10.—PLAN OF DÉCHAMPS 2-SEATED VICTORIA.

frames suitably braced together, suspended by steel springs on the axles. Two speeds are provided—ten and twenty miles per hour—the power being transmitted by belts working on fast and loose pulleys to a small differential countershaft at the rear, and from the latter to the back axle by enclosed pinions centrally located. Not only is the car so arranged that the motor can, if desired, be started from the seat, but the oil from the crank case can be emptied and a fresh supply injected without the driver dismounting. Steering is effected by a tiller, the standard of which is located in front of the dash board; the road wheels are of the cycle type, with pneumatic tires, while as to brakes there is one on the countershaft and one each on the hubs of the rear wheels. The petrol tank has a capacity sufficient for a run of 100 miles. The car is fitted with a water radiating coil and weighs complete about 450 lbs. The body is spring suspended on the frame, another useful feature being the fixing of the front mudguards so that they move with the wheels. Of the Belgian-built Déchamps cars, for which Mr. Burns is agent in this country, one type is shown—a two-seated hooded Victoria. We have already published a general view of this car, and herewith give a plan (Fig. 10) showing the location of the motor and the arrangement of the transmission gear. The motor is of 4½-h.p.; it comprises two vertical cylinders, and is located in the front portion of the frame under a perforated aluminium "bonnet." Plenty of space is left between the cylinders for free circulation of the air. In addition to the "splash" lubricators the cylinders are provided with a drip lubricator for oiling the pistons. Water is dispensed with

for cooling, but, independent of the favourable position of the motor to receive the full benefit of the air and large radiating fans, a high-speed fan is worked from the flywheel by a small belt, throwing, by means of a specially shaped director, a powerful current of air completely round the cylinders. The ignition is electric, but a double trembling coil is used in place of the single contact, extra efficiency and reliability being, it is claimed, thereby obtained. The carburettor is of the Longuemare type. Three forward and three reverse speeds of 5, 9, and 16 miles an hour are provided, all controlled by one lever. The gear is enclosed in an aluminum case and runs in grease. It is composed of three pinions strongly fixed on the main shaft, which has a conical friction clutch mounted on flywheel, and a set of wheels running on the axle of the forward and backward motion which works a single central driving chain on the differential gear of the back axle. Two band brakes are fitted on the back wheels, although, except for emergencies, these are not used, as the pedal clutch tension lever further depressed puts on two band brakes on countershaft. The wheels are of the cycle type, fitted with Dunlop pneumatic tires. The weight of car complete is about 700 lbs. An extra seat for third passenger can be added if desired, and three people can, it is stated, be carried up grades of 1 in 8 with ease. When we called at Mr. Burns's stand we were informed that a two-seated Déchamps car fitted with a new type of motor was expected to reach London almost immediately. The engine is a double cylinder one of 4½ h.p., the cylinders being set at an angle to each other.

Mr. C. T. Crowden, of the Motor Works, Leamington, exhibits three vehicles, two of which have already been illustrated and described in this journal. The first is a four-wheel dog-cart, propelled by a petroleum-spirit motor, an illustration of which was given in our issue of May 5th last. It is, therefore, only necessary on the present occasion to briefly mention the details of the car, referring our readers for further particulars to the issue above mentioned. The vehicle has seating accommodation for six persons when carrying a full load, four persons facing the direction of progression and two facing towards the rear. The whole of the controlling and steering apparatus is placed on the right hand of the driver's seat. The motor is of 10 h.p. effective, and is of the twin-cylinder horizontal type. The cylinders are not provided with water cooling chambers, but the whole of their length is inserted through a large wrought copper tank in such a way that the cylinders are closely in contact with the metal of the tank, and consequently completely surrounded by an envelope of water of considerable depth. The motor is carried at the rear of the vehicle, well off the ground, and above the main frame. The fly-wheel is central with the centre of the car, and rotates in the same direction as the vehicle travels. The engine is so constructed that, at the desire of the driver, either cylinder can be shut out of action, it being claimed that one cylinder furnishes sufficient power to propel the vehicle over fair roads at ordinary speeds. Three forward speeds and one reverse motion are provided, the power from the motor-shaft being transmitted to the countershaft by belts which, normally running slack, are tightened by jockey pulleys. From the counter-shaft to the rear road wheels chain gearing transmits the power. Electric ignition is employed, current being supplied to the coil from secondary batteries. The wheels of the car are of peculiar construction. They are of the gun-carriage type, the spokes being double dished. Increased stability is ensured by the fact that in wheels of this type double the width of stock is obtained. The chain wheels, or sprockets, instead of being bolted to the spokes of the road wheel as is generally the case, are bolted to a flange provided on the wheel hub. By this means it is assured that the hub and chain will always run true with the axle, which is not the case when the sprockets are bolted to the spokes. It is also possible to employ a gear case in this arrangement, whereas this is impossible when the sprockets are bolted to the spokes. The axle boxes are made similarly to the long bolted mail-coach pattern, with a plate at the back of the collar, so that it is impossible for the wheels to come away from the axles unless they are absolutely broken up. The steering mechanism also presents some new

features, details of which will be found in our issue of May 5th last. A powerful foot brake acting on the balance wheel shaft is fitted, also a lever brake acting on the two rear wheels; in addition to which the electric current can be turned off and the cylinders made to act as an emergency brake. The car, which was brought from Leamington to the show by road, is now fitted with a water radiating coil of Mr. Crowden's own design. The second petrol car is a four-seated vis-à-vis, built on similar lines to the dog-cart, but is provided with a motor of 3 h.p. Mr. Crowden's other car exhibit is the steam brake illustrated in our issue of June 30 last. The boiler is of the multitubular type, constructed to burn coke or oil, and fitted with improved automatic stoking arrangement. The engine is of the compound type, fitted with link motion and an intercepting valve, by which high pressure steam can be used in the low pressure cylinder for starting and for climbing steep hills. The car is fitted with a foot brake acting on a drum on the differential gear shaft, and a screw lever brake acting on both hind wheels, and both of these can be actuated from the driver's seat. The counter-shaft is driven by spur wheels, while chain gearing connects the counter-shaft with the rear road wheels. A number of axles, wheels, etc., made in accordance with his designs, are also displayed by Mr. Crowden, the whole exhibit being of an interesting character.

The Endurance Motor Company, Coventry, display a smart-looking two-seated car, Fig. 11. The body of the car is entirely distinct from the frame. The motor is of 5 h.p., the ignition is electrical, while both the cylinder and combustion chamber are water-jacketed. The circulation is maintained by a pump, the



FIG. 11.—THE ENDURANCE CAR.

water tank being located in front, as is also a Clarkson cooling coil. The carburettor is of the Longuemare type. Three speeds and a reverse motor are available, the transmission being effected by two belts working on fast and loose pulleys, and Crypto gearing to the countershaft, and from the latter to the rear axle by sprocket wheels and chains. Steering is controlled by a bar, on the standard of which all the control levers are mounted. A hand lever at the side controls band brakes on drums on the rear axle, while a foot pedal actuates a brake on the countershaft. The car, which weighs complete about 12½ cwt., is fitted with cycle-type wheels and special Dunlop pneumatic tires. The vehicle was brought from Coventry to the Exhibition by road without, we are informed, it being necessary to change the cooling water. It is one of the cars which will participate in the 1000-mile Trial.

The exhibit of the McLachlan Engine Company, 14, Holborn Viaduct, London, E.C., is of an interesting character. First we have a two-seated four-wheel car fitted with a single-cylinder horizontal motor at the rear, which, working with ordinary paraffin oil, gives 3½ h.p. The ignition is by means of an incandescent tube. Two speeds are provided, the motor-shaft driving

the counter-shaft by spur-gearing connected with a double-acting clutch, while a single chain connects the counter-shaft with the rear axle. The frame is built of steel channels; the body of the car, which completely encloses the motor and gear, being of polished walnut. The road wheels are of the suspension type with pneumatic tires. Two brakes are provided—one acting on the fly-wheel of the motor, and one a band brake on the rear axle. The car is well suspended, the bearings being supported by horn cheeks and helical springs. Steering is constructed by a tiller, the speed lever being at the side of the car. The weight complete is about 7 cwt. Samples of the McLachlan 1½ h.p. air-cooled and 3½ h.p. water-cooled vertical motors are also to be seen, these being suitable for working with either petrol, paraffin, or benzolene. A 2½ h.p. motor working with ordinary paraffin oil, and suitable for a launch, is also exhibited. Amongst other exhibits are the Shrewsbury and Talbot solid rubber tire, aluminium mudguards, rims, bearings, etc. The McLachlan Company are also displaying a 2½ h.p. electromotor for launches; their electric ½ h.p. rudder motor, the "Lithanode" accumulator, sparking coils, and a small 3 ampere 8-volt dynamo for charging accumulators. Finally, we may refer to a very interesting display of castings of an aluminium alloy made by Messrs. W. Mills and Co., of Sunderland. These castings, which comprise engine beds, crank cases, etc., are exceedingly light and strong, and above all are very clean.

Messrs. Roots and Venables, of 100, Westminster Bridge Road, S.E., have on view their well-known heavy oil motor-cars. Fig. 12. They are two-seated vehicles, fitted with 3-h.p. horizontal motor using ordinary petroleum oil, in contradistinction to petroleum spirit. The cylinder is water-jacketed; the storage tanks having a sufficient capacity for oil and water for a journey of about five hours. Two speeds are provided—2 and 14 miles

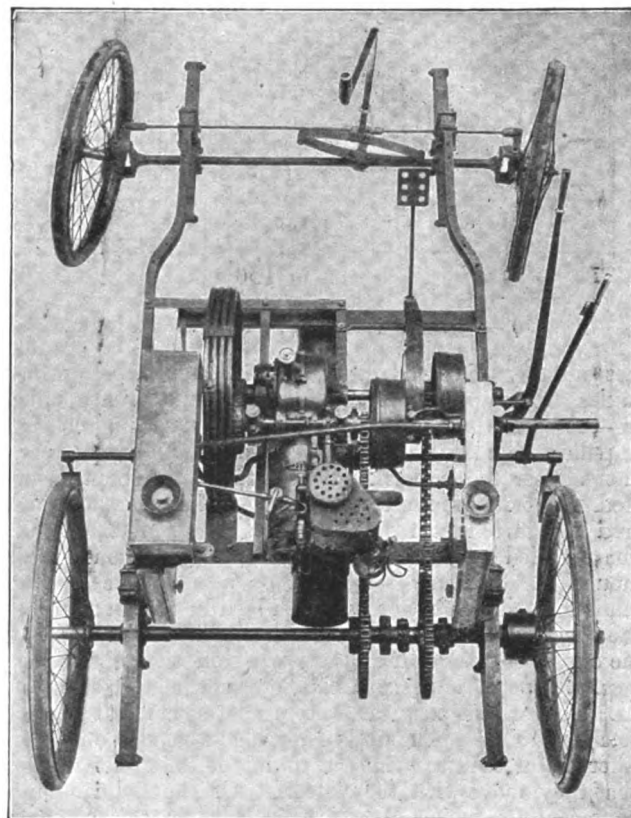


FIG. 12.—PLAN OF ROOTS AND VENABLES CAR.

per hour. The countershaft is chain driven, while the connection between the countershaft and the rear road axle is also by chain gearing and friction clutches. The low-speed chain is provided with a spring jockey wheel to take up any slack, while for a similar purpose the rear axle is so arranged as to be capable of being moved on the springs. A feature of the Roots' car is the

water condensing coil, which consists of a series of copper tubes fitted round the fly-wheel in such a way that the latter works within the coil. The car weighs, complete, about 6 cwt., and is fitted with cycle-type wheels and solid rubber tires. We understand that a number of this style of car have been sold to automobilists in India, where the use of petrol is not permitted.

Mr. Carl Oppermann, of 2, Wynyatt Street, Clerkenwell, E.C., displays a very neat electrical Victoria, which is, we learn, being largely used on the Continent for service in busy towns. The battery, which consists of forty-two cells of Mr. Oppermann's own type, weighing only 24lbs. per cell, is slung by steel springs under the frame of the carriage. The capacity of the battery is stated to be sufficient for a run, in towns, of about forty-five miles. The motor, which is located in the rear portion of the vehicle, runs at 1,600 revolutions per minute; and, while its normal capacity is 3 h.p., it is capable of working up to 7 h.p. The motor is located in the rear portion of the vehicle under the passengers' seat. From the motor shaft the power is transmitted through silent hide gear wheels to an intermediary shaft, provided with a differential gear, and from the latter to the rear road wheels through sprocket wheels and chains. All the motions—starting and stopping, reversing the motor, and the application of the electrical brake—are controlled by a single handle. Three forward speeds—the maximum in the Victoria being twelve miles per hour—and one backward motion are provided. Steering is effected through the front wheels by means of a hand-wheel. In addition to the electrical brake, band brakes acting on drums on the rear wheels are provided, these brakes being controlled by a foot lever and flexible cable. The weight of the Victoria is 23cwt. Mr. Oppermann also shows a very neat three seated dog-cart, which he has named the "Lucania." The vehicle is mounted on his new tubular under-carriage, in which a new direct-driving gear, dispensing with the use of chains, is adopted. The new frame and gear is quite self-contained, and is arranged to suit a large number of different types of carriage bodies, and can be fitted up with very little labour. It is made to drive by either the front or rear axle, although the latter is preferred, as being most convenient. In the new gear the electro-motor is so arranged that instead of its shaft being parallel to the axle it is at right angles thereto. The motor shaft terminates in a worm which gears with a worm wheel centrally placed on the axle, the gear being entirely enclosed and working in an oil bath. The car is fitted with a 3 h.p. motor and a battery of forty-two accumulators, having a capacity of 150 ampere-hours. The road wheels are built on the tangent principle, with butt-ended spokes and steel hubs fitted with roller bearings. Solid rubber tires 2 in. wide are used, and the rear axle is fitted with a differential gear and runs on roller bearings. Steering is controlled by a bar acting on the front wheels. Band brakes are fitted to the rear wheels, operated by a foot lever. An electric brake, actuated by the controller, is also provided. The controller is arranged to give three speeds forwards, corresponding to 4, 8, and 12 miles per hour, and one speed backwards, all of these results being attained by means of one lever.

For the first time we have an opportunity of inspecting, at the stand of Messrs. Shippey Bros., Limited, 13, King Street, Cheapside, London, E.C., automobiles of Canadian construction. First we have quite a new design in the three-wheel "Motorette" for two persons. This carriage has been specially designed to meet the demand for a 25-mile economical "Run-about." It is described as being a good hill-climber, and is propelled by a specially wound "Still" motor of 2 h.p. The motor is geared to the front axle by two chains. The battery consists of 40 cells of a new type of accumulator known as the "New Ideal," having a capacity of 100 ampere hours. The frame is of tubular construction, steering being effected by a lever at the side acting on the single rear wheel. The controller, which is at the driver's right hand, is adapted to give four speeds forward—3, 6, 9, and 12 miles per hour—and reverse motion. The car, which is fitted with cycle-type wheels and solid rubber tires, weighs complete about 6cwt. A strange-looking car to English eyes is the "Ivanhoe" two-seated phaeton owing to the height of the body.

We understand, however, from Mr. Still, of the Canadian Motor Company of Toronto, the builders of these carriages, that it is a very popular type in Canada. It is fitted with a 4-h.p. motor geared by chains to the rear axle. The battery consists of thirty-six New Ideal cells weighing 640lb., of a capacity sufficient to run the car a distance of forty miles on one charge. The controller is adapted to give four speeds forward and reverse, the top speed being fourteen miles per hour. The car is fitted with wood wheels and solid rubber tires, and weighs complete about 14cwt. A neat-looking vehicle is the Oxford four-seated sporting dogcart. This is fitted with a 5-h.p. special differential electro-motor driving each of the rear wheels separately by chain gear. The car is furnished with a battery of forty New Ideal cells weighing 750lbs. The cells weigh about 18lbs. each, the feature being the use of an expansion plate, by means of which they are claimed to be capable of withstanding a heavy discharge rate without depreciation. The controller, which is located at the right-hand side of the car, is adapted for four speeds forward and reverse, but we understand that future cars will be fitted with a six-speed controller with non-arcing contacts. The battery will run the car a distance of forty miles on one charge, and we are informed that the vehicle has successfully mounted all the steepest hills in the neighbourhood of London. In addition Messrs. Shippey display an attractive little working model of an electrical car and a large display of electrical plant and accessories.

Headland's Patent Electric Storage Battery Company, Limited, of 12, Pall Mall, London, S.W., exhibit a couple of electric vehicles, the leading feature of both of which is the Headland accumulator, which is claimed to be constructed with a view of giving great mechanical strength, at the same time permitting of high rates of discharge and securing freedom from buckling and disintegrating of paste. The vehicles shown are a three-seated phaeton and a four-seated victoria. The phaeton is provided with a 3 h.p. motor, placed transversely in the fore part of the frame and driving the front axle through enclosed worm gearing. The battery consists of 40 cells, having a capacity of 140 ampere hours; it weighs 11 cwt. and will run a car a distance of thirty-five miles on one charge, at an average speed of fourteen miles per hour. The controller is adapted to give three speeds forward and the same backward. The wheels are of the cycle type with solid rubber tires. A side hand lever at the side controls brakes on the tire. While a foot pedal actuates a hand brake on the rear axle, the application of the latter also breaks the electric circuit. The four-seated victoria is similar to the other vehicle as regards the electric arrangement, with the exception that the motor is geared to the front road wheels by pinions engaging with internally-toothed rings bolted to the wheels. The car weighs, complete, about 28 cwt. The Headland Company also exhibit a number of their traction-type accumulators, as also electric miners' and other lamps.

That interest in light American steam carriages is fully maintained is evidenced by the attention that has been paid to the stand of the Locomobile Company of America, 52, Sussex Place, South Kensington, S.W., during the present week. The company show two of their cars which have been fully described in these columns. We may mention, however, that one of the vehicles at the exhibition is fitted with a radiating coil made up of the Clarkson wire tubes, which appears to effectually get over the trouble with the exhaust steam.

The leading exhibit on the stand of Messrs. Brown Bros., Limited, Great Eastern Street, London, E.C., is the Brown-Whitney four-seated steam-car, Fig. 13. The car has a vertical steel tubular boiler, fired with petrol, and located about the centre of the frame; the gas supply to the furnace is controlled by an automatic governor operated by the steam pressure. The boiler is fed with water by a pump worked off the engine. An injector and hand-feed pump are also supplied, so that the water can be put in under any conditions. The engine is a high pressure double-cylinder one of 8 h.p., steam jacketed, special reversing gear being used to do away with eccentrics. From the engine the power is transmitted to the rear axle by a centrally-located chain of special construction. The tubular frame consists of two parts; the lower is a rigid frame carrying the back axle, and the front swivelling and steering arrangement. The upper frame,

upon which the engine and boiler are carried, also the car body, is connected with the lower frame by springs. None of the mechanism is in any way attached to the body. The water tank is at the rear of the car, and the petrol reservoir is carried inside. A water lifter is fitted so that the tank can be filled from the roadside. Two independent brakes are provided. A sufficient quantity of water can be carried to run the car forty miles, according to the roads. The exhaust car is said to be both silent and invisible, brought about, firstly, by the steam passing through a muffle to silence it, and from thence through the downtake of the boiler, where it mixes with the warm dry air, which renders it invisible. A small portion of the exhaust steam



FIG. 13.—THE BROWN-WHITNEY STEAM-CAR.

is utilised to heat the feed-water. The speed, guiding and reversing motions are all governed by one handle. Turning the handle in one direction starts the car, the amount of movement given to the handle regulating the speed. To reverse, the handle is pulled towards the driver and turned in the same manner as when going forward. The car is fitted with cycle-type wheels and pneumatic tires; it weighs complete, with a full supply of water and petrol, about 1,000lb. In addition to the foregoing Messrs. Brown Bros. made a display of motor-tricycles, quadricycles fitted with 2½ English-made De Dion motors, front-seat attachments for tricycles, as also trailing cars, De Dion 3-h.p. water-cooled motors, motor-car chains and chain wheels, and accessories of every kind for automobilists and motor-vehicle builders.

The Thornycroft Steam Waggon Company, Limited, of Chiswick and Basingstoke, exhibit a steam covered van intended to carry a load of 3 tons, and a trailer to haul a further 2 tons, built to the order of Messrs. Harmsworth Bros., Limited. The boiler, which is of the Thornycroft water-tube type, is located in the fore part of the vehicle; it is coal or coke-fired. The engine, which is of the horizontal compound type, is entirely enclosed in a dust-tight casing, the moving parts working in an oil bath. Provision is made for the carrying of coal sufficient for a run of 50 miles, or of water sufficient for about 20 miles. Quite a number of local bodies of industrial concerns have now adopted the Thornycroft steam vehicles, they having lately been supplied to, among others, Messrs. Schweppes, Limited, the Idris Mineral Water Company, Limited, Messrs. Guinness, Messrs. Bass and Co., Messrs. Whitbread and Co., Bentley's Yorkshire Breweries, the Newcastle Breweries, and the Newcastle branch Co-operative Wholesale Society.

Foremost among the exhibits of Messrs. Adams and Co., of Lowestoft, is the Adams horizontal petroleum-spirit motor lately introduced, suitable for carriage builders, cycle manufacturers, etc., who are building small motor-cars for carrying four persons. The motor has several distinct features. The cylinder and water jacket is built up in such a way that there is no leakage of water into the cylinder, and by placing the valves and ignition

plug right over the back of the cylinder the maximum force of the explosion on the piston is obtained. The second motion is driven by a Chicago rawhide pinion, which drives an eccentric, the latter serving the double purpose of working the small circulating water pump and opening the exhaust valve. The motor cylinder has a 4½ in. bore by 4½ in. stroke, and develops three brake horse-power; a 4-h.p. size is also shown. The cylinder, piston, rings, and bearings are lubricated by the splashing of the cranks in an oil bath. The valve chambers are bolted on to the cylinder cover. The valves are very easily removed, for by unscrewing four nuts the inlet valve and seating can be lifted out. The speed of the motor can be varied from 200 to 1,200 revolutions per minute by advancing the firing of the electric ignition. Messrs. Adams also display a large range of castings, forgings, crank cases, pinions in raw hide and gun-metal, etc.

The Monarch Motor Company, of Teddington, and 39, Eastcheap, London, E.C., show samples of the Monarch petrol motor, as also a yacht's dinghy and a gunning punt fitted with the same. The motor is of the two-cycle type, the 12 h.p. one having three vertical cylinders. This motor is fitted with an improved magneto generator, which gives a constant current to the ignition. The engine is fitted with a lever and quadrant for altering the time of ignition, the three cylinders being affected by one movement, enabling the speed of the motor to be checked to a very few revolutions per minute. Fitted to the reversing gear is a lever which throttles the amount of mixture, thus regulating the speed of the motor, without the driver leaving his post. The engine is fitted with a pump on a reduced speed shaft, supplying the circulating water to the cylinders. The motor has three separate impulses per revolution, which gives a perfectly steady drive. Lubrication is amply provided for, giving the crank pin and moving parts a continuous supply of fresh lubricant; a single vaporiser is arranged to supply the three cylinders, the regulation of the mixture is effected by a single needle valve, and the supply of oil is automatically cut off when the engine stops. In addition to the 12 h.p. engine, a 4 h.p. twin-cylinder and a 1 h.p. single-cylinder engine are shown. The 14 ft. yacht's dinghy has been designed to meet the requirements of owners of yachts from 30 tons upwards. It is fitted with a 1 h.p. motor, which can be increased to 2 or 3 h.p. if required, and will comfortably go to sea in fairly rough weather, with six passengers on board. For towing purposes these dinghies can, it is claimed, handle vessels between 30 and 40 tons. The motor gunning punt is 24 ft. 6 in. length over all and the beam 4ft., its capacity being for two persons. A 1 h.p. Monarch marine motor is the engine used, this being enclosed in a wooden case lined with thick cork carpet.

A varied collection of motor parts and fittings is to be found at the stand of Mr. W. H. Dorey, 14, Rue Torricelli, Paris, including sparking plugs, carburettors, dry batteries, cooling coils, lubricators, etc. A specimen of the Auto-Moto, 2½-h.p. vertical petroleum spirit motor, the Jupiter carburettor, already illustrated in these columns, are also to be seen. Another novelty is the Stéate sparking plug, the insulating material being of steatite instead of porcelain, it being claimed that this is less liable to fracture.

Mr. F. C. Blake, of Ravenscourt Works, Hammersmith, who is well known in the automobile world for his electric ignition apparatus, shows his largely-used induction for the ignition of the charge in motors. They are fitted with large platinum contacts for continuous and heavy work, and the secondary winding is protected from damp and mechanical injury by a strong light covering from end to end. The coils give a very bright flaming spark, and are largely used by owners of motor-cars. They will work with one cell accumulator (two volts), or in some methods of making and breaking the contact two cells (four volts) are required. Dry batteries, small accumulators, sparking plugs of various types, exhaust silencers, dynamo and switchboard for charging accumulators, etc., are shown, while a new article is the Blake water-cooling coil, Fig. 14. This consists of a copper pipe to the outside of which are soldered six copper gauze pipes. This new coil is said to be giving excellent results in practice, from 2ft. 6in. to 4ft.

being sufficient to cool the water per indicated horse-power of the motor, while the weight of the $\frac{3}{4}$ in. size is only $\frac{1}{2}$ lb. per foot. Several types of petroleum-spirit motor made by Mr. Blake are also to be seen. First we have a two-cylinder horizontal engine giving 3-b.h.p., Fig. 15. It is fitted with water jacket, electrical ignition, and the cranks are set so that there is an impulse every

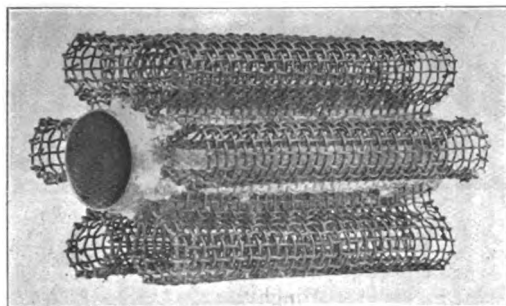


FIG. 14.—THE BLAKE RADIATING COIL.

revolution, and by carefully balancing, vibration is reduced to a minimum; the normal speed ranges from 700 to 800 revolutions per minute. Special attention has been given to the question of lubrication, the cranks working in an oil-containing chamber. Another engine to be seen is a two-cylinder vertical motor of

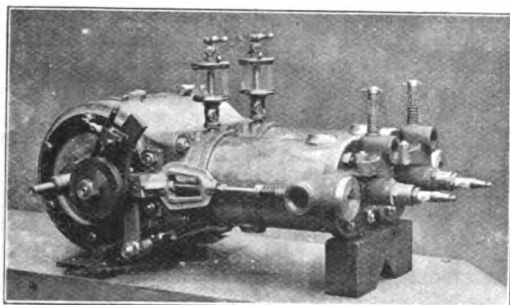


FIG. 15.—GENERAL VIEW OF BLAKE 2-CYLINDER HORIZONTAL PETROL MOTOR.

3-b.h.p., this possessing the same features as the horizontal motor, while still a further one is a 5-h.p. single cylinder horizontal motor in which the exhaust valve is located at the front end of the explosion chamber. Of special interest to motor-cyclists is the new rubber insulated wire for tricycles and quadricycles. The wire with its covering is exceedingly flexible and, it is claimed, absolutely impervious to wet and other causes of short-circuiting.

The National Gas Engine Company, Limited, of Ashton-under-Lyne and 117, Queen Victoria Street, E.C., show their "National" (improved Otto) gas engines, the types on exhibition being known as the "J," giving 2 e.h.p.; the "O," electric light engine, giving 13 e.h.p., suitable for running light, direct from dynamo; and the "R," giving 20 e.h.p. On their stand is a Turner dynamo capable of giving 250 16-candle-power lamps. Reverting to the gas engines, they are characterised by steady running and the low consumption of gas. Among the special features of these engines we notice that the lubrication of the bearings is amply provided for. Oil is supplied to the piston from a mechanical lubricator, and the stationary bearings are constructed with large oil wells and syphon wicks. There is also a patent piston pin adjustment, by which the wearing surface is much increased, and the tendency to wear correspondingly diminished. The adjustment is of a very firm and rigid character. The side shaft is of a strength sufficient to ensure the steady running to which reference has already been made, which is further facilitated by the character of the wheels employed in transmitting the motion to the governor spindle. These wheels are of the skew gear type preventing irregularities due to wear and admitting of a very strong construction. As the governor works in a vertical position the great advantages of the deadweight with the spring are secured, and any alteration in the speed of the engine that

may be required can be made without stopping the engine. The exhaust valve, seating, and spindle guide are part of the main casting, thus ensuring durability and preventing damage from overheating, as well as the fear of broken joints.

Messrs. Bilbie, Hobson, and Co., 80, Queen Victoria Street, E.C., have a gas-engine of 18 b.h.p. of their well-known "Stockport" type. Among its leading features we notice the cylinder jacket is cast with the frame, so that the cylinder is not overhung, while the strength of the engine is greatly increased. It is fitted with a separate cylinder end or combustion chamber, not only removing the risk of accident through frost, but enabling a loose liner to be used. The patent low-pressure self-starter is another special feature. A patented arrangement of the valves has also been made. There are many other features of interest on the Stockport gas-engine which can be studied by visitors. With regard to the consumption of coal gas it has been reliably ascertained that this is about $16\frac{1}{2}$ cubic feet per b.h.p. per hour under full load in the large engines, and 25 cubic feet in the smaller sizes, with gas of 16 c.p. With the large engines working in combination with fuel gas plants of approved construction a consumption of not more than 1 lb. of good anthracite coal consumed in the generator per b.h.p. per hour is working under full load is all that is necessary.

On the stand of the "Fleet" Carriage and Motor Wheel Works Company, Coventry, is the body of a two-seated car known as "The Shamrock." Up to Wednesday evening the rest of the exhibit of this company, consisting of a series of wooden wheels, had not been placed in position, but will probably be on view to-day and to-morrow.

Messrs. H. J. Mulliner and Co., 28, Brook Street, W., have nothing of particular attraction on their stand, their productions being, however, on many of the leading stands in the hall. Mr. Mulliner does the carriage work for most of the leading firms, including the Daimler Company, the Motor Carriage Supply Company, Hewetson's, De Dion Bouton Syndicate, Friswell, Limited, London Motor Van and Wagon Company, Carl Oppermann, etc. He has been closely identified with the development of the automobile industry in this country, and many of the leading cars entered for the 1,000-miles Trial have been supplied with bodies from Mr. Mulliner's works, which are admirably equipped in every detail.

An exhibit which appeals more to motor-car builders than to users of automobile vehicles is that of Messrs. Rubery and Co., of Darlaston, South Staffordshire. It comprises a motor-car body built up entirely of channel-section steel, with aluminium panels, etc.; it is adapted for a two-seated car, and weighs complete only 100 lb. The firm claim that channel-section steel affords not only a light and rigid frame, but one of great strength. Examples of the various shapes in which channel-sections can be supplied are also on view, and it only needs a few minutes' conversation with the firm's representative to ascertain the fact that Messrs. Rubery are devoting considerable attention to the matter of frames for motor-car builders. They have also on view several samples of a new lock-nut, which they have named the "Castle." The nut is of a special shape, in order to allow a split pin to be passed through slots in the nut and through a hole in the bolt. It appears to be a very effective device.

Messrs. Brampton Brothers, Limited, of Oliver Street Works, Birmingham, make a small display of their now largely-used motor-car driving chains and chain wheels. The chains are made in both solid block and roller pattern, the former in pitches from 1 in. up to $3\frac{1}{2}$ in., and the latter from 1 in. to 2 in. pitch. The products of this firm in the way of driving chains and chain wheels are too well known in the automobile world to require any lengthy description at this time, but we may mention that the firm have lately obtained a large order from the Panhard Company in Paris. A big display of chain wheels of gun metal and mild steel is made, as also an example of the Brampton chain adjuster, a device to take up any wear of motor-car chains. They are also exhibiting their "Multispiral" saddle, specially arranged for use on motor-tricycles. The claims made for this saddle are that there is no hard peak, no hard back plate, and that while lighter than usual it gives a comfortable seat.

The Mossberg Roller Bearings, Limited, of 6, Victoria Street,

Westminster, and Birmingham, have an interesting display of their bearings, for which many claims are made in the way of reducing friction, etc. The rollers are made of hardened and ground tool-steel, and, while held in a bronze cage, are free to rotate on a tool steel shell, generally fitted round the shaft or axle. A number of applications of the roller bearings are shown, including a pair of motor-car wheels fitted with Mossberg patent roller bearings, a carriage wheel similarly fitted, some axle boxes fitted with the roller bearings, the exhibition being completed with a selection of small straight and end thrust patent roller bearings.

The Clarkson and Capel Steam Car Syndicate, Limited, of Deverell Street, Great Dover Street, London, S.E., have not brought any complete cars to the show this year, but confine their exhibit to their kerosene burners and radiating condensing tubes. The kerosene burners are shown in three sizes, both vertical and horizontal patterns. The burner is of the true Bunsen type, and the quantity of air allowed to mix with the oil vapour before combustion can be adjusted to a nicety. The burner is stated to be clean and quiet and burns without smoke or smell. It can be adjusted at will to high or low flame, and can also be arranged for automatic adjustment. The burner is made in several sizes suitable for boilers up to 25 h.p. The consumption of oil is stated to be one-third gallon per horse-power hour; that is to say, a burner for a 5 h.p. boiler would consume 1 2/3rd gallons per hour. The Clarkson and Capel radiating condensing and cooling tubes are shown made up in several forms of coils for cooling the jacket water on petrol cars or for condensing the exhaust steam on steam vehicles or stationary steam plant. The tubes are constructed of light copper tube corrugated spirally. On the outside of the tube is wrapped a special coil of tinned electrical wire that is subsequently soldered for the tube. The result is a very light yet strong radiating tube, claimed to be 30 per cent. more efficient than filled tubes of same size length for length. The makers state that 4 1/2 ft. of the tube is all that is required per horse-power of the motor, and that one foot of the 1 5/8 in. diameter tube will condense 10oz. of steam per hour, this quantity being estimated with the car running at a speed of eight miles per hour. The tube is made in several sizes ranging from 1 5/8 in. to 3 in. diameter.

A very ingenious variable speed gear is that shown by Mr. L. Rottenburg, of the Patella Works, Paisley. The gear consists of two automatic expansible belt pulleys connected by a belt. The driving pulley remains at its largest diameter until the motor-torque reaches a predetermined maximum, which can be regulated to suit the output of the motor, when it automatically reduces its diameter, while the driven pulley expands in such a manner that the motor-torque remains practically constant. The pulleys are of special construction, the outer drum being carried by a series of lattice-like arms, one series of which is attached to a fixed drum, and one to a hub free to move on the shaft, suitable adjustable springs being enclosed in the hub. The two pulleys are in the ratio of 1 to 3.3 to each other. The inventor claims that a motor-car equipped with a gear of this type would automatically vary its speed so that the motor would always be running at the load at which it was most efficient; on the level it would run at its highest gear, while the ratio of reduction would change to suit a gradient requiring a draw-bar pull up to 3.3 times that required for the level.

Friction clutches are a necessary adjunct to most motor-cars, so that the display made by the Champion Friction Clutch Company, Limited, of 10, Parade Chambers and High Street, Sheffield, is not without interest to automobilists. The clutch is made in a variety of forms and sizes. The friction is put on and maintained by spiral springs, which are said to operate on the frictional surfaces so as to prevent end thrust; while at the same time all the advantages of an unbroken conical ring are retained. While disconnected the frictional surfaces are entirely free from contact. The striking gear is designed to prevent collar friction, so that the clutch does not brake the shaft either when driving or stopped. The clutch comprises an

inner and outer cone, both of metal. The springs referred to are held between a flange on the inner cone and a flanged sleeve on which the inner cone slides. At the stand various types of

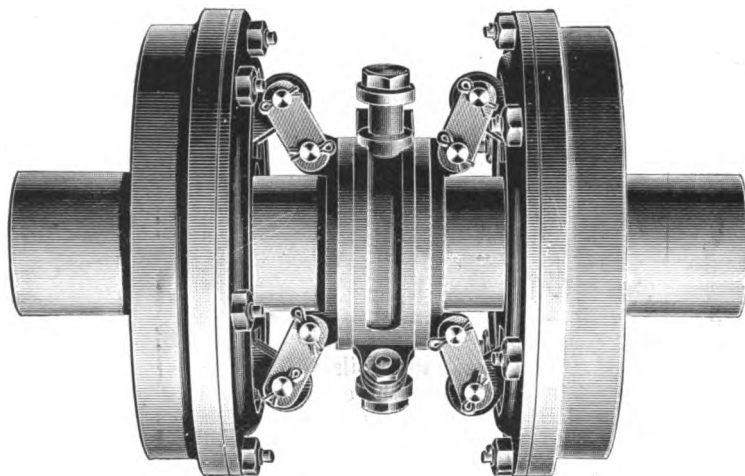


FIG. 16.—THE CHAMPION DOUBLE CLUTCH.

clutches are shown, viz., a double clutch operated by one lever, and capable of transmitting $\frac{1}{3}$ reg. h.p. per 100 revs of the driving shaft (Fig. 16), a clutch ready to connect up to the fly wheel and a motor of a capacity of 1 h.p. per 100 revs of the driving

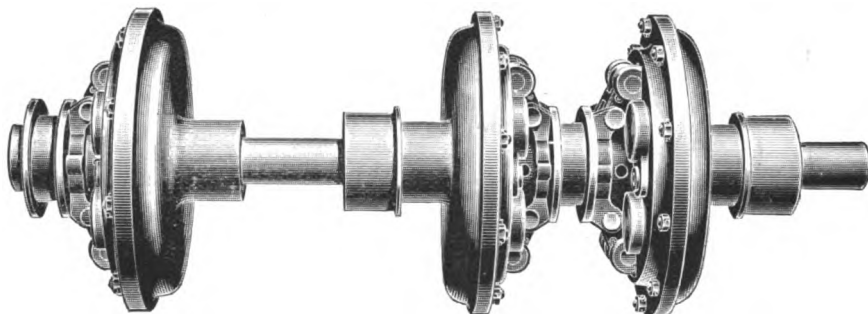


FIG. 17.—THREE CHAMPION CLUTCHES ON ONE SHAFT.

shaft, a clutch combined with a five-step cone pulley and a set of three clutches on one shaft suitable for two speeds forward and a reverse motion (Fig. 17). We may add that these clutches have already been supplied to several motor-car builders, both in this country and on the Continent.

Accumulators or second batteries for lighting and traction work form the speciality of the Hart Accumulator Company, Limited, Marshgate Lane, Stratford. The feature of the cell is the employment of a special grid, formed in such a way that it is claimed that the active material cannot be disintegrated. Another point is the use of special bolted terminals, which are claimed to be able to work satisfactorily without cleaning for about six years. The lighting cells are made in sizes ranging from 110 to 880 ampère-hours, and the traction cells from 50 to 280 ampère-hours capacity. The 150 ampère-hour size has a 24-ampère discharge rate for five and a half hours, the weight per cell, including the acid, being 45 lbs. Lightness and durability are two of the special advantages claimed for the Hart accumulator.

Accumulators or secondary batteries for spark ignition on motor-tricycles and cars form the leading speciality of Messrs. Peto and Radford, Limited, 28, Victoria Street, London, S.W. The batteries give a flaming spark of great capacity; they are made in several sizes, ranging from 4 ampère-hour capacity up to 50 ampère-hours. The tricycle size has, it is stated, a capacity sufficient for a run of 500 miles, after which they can be recharged at a small cost. The accumulator consists of an ebonite box divided into two compartments. Each compartment is fitted with positive and negative plates, separated by ebonite rods. In addition to being used for ignition work the batteries are so arranged that a small portable electric lamp may be connected up to them in case of emergency. Other exhibits on the stand comprise electric lamps suitable for motor-cars,

The Meyra Electric Company, 75, Newman Street, London, W.C., have a large display of the "Meyra" dry batteries for use in connection with the electric ignition of the explosive charge in petroleum-spirit motors, either on tricycles or cars. Full particulars of these batteries were given in our last issue. The Meyra Company are also showing an electrical clock in leather case suitable for attachment to motor-vehicles. The advantage of these clocks is that no winding is required, they being worked by one small "Meyra" dry battery, which will run the clock for about two years.

Le Carbone (late Lacombe and Cie), of Levallois-Perret, Paris, and 36, Lime Street, London, E.C., have an interesting display of electric accessories for use in connection with motor-carriages. Chief among them may be mentioned the "Sans-pariel" dry battery for use with the ignition apparatus of petroleum-spirit motors on carriages, yachts, tricycles, bicycles, etc. It is claimed for these cells that they give the maximum output for the minimum of weight and dimensions. The cells offered for tricycles, with suitable coils, will last between 300 and 500 working hours, according to the conditions in which they are employed. A specially light set of batteries for use on racing tricycles is now being marketed by this concern. The batteries are made up in sets of five, and are much lighter than usual. Another new departure is the manufacture of light batteries to be carried by motor-cyclists as a reserve, in case the ordinary battery should run out. Le Carbone Company also makes a speciality of carbon brushes.

As might be expected the Dunlop Pneumatic Tire Company, Limited, of London and Coventry, make a representative show of their tires—from light patterns for motor-tricycles to large tires for heavy cars. A tire occupying a central position on the stand is that made under the Bartlett patents. This is specially intended for heavy cars, and the sizes and thicknesses exhibited are similar to those employed on the famous French racing cars. Samples of two kinds of wheels made for motor-cars and voiturettes respectively are also shown. In this work the company has been very successful. To the ends of the spokes metal sockets are fitted. These are then attached direct to the steel rim, thus dispensing with wooden felloes. The completed wheel is strong, light, and neat, and eminently serviceable for automobiles.

A new tire designed for use on motor-vehicles is shown for the first time. Although this is quite a new introduction by the Radax Pneumatic Tire Company, Limited, 51, Fountain Street, Manchester, and 32, Bread Street, London, E.C., we understand it has been fully tested, and has given very satisfactory results. The "Radax" tire possesses a patent canvas, so woven that the sides of the outer cover fit closely in the rim, and form a sound principle of attachment. Being woven in a circle it is possible to secure the threads being small at the edges or smallest circumference of the tire, and to gradually increase in size as the circumference becomes larger. Thus the tire is made to perfectly fit the rim and so obviate any possibility of rolling friction. There is thus no wires, hooks, bands, or thick edges in connection with the "Radax" tire. Whilst in use it cannot be forced from the rim—even if it is punctured or but slightly inflated. Despite its tenacity when in actual service, there is no difficulty in connection with taking the tire off or putting it on, while the fact that it is made to fit all kinds of rims now in use should lead to its adoption by many who have not yet found a tire to their liking.

The North British Rubber Company, Limited, Castle Mills, Edinburgh, are present with a display of their well-known solid rubber tires for motor-tricycles and light and heavy motor-vehicles, and also Clincher pneumatic tires for motor-cycles. This company also show their pneumatic tire of the Clincher type, suitable for light motor-cars, several specimens of which are to be seen at the stand.

The Collier Twin Tire Company, Limited, of St. Albans, exhibit a tire for motor-vehicles. It consists of a combination of the pneumatic and solid tires, the pneumatic being between the wheel and the solid rubber, but both the pneumatic tube and the solid rubber tire are contained in one piece of fabric, or outer cover, by which great strength and

durability is stated to be obtained. The advantages claimed for the tire are freedom from puncture, as the pneumatic tube is kept well off the ground, and narrow tread, the twin tire being deep without being broad. These tires have been specially designed for automobiles, and have been designated "twin tires" because the resilient solid rubber and an "air-tube" are enclosed in the one cover. The "fastening" of these tires enables them to hold securely to any flanged rim, while they are also easily adjustable by the user.

One of the concerns which are now catering for the demand for pneumatic tires for automobile vehicles is the Clipper Pneumatic Tyre Company, Limited, of Aston Cross, Birmingham. The "Clipper" tire, which is being made in several sizes, suitable for motor-tricycles and all types of motor-cars, is not held on the rims by means of wires, the latter being replaced by the thickened edges with which the outer covers are provided, the tires being further attached to the rims by means of bolts. The tires shown are of all diameters and in all sizes, from 2½ in. to 5 in., one speciality being a racing car tire of 120 m.m. diameter. In addition to tires the Clipper Pneumatic Tire Company, Limited, have a large selection of inflators, valves, repair outfits, and carriage jacks.

An exhibit of their Grappler tires for motor-tricycles, motor-quadracycles, heavy and light motor-cars is made by the New Grappler Pneumatic Tire Company, Limited, 27 and 28, Clare Street, Dublin, Birmingham, and London. They also show the Grappler attachment to fit Michelin pattern rims. One of the advantages claimed for this tire is that it can be repaired in case of accident, being hand-built and not vulcanised and made harsh. It is built "to shape," and when inflated the cover and tube are normal, and not distorted. The tire will stand a great air pressure, and it is said to be impossible to blow it off the rim.

Messrs. J. W. and T. Connolly, of 65, Wharfedale Road, King's Cross, N., have a good collection of wheels fitted with their "Ideal" rubber tires. These can be fitted to all existing rims, and have been supplied to some of the leading motor-car firms with great success. The tires are held on the rim by means of two electrically-welded wires in such a way that it is claimed that the tires cannot come off the rims or creep. The tires are now being made in sizes up to 2½ in., suitable for cars of a total load, with passengers, of two tons. Samples of the tires are shown fitted to both wood and steel wire-spoked wheels. At this stand, too, are the Grant roller bearings. These revolve on tapered rolls, and are calculated to lessen the pull nearly 40 per cent. The adjusting nut is so constructed that the slightest wear can be taken up instantaneously, and as the carrying capacity of the rolls is considerably greater than the bed of the axle there is no danger of the rolls being crushed or broken. The cones are loose on the spindle, so that they can turn independently of the rolls. An unusual jolt causes the cones to turn and so brings another part to the bearing point. The necessary wear is thus distributed all over the surface, instead of upon a single point, as is the case when the cone is keyed to the spindle.

The feature of the solid rubber vehicle tire exhibited by the Sirdar Rubber Company, Limited, of 36, Duke Street, London, E.C., is that it consists of an endless compressed band moulded in a coil form, so that the tendency of the tire is to hold itself on the rim without the use of wires. A light strip of fabric is embedded in the base of the tire to prevent stretching. Another feature claimed for this tire is that it is put on the rim under compression, so that any slight cuts on the tire automatically close up. The "Irel" tires for motor-cars are a cheaper make which are compressed but not endless. On this stand will be found a wheel fitted with the company's tire that has withstood eighteen months' wear very successfully.

Very complete, so far as the motorist's personal equipment is concerned, is the stand occupied by the well-known firm of A. W. Gamage, Limited, of Holborn, which shows some fashionable designs in motor clothing, including black and brown leather suits, overcoats, riding breeches, etc. Among the novelties is a tweed coat of the latest pattern with sanitary wool fittings and deer-skin lining. For those who prefer a more expensive coat there is a jacket of French kid, which has a remarkably good appearance, and should become popular among Society votaries.

of the motor-car. In addition to a very complete selection of clothing for automobilists, there is a capital display of motor caps, gloves, and leggings, while several specialties in gauntlets seem to attract general attention. Gamage's are making a feature of motor caps, and these, with a collection of motor accessories, such as motor horns, lamps, etc., complete the display. During the week an attendant has been busy taking measurements for special suits.

Some very useful motor-car accessories are to be found at the stand of Mr. Alfred Dunhill, of 145, Euston Road, N.W., in the way of rubber mats, rugs, and gloves, all necessary articles, especially now that the touring season is upon us. Mr. Dunhill's products in this direction are now too well known in the automobile world to need any lengthy mention at this time, but we may add that he is also making a speciality of outfits for the repair of punctured pneumatic tires of motor cycles and cars. The repair of a tire on the roadside is anything but a pleasant task, but it is better to be equipped for emergencies than to be stranded on the roadside, miles from a railway station. Gauntlet gloves are another speciality, and he has also a large collection of rubber mats of excellent quality and appearance. Among the mats we specially noticed those made from Imperial fibre, which are having good sale. Some capital water and dust-proof covers for motor-cars are also to be seen on this stand.

The "Autocoat" was shown by Messrs. Hoare and Sons, of High Holborn, and attracted considerable attention. This is made of a rain-proof cloth and lined with all wool material and interlined with "antiletheret"—a speciality of the firm's, which is said to be absolutely wind and rain proof. Across the back and sleeves a yoke is giving ensured extra warmth, and the style of buttoning secures ample protection for the chest, while the provision of wind-proof cuffs and special map pockets show that no detail has been omitted in the endeavour to provide a really serviceable coat.

Messrs. Carless, Capel and Leonard, of Hope Chemical Works, Hackney Wick, N.E., are present with an exhibit of their well-known petrol for petroleum-spirit motors, also samples of petroleum oils for lighting and heating, etc., and lubricating oils of all kinds. Included among the latter are lubricating oils specially adapted for petrol cars, while the petroleum oils include those of the "Lighthouse," "Pilot," and "Phœbus" brands. There is also a good collection of petrol storage tanks. One of the novelties at this stand is a patent benzine safety lamp suitable for lighting motor-car houses, or for use in any buildings where inflammable materials are stored. The lamp is constructed on the principle of the Davey safety lamp, which is the interposition of a fine wire gauze between the internal flame and the external atmosphere, the action of the wire gauze being to radiate or dissipate any heat from the flame, and so reducing the temperature much below that necessary for the firing of an explosive mixture of air and petrol vapour. The lamp consists of a double wick raised and lowered from below, and it is ignited by the flame produced by striking a portion of prepared cotton which is carried in a small metal box; the lamp can thus be lit without opening it to the outside air—a very great advantage.

The Anglo-American Oil Company, Limited, of 22, Billiter Street, London, E.C., are present with an exhibit of their well-known petrol for petroleum-spirit motors, together with a number of petrol storage tanks, barrels, etc. The company has lately made a new departure in putting up their spirit in small-sized and air-tight cans, which greatly simplifies the question of storage, and also enables owners of motor-cars to conveniently carry a supply of spirit whilst on tour. Their cans of two-gallon capacity are of useful shape, and facility in transit is secured by cases holding four cans. The company is bringing out an excellent cabinet with a capacity of twenty gallons. To this is fitted a pump with a sink, so that the oil can be pumped from the cabinet, and any overflow runs back again into the cabinet, which is provided with a lid, and is absolutely air-tight.

Lubricants for motor-cars form the feature of the display made by Messrs. Stern Bros., 57, Gracechurch Street, E.C. Among the specialties shown are Sternoline lubricant for the bearings, Fram lubricant for the axles, Sternoline motor-car oil, Sternoline cylinder oil, Sternoline rust preventative, Sternoline

elastic paste for gearing, cog wheels, chains, etc. This latter must be applied in a liquid state to chains and cogs. It cools rapidly, and forms a strong, smooth surface which neither comes off nor blisters. The makers claim that the use of this elastic paste diminishes wear and avoids all direct friction. Dust will not mix with it, so that the cogs are kept perfectly clean, and although quite dry in appearance they are well lubricated. As the paste is entirely free from acids and all impurities, its elasticity is easily preserved and it will not harden. Another speciality at this stand is Stern's adhesive belting brick, which are made in a very compact and handy form, and are very clean. They prevent the belts from slipping or coming off the pulleys, keeping them pliable and counteracting the looseness produced by stretching.

"Motorine" forms one of the exhibits of greatest interest to motorists at the stand of Price's Patent Candle Company, Ltd., Belmont Works, Battersea, S.W. The grade known as A is particularly suitable for use in the largest motor-cylinders. It possesses a very high volatilising point and is being used with success in air-cooled non-jacketed motor-cylinders. The B grade is a thinner kind of the same oil in which the body at higher temperatures and flashing point has been partly sacrificed to secure increased fluidity at normal temperature. This oil is specially adapted for small motor-vehicles.

A good lamp is one of the prime necessities in connection with motor-cars, and visitors to the exhibition should not omit to inspect the stand of Messrs. Salisbury and Son, of Green Street, Blackfriars, S.E., who make a special feature of light-giving articles. The firm are the British agents for the Dietz paraffin lamps, and are showing samples of the improved patterns for 1900. For those who prefer an acetylene lamp the firm are introducing a novelty in an acetylene candle, which will fit into an ordinary carriage lamp. Among other exhibits are the automobile new model motor-car lamp, the Salisbury motor-cycle lamp, the Invincible motor-cycle lamp, the Sun Ray acetylene motor-cycle lamp, and an acetylene generator attachment for motor lamps.

A new water-cooling coil forms the exhibit of M. P. Apprin, of 27, Rue de l'Abondance, Lyons, France. As this new coil was illustrated in a recent issue of the *Journal*, it is only necessary to state that the special feature is that the fins are hollow and are part and parcel of the tube, they being manufactured by a special process. The coils weigh about 2lb. per metre, while one metre is said to be sufficient per horse-power of the motor.

The Whippet Cycle Syndicate, Limited, of 281, Oxford Street, W., exhibit an Ariel motor-tricycle fitted to the Whippet single-wheel trailer. Readers are referred for particulars of this to the description we recently published in these columns.

Of importance to those concerned with the organisation of great industrial works, is the display of time recorders made by the British Bundy Company, Limited, 81, Southwark Street, E.C. This consists of ingenious devices for automatically and reliably recording the time of workmen. These have already been adopted by many of the great engineering firms, etc. In the Bundy system each employé is given a numbered key, and upon arrival in the morning, whenever he goes out and returns during the day, and upon leaving at night, he registers the time and his number by inserting the key in the proper place in the recorder and giving it a quarter turn. In registering when going out, the lever at the end of the clock is held down, thereby printing a star opposite the number, showing departing time. A printed impression is thus made on the paper ribbon inside the clock, of the hour and minute that each employé registers, together with his number. This record (which is only accessible to the person having the key which opens the clock) may be taken out every night, or as often as desired, and from it the actual time of service of every employé noted on the time book, and credit given accordingly.

Of general interest to commercial men is the exhibit of the Remington Sholes Syndicate, Limited, 100c, Queen Victoria Street, E.C., which consists of roll-top desks, office chairs, etc., the special feature being the exemplifications of the Wabash expansion business systems, letter filing cabinets, card index, cabinets, etc. We were informed that the company has done

splendid business at the exhibition, much interest having been shown in the ingenuity of the idea of sectional divisions, which is at the basis of this well-ordered plan. The "Remsho" type-writer is also on view here the main feature being one that should appeal to all automobilists, viz. for the one frame two carriages are provided for the papers of legal and brief sizes respectively.

Messrs. John Hall and Sons, 76-77, High Street, Marylebone, W., and at Bristol, have a case containing aniline dyes extracted from coal tar, earth colours, powdered and levigated, chemical colours, gums used in varnish making, etc. This firm is giving special attention to paints, colours, and varnishes for motor-car builders, their leading lines being in crimson, pale drop carmine, black, in turps and carriage varnishes.

Messrs. Lane and Fitte, 331, Kennington Road, S.E., make an effective display of their well known "Nugget" waterproof black and brown polishes for boots and shoes, as well as enamel polishes for motor-cycles, etc.

A goodly assortment of trucks for various trading purposes is shown by Mr. H. C. Slingsby, 30, Gray's Inn Road, W.C., the specialities including trucks with rubber tyres, and others filled with patent docking gear.

Messrs. Curzon, Robey, and Co., Limited, 7, Newman Street, W., have some excellent specimens of photography, lithography, and printing for the motor-car trade, to which the firm is specially applying itself. Not only have they been very successful with outdoor work, but their photographs of interiors are distinctly good.

Publications of interest to motorists and cyclists are shown at the stands of Messrs. Cordingley and Co., where the *Motor-Car Journal* has been in good demand all the week: of Messrs. Iliffe, Sons and Sturmev, Limited, where road maps and books for motorists form a conspicuous feature on the stand and of *Cycling*, where some of the original drawings for our contemporary are to be seen.

EXHIBITION ECHOES.

The Press and the Exhibition.

DESPITE the demands on the space of the daily papers by reason of the war news and the usual seasonable attractions, the Motor-Car Exhibition has secured favourable and extended reports in the leading journals. Very noticeable is the change in the attitude adopted by the representatives of the general press towards automobilism, and few of the disparaging comments of a few years ago have been given publicity during the past week. Journalists recognise the improvements that have taken place in design, and have not been slow to notice the absence of smell with the great majority of the cars. Even those that do emit a slight perfume do so in a very undecided fashion. All these matters have been duly chronicled, and must help to direct public opinion into a favourable channel. Not only did the great London dailies send representatives on the opening day, but correspondents were present on behalf of the provincial press, while many who write for technical journals were also to be seen. In addition to English journalists, several representing French and other Continental journals were in attendance, and the interest displayed by the whole newspaper world has been greater than on any previous occasion.

Doctors at the Show.

THERE have been many professional men at the exhibition, and one of the journalists pointed out several legal luminaries. Not only have the lawyers shown an interest in the exhibition—Sir Francis Jeune and Sir Richard Webster, Q.C., are both keenly interested in automobilism—but doctors have been lavish in the hours they have given to the stands. More perhaps than any other professional class medical men have a practical interest in mechanical means of locomotion, for not only will the possession of a motor-vehicle enable them to dispense with two or even three horses, but it will also take the place of

two or three vehicles—owing to the possibility of having two different bodies to be affixed to one frame. These are points which appeal strongly to those to whom the saving of time is also a consideration; hence the large attendance of doctors, which has been one feature of exhibition week.

Khaki.

ON Tuesday several well-known military men were among the visitors, and at one time there were a soldier and a sailor on cars travelling round the arena. This has not been the only evidence of the military spirit interested in motor-vehicles, for on the evening of Easter Monday some sensation was caused by the advent of a Parisian Daimler car painted a khaki hue. On the opening day one driver of a privately owned vehicle wore a khaki suit with cap to match. During the past day or two a khaki-painted quadricycle has attracted attention on the stand of the Motor Manufacturing Co.

From Paris to London on a Renault Car.

ONE of the vehicles which has attracted considerable attention during the week is the Renault 3 h.p. water-cooled car. The cause of the attention devoted to it arises from the fact that Mr. Dick Farman, accompanied by his brother, journeyed on it from Paris to London by road, with the exception of course of the cross-channel voyage on the steamer. The car, which is being introduced in this country as the "M.C.C. Triumph," was illustrated in these columns a fortnight ago; it is, therefore, only necessary to mention that it is propelled by a 3 h.p. water-cooled De Dion motor, and has seating accommodation for three persons. Messrs. Farman left Paris at 4 p.m. on Good Friday. Dieppe was safely reached the same evening in time to catch the night boat to Newhaven. The latter place was left at 7.30 a.m. on Saturday, the Agricultural Hall being reached at 10.30 a.m., and the whole of the 200 miles (including the boat journey) being covered in eleven hours. A strong head wind was encountered throughout the whole distance. Naturally, Messrs. Farman are not a little proud of their achievement, which speaks well for the capabilities of the Renault car.

The Yard.

THROUGHOUT the week the entrance from Barford Street has been a centre of interest, the entry of cars being made the occasion for groups of exhibitors and their friends gathering to discuss the merits of various vehicles. There is hardly a building in the country so well adapted for an exhibition of this character as the Agricultural Hall. Not only is the spacious arena under cover, but at the entrance is an open courtway, as well as a large covered-in area, where the cars can be overhauled should the weather be disposed to rain. This is an advantage well appreciated by the many motorists who have driven to the Hall. It would be impossible to chronicle all the incidents that have occurred during the week in this busy space, but it can be claimed to have had a great educational influence on the carriers' horses which have been drawn up in the yard. With cars vibrating and buzzing all around, the great majority have calmly resigned themselves to the shafts, while the few that seemed curious quickly got over their first feeling of consternation, and proved as well-behaved in the presence of a score of motor-cars as they would have done in the most commonplace horse show. One noticeable feature in connection with this subject must be recorded, viz., the good behaviour of Islington horses generally—probably the result of their familiarity with motor-cars during the recent automobile exhibitions in their neighbourhood.

Few Mishaps.

THIS year's exhibition has, so far, been wonderfully free from mishaps—a satisfactory state of things due to the uniform courtesy which has prevailed in the arena no less than to the reliable character of the vehicles exhibited. There have been no collisions and, up to the time of writing, only one vehicle has been

overturned, and this without any serious result. This mishap was really due to no fault of the victim, but was owing to the backing of another vehicle out of its circle. This freedom from accidents, which has been a characteristic of the motor-car exhibitions, is a further tribute to the safety attained by motor-vehicles.

A Lady Motorist.

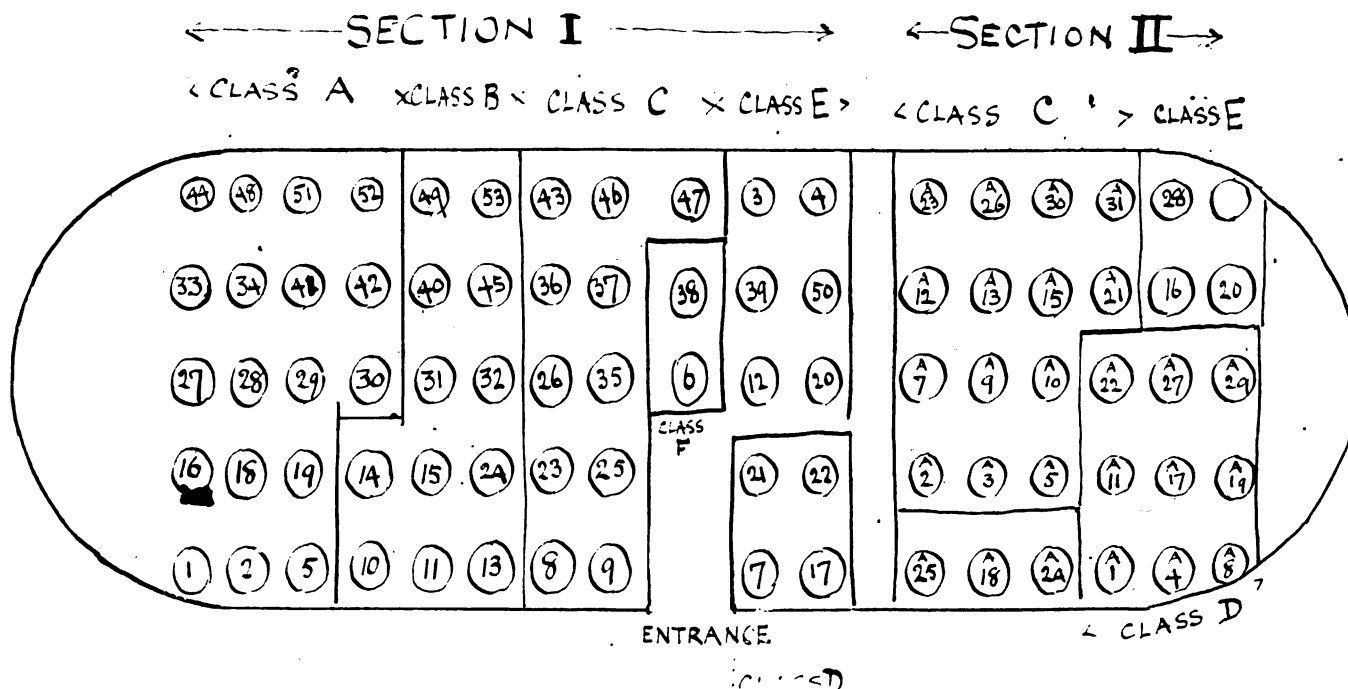
LADIES have been among the most eager applicants for seats on the vehicles running around the arena, but none have ventured to drive. Visitors on Tuesday afternoon, however, had an opportunity of seeing Miss Bacon motoring, pedalling, and walking round the arena. As announced last week, this lady motorist has purchased a Werner motor-bicycle, and her arrival at the Hall on her machine created much interest. Unfortunately she was not able to demonstrate her full powers over her new possession owing to its stubbornness. Various reasons were assigned as the cause, Miss Bacon herself attributing it to her remissness in not attending to it properly after a run from Cookham on the previous day. We hope better luck will attend her should she venture on the 1,000 miles Trial course.

The Arena on Saturday.

THE arena at the Agricultural Hall on Saturday should present a very attractive appearance, as all the vehicles entered for the 1000-Mile Trial will be drawn up for examination by the judges. The vehicles will face the long side of the arena in which is the entrance, and they are expected to take up their allotted positions (as shown on the rough plan given below) not later than 10.30 a.m. They will not be removed before 9 p.m. Every vehicle will bear its number plate on both the front and back. The display will certainly be a most representative one, the inspection of which should prove one of the most useful sights of the whole exhibition.

Photographs.

DURING the week Messrs. Curzon, Robey and Company, Ltd., the official photographers to the exhibition, have been very busily engaged, and some extremely effective photographs have been secured. The light was not very satisfactory on the Tuesday, but on Wednesday a good group was taken in the



PLAN OF THE AGRICULTURAL HALL ARENA.—SHOWING POSITION 1,000-MILE CARS ARE TO TAKE TO-MORROW (SATURDAY).

Expert and Instructor.

AMONG the familiar faces seen at the exhibition during the week has been that of Mr. Oliver Stanton, who has many pupils in connection with automobilism, and as an motor-car instructor is attaining distinction. Among those who intend taking instruction from him in motoring are Sir Richard Bulkeley, Sir Gilbert East, and Colonel Stewart-Mackenzie. As the interest of society in motoring develops he will find increasing demands upon his time, and there is little doubt that his experience will prove useful to many an aspiring automobilist.

Public Service Vehicles.

ONE of the notable features of the exhibition is the presence of several vehicles intended for public services. One is for the Edinburgh Autocar Company, which has more than thirty similar wagonettes, each seating eleven passengers, in use in the Scottish capital. On another stand is a vehicle for a service at Merthyr Tydvil, and on Tuesday the wagonette of the Thames Valley Motor-Car Company, which is intended to serve some of the pleasant places in the valley of the Thames put in an appearance.

arena, several of the principal cars and many of the best known exhibitors being included therein.

Wednesday's Dinner.

THE dinner on Wednesday evening was a very enjoyable affair, nearly one hundred and fifty practical automobilists participating therein. These included owners, manufacturers, and drivers of cars which are taking part in the forthcoming great tour, and after permission had been given to smoke, conversation turned on little else than the prospects of the future few weeks. Mr. Mark Mayhew, L.C.C. who has two cars entered in the Trial, was in the chair, and after the usual loyal toasts had been heartily honoured, proposed success to the 1000-Mile Trial. He said that those present had many matters in common, and especially were they agreed upon the question of automobilism. All present had a certain amount of experience, and he thought it would not be out of place to say that as their experience increased so did their enthusiasm grow. They hoped the long drive about to be commenced would be a great success. They were in possession of a peculiar joy and knowledge, and they wanted to proclaim to the rest of the world what real pleasure there was in automobilism, and to show that

it was a reasonable, efficient, and delightful means of locomotion, in which everyone who could pay for a car could join as soon as he found one to his taste. The result of the tour would be to increase the popularity of the sport with English people. The Hon. C. S. Rolls then read the paper on the latest arrangements, which is reproduced on another page. At its conclusion a hearty vote of thanks was accorded to Mr. Rolls on the motion of Mr. Roger Wallace, Q.C., seconded by Mr. Friswell.

**Courtesy as
a Means of
Grace.**

In proposing this vote of thanks, Mr. Wallace related how he had converted the squire of his village to automobilism by one of those simple acts of courtesy which should be shown by all automobilists. It appears he was riding a De Dion motor-tricycle through the village, and on ascending a hill saw a person in a carriage descending. He held up his hand for him to stop, and although it was at the risk of having to descend the hill again, he did so. On the vehicle passing he found it had two occupants, one of whom was the squire, who was full of prejudice against automobilism. Later he was heard to say that he would regard motor-vehicles with more friendliness if all motorists would act in a similar way. Mr. Rolls also emphasised the point, and Mr. Johnson's experience confirmed it. In these early days of the industry, every courtesy must be shown to those on the highway.

**The Vallée
Racing
Car.**

ON Wednesday afternoon Dr. Lehweß and Mr. Gregson—the former fully protected with goggles—visited the hall and went for a trip on the Vallée racing-car, illustrated in our columns a few months ago. The car naturally attracted considerable interest and was keenly scrutinised by the many experts present.

Mr. E. J. Coles.

As the week has progressed the performance of Mr. E. J. Coles, the motor expert, has developed in public interest, and has demonstrated the great control that an experienced driver can obtain over his car. After a series of skilful evolutions between dummies ranged along the arena he leaves the car to go round a circle by its own momentum and then repeats the first part of the performance, driving, however (by way of variety), with his foot instead of his hand. The whole performance is concluded by the car being driven up a steep slope to a platform only slightly more than the length of the car, upon which he suddenly stops and then continues his journey down a flight of stairs.

AN EXHIBITOR'S DIARY.

SATURDAY.—Why do exhibitors never get ready in time? Hardly a trade display has ever been opened with the stands completely filled and fitted, and the present Show is no exception. On this occasion the managers had given every facility, and by allowing firms to enter goods throughout the previous week had made ample provision for everyone to be ready for the public. Having been among the wise men who thus quickly got into position I have been able to wander around and see the nakedness of some stands where notable features should have been on view, and observe how anxious several industrious people were to make haste after the first visitors had appeared. It was ever thus.

From ten o'clock to noon there was a steady flow of people passing and re-passing along the avenues, and the arena soon became the centre of attraction—as it continued throughout the afternoon and evening. By two or three o'clock the scene became very animated, a large number of members of the Automobile Club having come in after lunch time. By tea time there was a splendid company, and the performance of Mr. Coles was evidently exciting lively anticipations. At the yard entrance in Barford Street cars were arriving all day and the gatekeepers had a busy time. The visitors were all intent on automobilism, and from a business point of view I fancy few of

the exhibitors were disappointed. Chatting with several of them it was clear that the inquiries made had been uniformly of a practical character, and one of the tire firms was especially satisfied with the many interested people who left their names at its stand. Trade in motor accessories, etc., was certainly brisk, and not a few society people were on the look-out for the smartest type of vehicle. Altogether the day has been one of briskness and business and the exhibition promises well.

MONDAY.—The Agricultural Hall is not a favourite with me as a place to spend Easter Monday. I have never before thus utilised the first Bank Holiday of the year, and hope I never shall do so again. Fortunately, next year's exhibition will fall early in May—instead of at a holiday season—and we shall be spared imprisonment while all the world makes merry holiday. There has again been a good attendance of the public, and although the enthusiastic motorist who must be at the beginning of every run, meet, or exhibition has been absent we have had a goodly company—evidently rather better than Saturday. Prominent among the callers at my stand—and it can be regarded as typical of many—have been many commercial and industrial magnates from the provinces. Evidently some of the business people of great towns like Newcastle, Leeds, Manchester, Bristol, Bradford, and elsewhere have taken advantage of the few days' respite to make acquaintance with the new industry. I noticed not a few were deeply interested in the Thorneycroft steam vehicles for heavy traffic, and mainly concerned with the development of the automobile movement, as it is likely to assist the industries of the country in their transport arrangements. Probably, the number of fashionable folk has been less than on Saturday, but this has found compensation in the greater number of business men, while the presence of the general public must be regarded as growing testimony to the progress of the industry.

I must not omit to chronicle the reports in the morning papers—to say nothing of the excellent notices which appeared in yesterday's journals. The *Daily Chronicle* had an excellent report mentioning by name some of the striking exhibits, and thus giving prominent advertisement in addition to the excellent value in the exhibition. The *Daily Mail* was rather hard upon those whose stands were not ready on the opening day, and the *Times*, too, called attention to the fact.

TUESDAY.—This has been a good day for those of us having accessories and such goods for sale, and many have been the orders taken. Among my callers have been three or four directors of motor-car services in various parts of the country, who have evidently come to the exhibition to learn rather than to buy. Still one never knows the results of such an exhibition as the present, and orders frequently come along weeks, and even months, after the exhibitions have closed their doors. So far there has been no wearying monotony for stall attendants, and the activity previously noted continues. This afternoon, while the Ladies' Band was performing, the attendance struck me as particularly good, and during the evening the anxiety to get into the arena was very marked. This opportunity for demonstrating the value of automobiles affords a good chance for manufacturers, and while some attention has been given to the steam and electric vehicles it is satisfactory to hear how interested the main bulk of visitors are in those of British make.

WEDNESDAY.—To-day has been one of great activity, and owing to the fine weather several exhibitors have been able to run their vehicles on the roads near the Hall—an advantage in view of several good friends of automobilism having arranged to pay a special visit owing to the dinner held in the evening. I counted a dozen new vehicles on the stands to-day—all having arrived since noon yesterday. Each day seems to bring its special class of visitor and references to "good" people have been frequent. Two or three lords, several honourables, and any number of public men have been in the Hall to-day. I have just been to the excellent dinner at which manufacturers, agents, and others in the trade enjoyed a few hours' relaxation from business. From impressions there gathered I should say that those dealing in small cars have done extremely well.

THURSDAY.—This, I am told, is press day, and when asked for my "copy" at noon I had none ready—a pardonable omission in one who is an exhibitor and not a journalist. And so my brief spell of pen-wielding ends.

X.

ARRANGEMENTS FOR THE THOUSAND-MILE TRIAL.*

BY THE HON. C. S. ROLLS.

It is, perhaps, necessary for me to state that as I have been slightly unwell I have not had time to carefully prepare a paper, but Mr. Johnson has jotted down a few notes, which with your permission I will read to you, and which may, I hope, lead to questions being asked on points concerning which owners and drivers are doubtful; and I shall be happy to do my best to clear up these points with his assistance.

CONTROLS.

The matter of controls seems to have caused considerable comment, and I think I cannot do better than read the remarks on this point which appeared in a recent number of "The Club Notes and Notices."

"Gentlemen who have entered their vehicles for this trial have expressed surprise, almost annoyance, at the number of stoppages for controls which are provided in the official programme of the 1,000-Mile Trial. They take, for instance, the first day's run, and point out that there are seventeen stoppages in the journey of 120 miles from London to Bristol. If these stoppages are analysed the following is the result:—In the first place the committee thought it well to suggest that there should be three stoppages for meals during each day's run, and that, as these stoppages will in most cases take place in large towns, precautions should be taken to prevent high speeds being used in passing into and out of these towns. It was therefore proposed in the original rules, which were submitted to, and approved by the firms which had expressed their intention of entering vehicles for this trial, that on entering each of such places every vehicle should be required to stop in order that the driver may receive a card, on which the time of his arrival is recorded, and may sign the time sheet bearing a similar record. This operation will probably occupy fifteen seconds. The vehicle will not be permitted to leave the control on the other side of the town until sufficient time has elapsed to permit of the compulsory stop for a meal, and to permit of the vehicle being driven from the inward control to the outward control at a speed not exceeding eight miles an hour. The operation at the outward control will be similar to that at the inward control.

"Each stop for meals is indicated in the official programme by three stops, viz.:—One for the inward control, one for the meal, and one for the outward control. It will be seen, therefore, that of the seventeen stoppages above referred to—

- 9 are in connection with meals.
- 2 are for the start of the run, and stop of the run respectively.
- 1 for the outward control of London.
- 1 for the inward control of Bristol.
- 2 are for the outward and inward controls of Reading (a populous town).
- 2 are for the outward and inward controls of Maidenhead. (A place having narrow streets, and where owing to a recent fatal accident caused by an ungovernable horse, it is desirable that slow speed should be observed; and where indeed in any case a stoppage would be necessary for the toll-gate.)

"The other controls are green flag controls, which do not necessitate a stop, but only require that a vehicle should be slowed down to eight miles an hour whilst passing through certain towns.

"In the run London to Bristol, 118½ miles—there are not more than 22½ miles within control, of which 11 miles constitute the passage out of the suburbs of London. If the time occupied in passing through these controls is calculated at 2½ hours, and ½ hours added for meals, there remain 8 hours between 7 a.m. and 7 p.m. during which the vehicle may cover 96 miles outside controls, and which allow an average of 12 miles an hour.

"Probably such an arrangement as that provided by the official programme would not be selected for a pleasure tour. But it should be borne in mind that the 1,000-Mile Trial is not a pleasure tour, but that it is not only an extremely serious mechanical trial, designed for the purpose of proving to the public the reliability of the motor vehicle as a method of everyday transport, but that the foundation of the scheme is that the trial should be a means of popularising automobilism in this country.

"The committee, therefore, in submitting to those interested the rules which provided for controls, had not in view so much the personal convenience or wishes of drivers, as the valuable results of the trial on the movement in this country—and consequently on the business of manufacturers and agents—which the trial was intended to bring about.

"When the many instances are remembered in connection with Club tours, in which certain members have been seen to dash through towns without any consideration for other users of the road, and of the harm which such behaviour has done and is doing to the movement in this country, it will doubtless be recognised by sober-minded motorists that the Committee are right in taking every possible precaution to prevent any act by selfish individuals during the trial which would have the opposite result to that desired, viz., the popularisation of the automobile.

"The Committee, by consulting the Local Authorities and County and Municipal Police on the question of controls, have done their best to prepare the official mind throughout the country for slow speeds of the trial vehicles in towns, and, as has before been stated, in the general interest of the movement, and in fairness to those who carefully observe the regulations which for the advancement of automobilism the Com-

mittee have laid down, they are determined to use their powers to disqualify any vehicle the driver of which, forgetful of the serious importance of the trial, fails to follow the regulations as regards speed through towns, and general consideration of other users of the highway."

The process at green flag controls is simplicity itself, inasmuch as a driver on arriving at a green flag has simply to slow the vehicle down to 8 miles an hour, keep at this speed until he arrives at the white flag or at the point indicated in the programme for the white flag when normal speed may then be resumed. At green flags, therefore, no stop is made, but the time-keepers will make a record of the time occupied by each vehicle in passing between the green and white flags, and a driver will run the risk of having the vehicle disqualified by running at a speed greater than 8 miles an hour between these flags.

As regards red flag controls, on arriving at a red flag it is necessary to stop, and in doing so not to pull up in the middle of the road, but as close as possible to the near side, immediately in rear of the vehicle (if there be one) which may have arrived previously, and which may be engaging the attention of the time-keepers. There will be two time-keepers. One time-keeper, on the arrival of a car, will write on the control card the number of the vehicle, the time of arrival, and his signature, and this card will be handed to the driver. The other time-keeper will note on a piece of paper the number of the vehicle, the time of arrival, and the driver will be required to sign this paper in agreement with the entry made thereon. The vehicle will then proceed on its way at 8 miles an hour through the town, or, if a stop for a meal is provided at that town, to the hotel at which the meal has been previously ordered, and will arrive at the outward control in time to start after the proper period has elapsed since its arrival at the red flag. On arriving at a white flag the driver will pull up again on the near side, will hand his card to the time-keeper, who will write thereon the time at which the vehicle is due to start and will sign the card and return it to the driver. The second time-keeper at the outward control will make a similar entry on his time-sheet and the driver will sign this sheet. The time-keeper will give the signal to start when the proper time arrives, and the vehicle will proceed on its journey again at normal speed.

The driver on arriving at the exhibition building in the evening will hand all his control cards to the time-keeper there who will proceed to work out the averages of each vehicle.

CERTIFICATES.

On the arrival of the vehicles at Bristol the driver of each vehicle will be given a large certificate on which the day's journey is printed and on which spaces are left for the average speeds to be filled in at the end of the day's run. It is intended that this certificate should be exhibited on the vehicle at each of the exhibitions, so that visitors may see at a glance what sort of run the vehicle has made. The difficulty which presented itself was how these certificates are to be carried from one place to another. They have, therefore, been made to fold in two, so that they may be placed under the cushions of the driving seat, and, as further protection, cases specially made to fit them have been made and may be purchased by giving orders to the club steward. Personally I should advise every driver to obtain one of these cases.

OFFICIAL PROGRAMME.

The official programme is a somewhat bulky and cumbersome volume, a fact to which some of the writers on the press have alluded.

The programme is made quarto size, because it is found from experience that in order to read instructions on a car it is well to have the instructions in big print with plenty of white between the lines. If big print had been employed on small pages the book would have run into 400 instead of 200 pages.

An endeavour has been to secure that every sort of information concerning the trial should be incorporated under one cover, viz., the official programme. It contains full instructions as to the route, the rules, an itinerary, the excellent maps published by the motor-car papers, the contours of the four hills on which hill-climbing trials are to be held, information as to petrol stores and hotels, and a list of the vehicles entered, giving the names and addresses of their manufacturers or agents, weights, horse-powers, carrying capacity, and prices, and another list of the vehicles shown in their various classes, with a table in which can be entered the averages as they are published every day.

But one of the most important portions of the programme are the left hand pages, the greater proportion of which are devoted to illustrated announcements concerning each of the vehicles entered. These pages were given by the committee to those who entered vehicles in Section 1 free of charge.

The programme will, it is believed, be the most complete catalogue of motor-vehicles which has ever been issued in this country, and when there is added to it, as there will be after the trial, the records made by the various vehicles, an intending purchaser will be in possession of the most unique information concerning almost every vehicle which is on sale at the present time. It is not intended that the sale of this programme should pay for its cost, but it is intended that it should be sold during the trial, and that after the trial it should be widely circulated to every person who shows an inclination to take an interest in automobilism.

I may add that the special waterproof covers for the programme, which contain pockets specially designed to carry control cards, may be purchased by ordering from the club steward.

The programme will be ready for distribution on Saturday, thus giving ample time for perusal on Sunday.

MEALS.

It has been our lot, very naturally, to hear a good deal of good-

* Paper read at the Dinner of those participating in the 1,000 Miles Trial organised by Mr. C. Cordingley for the Automobile Club at the Agricultural Hall, Islington, on Wednesday, April 18th, 1900.

natured grumbling about every item, I think, contained in the rules. On the one hand the committee is informed that it should allow at least two hours for the mid-day meal, so that *chauffeurs* may have an opportunity of enjoying *post-prandial* cigarettes, coffee, and liqueurs. On the other hand the committee is asked why drivers should be compelled to stop for meals at all. One often wonders whether some of the critics have tried what it is to drive on an average of 100 miles a day continuously. If no compulsory meal-times had been provided it would have become partly a test of the endurance of the drivers, and no benefit could be obtained by the continuous driving. Furthermore, surely it is desired that the vehicles should be seen and brought under the notice of as many people as possible, and by having compulsory stops at such big centres as Bath, Gloucester, Worcester, Durham, York, Leicester, etc., the vehicles will be brought under the examination of the inhabitants of these centres who otherwise would simply have seen them run through their cities or towns.

THE START.

Whether the arrangements as regards the marshalling of the vehicles at the start are successful, well organised, and impressive, or whether they are disorganised muddles, must depend entirely upon the good sense of the drivers. First of all, at next Monday's start the vehicles are to be drawn up in the order of their classification, which will be shown in the official programme, that is to say, the vehicles in Section 1, Class A, vehicles of a selling price of £200 or less, will be leading the procession from Grosvenor Place, and so on. And if drivers on their arrival at Grosvenor Place have studied what position they are to take in the procession, it will be extremely easy for them to drive into their positions on their arrival there instead of "blazing" up and down Grosvenor Place in hopeless ignorance.

Members of the club have kindly consented to assist in organising this procession. It is to be trusted that drivers will take up their places immediately on their arrival. At five minutes to seven engines should be started, passengers got on board, and drivers should be in their seats. At seven o'clock precisely the signal will be given to start, and the vehicles will proceed in procession towards Knightsbridge.

It must be borne in mind that vehicles may not pass others, unless of course the vehicle in front stops and the driver signs for other vehicles to pass him, in such a case the driver of the vehicle which has stopped must not pass other vehicles to regain his position. It should also be borne in mind that the rules regarding speed within controls comes into operation on Saturday morning next, the 21st inst. And therefore vehicles driving to and from the Agricultural Hall on that day, and vehicles driving to the start on Monday must not drive at more than eight miles an hour.

On the arrival of the vehicles at the eleventh milestone from London, beyond Hounslow Barrack Station, they will draw up in the order in which they started, each vehicle being close behind the vehicle in front of it and close to the near side. The vehicles will then be started at half a minute's interval, and in order that this may be successfully accomplished drivers should not leave their seats, but each vehicle should present itself at the starting point immediately the vehicle in front of it has been started therefrom.

The ordinary system of control cards and time-sheets will be observed at Grosvenor Place and Hounslow Barrack Station starting points respectively.

It is hoped that vehicles may be in their places at Grosvenor Place by 6.30 a.m.

This process will be repeated at the starting of every day's run, the only difference being that the order of starting will be the order of the arrival on the day previous, and the vehicles will be placed in that order outside the exhibition building, and start away in procession to the outward control, exactly in the same manner as they will start away from Grosvenor Place.

SPEED.

We next have to deal with the important matter of speed.

Personally I share the selfish wish that we could all "blaze" away at top speed. But when one considers that the whole purpose of the trial will be defeated, that the large amount of money spent on it will be wasted, and that the automobile cause may be retarded for years by inconsiderate driving during this trial, one feels bound to make up one's mind that personal inclinations to "pile on top speed" shall be sacrificed to the great consideration of the advance of automobilism.

The difficulty is to persuade oneself that one is really doing harm by driving fast in the presence of other people, but it is an undoubted fact that high speeds on the road are doing a lot of harm to automobilism. It is at the outset of the movement that these high speeds must be avoided. When cycles were first introduced people were horrified at seeing the cycles going at speeds which had not been attained by other vehicles; they were not used to the sight of people moving on the roads at a rate of over 10 miles an hour, and then added to this certain class of cyclists showed no consideration whatever for other people on the road, and so the term "cads on castors" was readily adopted. People now take no notice whatever of a bicycle going along at 20 miles an hour; they have got used to it and it no longer shocks them; but when they see a heavy motor-vehicle driven by a man in a mask, with a weird looking shiny black jacket, and general appearance of being in armour-plate, travelling at 30 miles an hour, raising a cloud of dust, and propelled by a force which they do not understand, and leaving behind it a smell, which, sweeter than Eau de Cologne to the motorist, is to them abominable, they naturally say that we are "madmen on motors," and that such practice must end in the death of hundreds of

people, and that they will do their very best to see that such laws are made as to make the use of motors on the roads illegal, or to put such restrictions on their use as to make motoring a boredom, not a pleasure. One cannot wonder at these feelings when it is recollected that onlookers have not the slightest comprehension of the wonderful control that the driver has over his machine. The impression they have is that the thing is running away, or may be entirely out of the control of the driver at any moment. They do not know that the driver has absolute confidence in his control over the machine, and that when driving at thirty miles an hour he is talking to his companion as easily as if he were seated in his armchair at home. For this reason, until the public have become accustomed to high speeds, fast driving in the presence of the public must be injurious to the movement, and as regards this trial, in which over eighty motor-vehicles have been entered, if the public are to see vehicle after vehicle come streaming along the road in clouds of dust at high speeds varying from fifteen to forty miles an hour, there will, I believe, be such an outcry throughout the country that we automobilists shall have our wings clipped, and restrictions will be placed upon us by the law that will be such as to prevent the moneyed classes, who, after all, must be the patrons of automobilism, from purchasing motor-vehicles. This statement may seem exaggerated, but it is a statement of the opinion of many thinking automobilists who are in a position to feel the pulse of public opinion. I may quote one instance, viz., that of a gentleman who was on the point of giving, or had given, an order for an automobile costing £800, who when he saw that one of the local bodies was recommending that all the automobiles should be numbered, he thereupon cancelled his order. The driving of single vehicles at high speed has already aroused throughout the country a very strong movement with a view to bring about further restrictive legislation. If such strong feeling has been aroused by single vehicles what would be the feeling aroused if high speeds were indulged in by eighty vehicles driving through the length and breadth of the country? I believe that the manufacturers and private owners will have the good sense not to employ high speeds in the presence of the public, and personally, if I were a manufacturer, I should instruct my driver that if he were detected driving at any speed above the legal limit in the presence of the public, or in passing a privately owned carriage, I would give him "the sack."

The question will naturally be asked, Is the 1,000-Mile Trial simply to be a crawl along at 12 miles an hour? It is clear from the rules that the committee do not undertake to act as policemen. They have given notice to the police throughout the country of the Trial, and they leave the police to see that the law is not flagrantly broken, and they tell a competitor that if he is prosecuted by the police he may be disqualified by the committee, and they further tell a competitor that if he is found guilty of fast driving or want of consideration for other users of the road he will be disqualified, and they also tell a competitor that if he makes an average of over 12 miles an hour he will gain nothing by it, as the judges will not consider, and the committee will not record any average in excess of 12 miles an hour.

Speaking personally, and it must be clearly understood that in making this statement I speak as a competitor, and not as a member of the Trials Committee, it is clear that there are stretches of the road in the 1,000-Mile Trial where high speeds may be employed without prejudicing the automobile movement, for the simple reason that there will be no onlookers, and without want of consideration to other users of the road for the reason that there will be no other users. I refer to the long stretches of road on which another vehicle could be seen half a mile off, and speed consequently moderated long before encountering it, and where there are no, or few, pedestrians.

It is to be hoped that drivers will content themselves with moderate speed, except in such desolate regions as I have alluded to. If it is desired to prove the speed capabilities of a vehicle I think that such proof can be afforded by the four hill-climbing trials, and by the speed trial which, by the courtesy of the Duke of Portland, his agent, Mr. Turner, has kindly arranged shall take place over a mile of private road at Welbeck. Mr. Johnson drove Mr. Turner over the estate last Saturday, and has selected this mile of road as being the only mile suitable at Welbeck for the purpose. It is slightly inclined. It is suggested that times of vehicles should be taken on the up incline and again on the down incline, so as to arrive at some idea of their top speed. This speed trial is, of course, optional, and as this road is several miles off the route it would be unwise for vehicles which are not capable of driving at twenty miles an hour to take part in it, as it would cause considerable delay in their arrival at Lincoln.

RULES FOR DOWN HILL.

It will be observed that the rules provide that there should not be any passing on down gradients. This rule has been severely criticised; but it must be borne in mind that the committee submitted this and other rules to a meeting of manufacturers who had entered their vehicles for their discussion before the rules were finally adopted, and it appeared that the manufacturers and agents then present quite approved of all the rules, and I think this one in particular will recommend itself to any thinking automobilist.

This trial to be successful, from a public point of view, should be carried out without a single accident. Suppose that sixty vehicles complete the trial, we can point to 60,000 miles of motor travel without an accident. The majority of accidents which occur in France occur on down hills. In racing it may be worth while to run the risk that undoubtedly attends high speeds on descents. In France a few deaths connected with motor racing do not seem to be taken into consideration,

But in this trial there is nothing to be gained by high speeds down hill, and an accident would, instead of being simply recorded as it is in France, be exaggerated and made much of by a section of the English Press, and, as the Attorney-General remarked at the Automobile Club, one accident is more noticed by the British Press than 10,000 miles of successful running. Therefore the rules provide that so long as a vehicle is going at the legal limit it may not be passed on a down hill by the vehicle behind it. I may say that if there is a dispute between two drivers as to whether the vehicle which was passed by another on a descent was or was not going at 12 miles an hour, the committee will be inclined to decide in favour of the vehicle which is passed, as the trial is not a race, and there is nothing to be gained by passing on a descent on the ground that the other competitor was only going at, say, 10 instead of 12 miles an hour. The rules are framed by the committee not with a view to imposing useless restrictions, but with the genuine wish that the trial should have a good effect on the automobile movement in this country, and consequently on the success of manufacturers and agents.

Before leaving the matter of speeds I would remind drivers that the Chief Constable for the County of Lincoln has advised the Club that he has given particular instructions to his men to see that the law as regards speed is kept within his district. The County of Lincoln is entered first of all at Dunham Bridge, and the route runs through the county from Dunham Bridge through Lincoln, and from Lincoln to close upon Newark. It is evident that some of the chief officials of the police look upon the law as to speed as one which need not be taken quite literally, and as regards speed on the high road in desolate districts they allow the same latitude as regards this law as the police generally permit, for instance, in the case of unattended horses. One cannot blame the Chief Constable of Lincoln if he feels it is his duty to see that the law is strictly carried out as regards the speed of motor-vehicles, so long as he also protects automobilists from the danger to which they are liable owing to unattended horses. At any rate, the Chief Constable for Lincoln is an honest gentleman. He has told us what we may expect. But I regret to hear that in another portion of the country not far removed from Lincoln the police are engaged in measuring up a mile, presumably with the object of trapping automobilists and proving that they are driving in excess of twelve miles an hour. This appears to me to be a childish proceeding. Surely it is not the province of the police, when they are informed that motor-vehicles are to pass through their district to lay traps for the unwary motorists, but rather to inform the motorists that it is the intention of the police to see that the law is strictly adhered to, and that they will take steps to accurately ascertain at what speed the vehicle is driven. If this were done they would probably succeed in making motorists keep the law. But what they are doing in this particular instance is to lay low in the hope that they may be able to prosecute motorists who break the letter of the law. Their intention seems to be not to prevent the law from being broken, but to permit the law to be broken and then to punish the offender.

There is another matter still connected with speed on which I venture to lay great stress, that is that motorists should avoid driving by horse-drawn vehicles at high speeds. It really means but little loss of time to slow down on meeting a carriage, and it is, I think, a somewhat ungentlemanly proceeding to drive past any vehicle, especially one containing ladies, at high speed. In dusty weather it is almost brutal, owing to the enormous clouds of dust which the tires of a motor-carriage throw into the air.

Only recently Mr. Johnson slowed down on meeting a brougham and pair in the Midlands, not having the slightest idea who were the occupants, and two hours later found himself the guest of the lady who was the occupant of the carriage, and was profusely thanked by her for the small consideration shown by him. If this simple precaution were taken motorists would soon have public opinion with them.

HILL CLIMBING TRIALS.

The portions of the journey to which I look forward with the keenest interest are those on which records are to be taken in hill climbing trials. There should be some good speeds shown in the ascent of these hills.

The first one is Taddington Hill, before arriving at Buxton. It presents no very serious difficulties. The gradient is easy; I believe that there is nothing steeper than 1 in 15. The distance is about two miles and a half; and I have known a vehicle of no great power with two persons on board to accomplish the first mile in seven minutes, the second mile in nine minutes, and the last half mile in five minutes, making twenty-one minutes for the 2½ miles, or 7 miles an hour.

The descent to Buxton has extremely awkward corners in it, and great care should be taken in driving down as some of the corners are almost acute angles, and misjudgment of speed would have a serious result. On Easter Sunday morning there were two men killed through a bicycle accident on this hill.

The second hill is Shap Fell. The climbing of this hill is optional. There was at one time a considerable correspondence between the sellers of two vehicles concerning a suggested race up Shap Fell, I think fifty times. It is remarkable that neither of those vehicles, the qualities of which were so highly extolled in letters to the motor newspapers, has been entered for the 1,000-Mile Trial. Shap Fell is not a very dreadful hill; the gradients for the first eight and a-half miles are fairly easy. There is then a descent of about one in ten. This hill climbing trial is to be divided into two portions, one of which will terminate at the brow of this sharp descent, and the other will commence at the foot of the sharp descent and terminate at the summit. The vehicles will be timed in making the descent referred to, not with a view to prove high speed, but

with a view to ascertain what is the lowest speed at which the vehicles can make this descent without actually stopping, and thus prove the control the driver has over his machine. It is a trial of brake power. It is a question whether trials to ascertain in what space vehicles driven at a certain speed can pull up from the time the signal is given to them to stop are visible, inasmuch as they require the use of brake power which should only be used in case of emergency, and the sudden application of the brake is apt to rip the tires off and to severely strain the machine.

The second part of the ascent of Shap Fell is the really stiff portion of the hill. It is composed of 1 mile 686 yards including gradients of 1 in 10, 11, and 13. The surface is bad; but any decent vehicle will make the ascent without difficulty. The vehicles will descend from the top of Shap in procession after all have made the ascent.

The third hill-climbing trial is on Dunmail Raise, the summit of which is the boundary between Westmoreland and Cumberland. The County Surveyor for Westmoreland, who has been most good in supplying information concerning both Shap Fell and Dunmail Raise stated that the ascent of Dunmail Raise included 83 yds. and a gradient of 1 in 6½. Mr. Johnson recently had the opportunity of ascending this hill on his car, and he felt confident that there was no gradient of 1 in 6½. He wrote to the county surveyor informing him of his opinion, and asking whether it was not possible that some mistake had been made. He replied that on looking into the figures again he found that a mistake had been made, and it appears that there is nothing steeper than about 1 in 10. The ascent is one mile five furlongs in length, but it should be easily surmounted by a car in which horse power and weight are properly apportioned. For instance, Dr. Dawson Turner's Delahaye with three persons and luggage on board made the ascent at the rate of nine miles an hour.

The fourth hill climbing trial is to take place on Birkhill, which leads to the summit of a long pass, from which we shall drive from Moffat towards Peebles. The trial is to be over two miles ascent, and I believe that it will be found that the last mile of this hill is as stiff as anything we have to encounter. It comprises an ascent of 100 yards in the mile, or an average of 1 in 17.6. Dr. Turner's carriage ascended these two miles at the rate of 9 miles and 7½ miles per hour respectively.

These four hill-climbing trials are, as I stated before, perhaps the most important portions of the trial, as in a country where no speed is allowed in excess of 12 miles an hour, it is very important that vehicles should be compelled to ascend hills at good speeds.

When talking over the matter of hill climbing speeds with members of the Club, I have been reminded that to ascend hills at a good speed involves high horse-power. I cannot agree with this view, seeing that there are on the market at the present time vehicles which are being sold for less than £200 which can ascend good stiff hills at from 7 to 9 miles an hour. It is not so much the matter of high horse-power as good transmission of horse-power, and proper proportion of horse-power and weight.

CLEANING.

As will be seen from the rules, a total of three hours per day is allowed for cleaning, lubricating, and attending to the motor. By some this is said to be far too short a time, by others too long, but a carriage however dirty can be washed in an hour, and the machine should not require more than an hour's attention at the end of a day's run in order to be able to undertake the next day's run.

The racing cars at Spa arrived at the hotel in the filthiest condition possible, for the race had been run through thick mud. The mechanic of Chevalier de Knyff washed his big carriage, and certainly the washing did not occupy an hour; the greasing, lubricating, etc., were completed in less than an hour; after that the man overhauled the nuts, etc., filled up the oil and water reservoirs, and in half an hour was lounging outside the hotel, having cleaned, dressed, and also lubricated himself.

If a driver wishes to remove his vehicle from the exhibition building for cleaning he must first obtain a "pass out," on which will be recorded the hour at which the vehicle is taken from the exhibition buildings. On his return he must present this "pass-out" card, in order that there may be recorded on it the hour of his return from cleaning. He will retain this card and give it to the timekeeper with his other control cards at the end of the day's run next following. If the total time during which the vehicle is absent from the exhibition building exceeds three hours, such excess will be added to the running time of the day following.

At certain places the vehicles will not be permitted out of the exhibition building on the evening of arrival for washing. The washing will take place early on the day following.

EXHIBITIONS.

It does not appear probable that the attendance at the Provincial exhibitions will be a large one. In fact, it has not been sought that the attendance should be a large one. The people we want to have at the exhibitions are people who are thinking of, and who are able to buy vehicles. It is not of the slightest use to have a big "sixpenny crowd" of loafers. I am told, however, from nearly all centres that there is considerable interest being taken in the trial by the county people and others, and that the exhibitions will be well attended, so far as possible buyers are concerned. Bristol will perhaps be one of the least enthusiastic, not so far as its workers are concerned, but so far as the general population is concerned. In Cheltenham one member of the committee alone has already sold 100 tickets for the exhibition. The local newspapers are devoting considerable space to the Trial and exhibitions.

I do not think that we can contemplate that very many orders will

be taken at the exhibitions, because naturally an intending purchaser will prefer to await the finish of the Trial before placing an order for any machine he fancies. Therefore the financial results of manufacturers and agents must not be reckoned by the number of orders taken during the Trial, since I am confident that very few orders will be given until after the Trial is completed.

The best thanks of all concerned are due to the Provincial Committees, and especially to the Hon. Secretaries of those Committees seeing what a vast amount of work they have accomplished, not only in connection with the exhibitions, but also in connection with the arrangements on the road.

SPECTATORS.

It has been rumoured that vehicles which have not entered for the 1,000-Mile Trial will be running along the route of the trial, side by side with the trial vehicles. It is scarcely probable that this can be true. One thing must be taken into consideration, viz.: that if any member of the Club were to be guilty of such an act, the committee might look upon it as being one of the acts for which they have power to expel from the Club.

Although the trial is not a race, vehicles which are not entered ought to keep as religiously off the road of the competing vehicles as non-competing yachts keep off the course of a yacht-race.

GENERAL RESULTS.

The committee of the club in designing this trial have a strong hope that it will do very much to bring automobilism prominently before the public of this country; that it will, so to speak, force people to recognise motors, force people to think about them and to acknowledge their capabilities to cover long distances; to acknowledge they are not toys, but extraordinary creations which must eventually revolutionise the road. It is hoped, too, that the trial may show the pleasure to be derived from motoring; and, for that reason, it is most fortunate that there is a private owner's section, because the fact that private owners are taking part in the trial will show at once that there are great pleasures to be derived from driving a motor-vehicle. I feel sure that special interest will be taken in the voiturette class, the cheap little vehicle which first appeals to anyone taking up automobilism. There are a large number of voiturettes entered, and it will be of very great interest to see how suitable they are for real touring work as opposed to boulevard and park work.

Possibly the 1,000-Mile Trial may be a source of bitter disappointment to some whose vehicles may not prove successful. But there will be one consolation, viz., that the makers of and the agents for these vehicles will have their eyes opened to the defects of the vehicles, and the defects will be remedied, and we shall arrive sooner at the condition of having nothing but reliable vehicles on the roads. These tests of reliability must prove beneficial in this respect, and as Mr. Montagu said of racing, this competition of reliability will "improve the breed of motor vehicles."

It will be noted that no attempt has been made to arrive at the fuel consumption of the various vehicles. This can be satisfactorily arrived at by means of the 100-Mile Trials.

What, however, is far more important to automobilism at present is the matter of tires. We are, I believe, debarred from purchasing Michelin pneumatic tires, and no vehicle can be entered to represent this country in racing for the Gordon-Bennett cup unless the tires are constructed in this country. I am pleased to say that a set of pneumatic tires have been entered by the Clipper Pneumatic Tire Company for the trial, and although I believe these tires are not at present made in England they are to be constructed here very shortly. It will, therefore, be a matter of great interest to see how these tires wear over a distance of 1,000 miles. From the users', though not perhaps from the scientific point of view, the matter of tires is of far more importance than fuel consumption. If fuel costs halfpenny per mile pneumatic tires may be said to cost about 2d. or 2½d. per mile.

It was thought desirable that at the dinner held here to-night all people should be present who are interested in the trial; and we have, therefore, here to-night those whose good fortune it is to drive motor-vehicles as a profession, and those who have the misfortune to have other professions, and who have only an occasional opportunity of driving motors. We must look to the former class to shine conspicuously in proving the reliability of motor-vehicles in the forthcoming trial. I need scarcely add that if I can be of the slightest assistance to anyone connected with the trial, be he manufacturer, agent, owner, or professional driver, I shall be only too happy to do my best to help him.

I hope that now those taking part in the trial will ask any questions they wish concerning the interpretation of the rules, or concerning matters connected with the arrangements, but it must be borne in mind that it is too late to alter the rules now, therefore we cannot now discuss whether they are good, bad, or indifferent. I only hope that this paper and the discussion which may follow it may be of service to the participants of the trial.

In conclusion I must apologise for the rough condition in which this paper has been placed before you. I have had no time to "knock it into shape," for the reason I stated at the beginning.

Permit me to wish everyone connected with the trial success; that every vehicle may run through well; that the creations on which much money, time, and thought have been expended may satisfy their makers' highest hopes; that a spirit of sport and fair play will prevail throughout the trial, and that it may result in a very marked advance of automobilism in this kingdom.

THE 1000-MILE TRIAL.

THE start for this great trial will take place on Monday next from Grosvenor Place, Hyde Park Corner, W., the vehicles assembling at 6.30 a.m., and the "Drive" commencing at 7 p.m. precisely. The following is a complete list of the entries in the two sections into which the vehicles are divided:—

SECTION I. (Cars entered by Manufacturer or Agent.)		39	Century Tandem
Class A.	Cars declared at a selling price of £200 or less.	3	Motor Quadricycles, carrying two persons
	1 Benz Ideal	4	Ariel Quadricycle
	2 Benz Ideal		Ariel Tricycle with Whippet attachment
	5 Locomobile Steam Carriage	Class F.	Public Service Vehicles.
	16 Gladiator Voiturette	6	Motor Mfg. Company's Balmoral Char-a-banc
	18 Endurance Car	38	Daimler Public Service Vehicle
	19 Orient Express		
	27 New Orleans Car		
	28 New Orleans Car		
	29 Eureka Car		
Class B.	30 Eureka Car		
	33 Décauville	Class A.	Cars declared at a selling price of £200 or less
	34 Décauville	A25	Benz Ideal (Mrs. Bazalgette)
	42 3½ h.p. Voiturette		
	41 International Victoria	Class B.	Cars declared at a selling price of more than £200, but not more than £300.
	44 International Victoria	A18	6 h.p. Light Daimler (Mr. Copland)
	48 Humber Voiturette	A24	Mors Voiturette (Mr. Phillips)
	51 Star Voiturette	Class C.	Cars declared at a selling price of more than £300, but not more than £500.
	52 Roots and Venables	A2	6 h.p. Panhard (Mr. Butler)
Class C.	Cars declared at a selling price of more than £200, and not more than £300	A3	6 h.p. Panhard (Mr. T. B. Browne)
	10 M. M. Co.'s Princess Car	A5	Steam Car (Mr. Cyril Gooch)
	11 M. M. Co.'s Princess Car	A7	6 h.p. Daimler (Mr. A. Harmsworth)
	13 Ariel Panhard Voiturette	A9	8 h.p. Napier (Mr. Harvey du Cros)
	14 De Dion Voiturette	A10	8 h.p. Napier (Mr. E. Kennard)
	15 De Dion Voiturette	A12	6 h.p. Daimler (Mr. H. Edmunds)
	24 Marshall Carriage	A13	6 h.p. Daimler (Mr. E. Estcourt)
	31 M.C.C. Triumph	A15	5 h.p. Phaeton (Mr. R. M. Wilson)
	32 M.C.C. Triumph	A21	6 h.p. Daimler (Mr. E. Pitman)
	40 Wolseley Voiturette	Class C.	Cars declared at a selling price of more than £300, but not more than £500
Class D.	45 S. S. Carriage	A23	6½ h.p. Motor Mfg. Co.'s Phaeton (Mr. C. Cordingley)
	49 Marshall Carriage	A26	6 h.p. Daimler (Mr. C. K. Gregson)
	53 Wolseley Carriage	A30	6 h.p. Daimler (Mr. J. D. Siddeley)
		A31	6 h.p. Daimler (Mr. W. Exe)
		Class D.	Cars declared at a selling price of more than £500.
		A1	12 h.p. Panhard (Mr. J. E. Hutton)
		A4	8 h.p. Panhard (Mr. Mark Mayhew)
		A8	12 h.p. Panhard (Mr. A. Harmsworth)
		A11	12 h.p. Daimler (Hon. J. S. Montagu, M.P.)
		A17	12 h.p. Panhard (Hon. C. S. Rolls)
Cl. E (a)	Cars declared at a selling price of more than £500.		
	7 M. M. Co.'s 12 h.p. Phaeton		
	17 16 h.p. Napier		
	21 Lanchester Carriage		
	22 Lanchester Carriage		
	Motor Tricycles, carrying one person only		
	12 Motor Manufacturing Company's Tricycle		
	20 Simms' Motor Wheel		
	50 Renaux Tricycle		
	Motor Tricycle, carrying two persons		

Class D.	Cars declared at a selling price of more than £500.	Cl. E (a)	Motor Tricycles.
A19	12 h.p. Daimler (Mr. J. Hargreaves)	A16	Ariel Tricycle (Mr. A. J. Wilson)
A22	12 h.p. Daimler (Mr. J. A. Holder)	A20	Empress Motor Tricycle (Mr. H. Ashby)
A27	12 h.p. Daimler (Mr. J. Hargreaves)	Cl. E (b)	Motor Quadricycles.
A29	7 h.p. Peugeot (Mr. Mark Mayhew)	A28	Enfield Quadricycle (Mr. E. M. Iliffe)

MOTOR-CYCLE RACING.

WOOD GREEN.

THE Gamage Cycling and Athletic Club held a meet on the Wood Green track on Good Friday, when two motor events figured in the programme.

The five-mile motor-tricycle race ended in a win for Mr. Ford, in 8min. 39 2-5sec., from a flying start, the race resulting as follows:—R. Moffat Ford, Anerley, 1; C. Buck, M.M.C., 2; F. F. Wellington, Phebus Aster, 3.

In the five-mile motor-tandem race, T. E. Newman and F. W. Chase were first in 8min. 29 4-5sec., thus being ten seconds quicker than the motor-tricycle.

THE CRYSTAL PALACE.

Unfavourable weather doubtless lessened the attendance at the Crystal Palace on Easter Monday, but despite that an attendance of about 20,000 was credited at the motor and cycle races. In the former section Mr. Edmund Payne was the judge, Messrs. F. T. Bidlake and F. W. Baily being the timekeepers.

The first event was a five-mile handicap for roadster machines, in which the final order was as follows, the winner's time being 9min. 24sec.:—F. F. Wellington (Phebus Aster), scratch, 1; J. Cusins, two laps start, 2; C. Machin (Phebus Aster), scratch, 3. The race was won by half a lap.

The time of Mr. Jarrott in the ten mile scratch race was 15min. 39 4-5 sec., and he won by fifty yards, half a lap dividing second and third. C. Jarrott (Phebus Aster), scratch, 1; F. F. Wellington (Phebus Aster), 2; J. W. Stocks (Ariel), 3; S. F. Edge (Ariel) 4.

The chief event of the day was the contest for the Crystal Palace Brassard (value £110). Unfortunately the holder, Mr. C. J. Wridgway was an absentee, and there were only four entrants, viz., Messrs. C. Jarrott (Phebus Aster), R. Moffat Ford (Phebus Aster), J. W. Stocks (Ariel), and C. Sangster (Ariel). The first named went ahead from the start, and had little difficulty in winning by over two miles from Stocks. Sangster was a mile behind Stocks. The winner covered 38 miles 868 yds. in the hour, beating the previous British record by Bécconnais at New Brighton, viz., 37 miles 480 yds. The times of the winner were:—

Mls.	Time.	Mls.	Time.
1	1 30½	25	38 17½
5	7 40	30	46 13½
10	15 18½	35	54 16½
15	22 52½	38	59 11½
20	30 35½		

A feature of the meeting was the use by Messrs. Jarrott and Wellington of machines fitted with two motors in place of one. The motors are arranged side by side inside the rear axle; they are of the Aster air-cooled type, capable of indicating 3½ h.p. each, or a total of 7 h.p. This is the first time such high-powered racing motor-tricycles have been used in this country, although in France they are now quite common.

CATFORD.

On Easter Monday there was a large attendance at the Catford track when a five miles motor-bicycle race took place. E. A. Buck finished first in 11min. 26 4-5sec., winning by two laps, J. Lennard being second. J. Pugh also competed, but failed to finish.

PUTNEY.

On Monday the annual sports of the Putney Athletic Club were held at the Putney Velodrome, when A. Boon was successful in the five miles motor-cycle pursuit race.

BIRMINGHAM.

On Tuesday and Wednesday a motor-cycle tournament was held at Aston Villa Grounds, Birmingham, promoted by the *Bicycling News*. The attendance on Tuesday was fairly good, but fell off considerably on Wednesday. Fortunately fine weather prevailed, and some good racing was witnessed.

The results on Tuesday were as follows:—

One Mile Motor Tricycle Handicap.—Heat winners: S. F. Edge, scratch; A. C. Edge, 7sec.; J. Gibbons, walk over; fastest loser, C. Sangster. Final, A. C. Edge, 1; S. F. Edge, 2; J. Gibbons, 3. Won easily in ten lengths, the same distance dividing second and third. Time, 1min. 43 2-5sec. During this race occurred the only spill of the afternoon. That was owing to the steering gear of W. Dunn's machine going wrong round a curve, and coming into collision with the hoarding, causing the rider to turn a somersault among the spectators. He escaped any consequences more serious than a bruised wrist, and a boy on whom

he fell was less hurt than he was surprised. The tricycle itself was completely smashed.

Five-miles Motor Tricycle Handicap.—Heat winners: C. Sangster, 28sec.; G. Sangster, Ariel, 60sec.; J. W. Stocks, Ariel, scratch; fastest loser, G. Sangster. Final: C. Sangster, 1; Stocks, 2; A. C. Edge, 3. Won by half a lap. Time, 9min. 25 2-5sec.

Ten-miles Motor Quadricycle Match.—J. W. Stocks and another beat S. F. Edge and another by half a lap. Time, 21min. 14 3-5sec.

Ten Miles Motor Tricycle Scratch Race.—W. Dunn, 1; S. F. Edge, 2. Six started, but only Dunn and Edge finished. J. W. Stocks, after completing 7½ miles, was leading by a lap and a half when his machine went wrong, necessitating his retirement. Time, 17min. 48sec.

On Wednesday the following events were decided:—

Five Miles Motor Tricycle Handicap.—W. Dunn, 35sec., 1; S. F. Edge, scratch, 2; C. Sangster, 50sec., 3; J. W. Stocks, 25sec., 0. Stocks' tire deflated one and a-half laps from home causing his retirement. Time, 8min. 20 2-5sec.

One Mile Motor Tricycle Handicap.—J. W. Stocks, scratch, 1; W. Dunn, 7sec., 2; A. C. Edge, 7sec., 3. Time, 1min. 43sec.

Twenty-five Miles Motor Tricycle Match.—J. W. Stocks beat S. F. Edge by six yards, his time being 45min. 15 1-5sec.

Ten Miles Motor Tricycle Scratch Race.—J. W. Stocks, 1; G. Sangster, 2; W. Dunn, 3; A. C. Edge, 0. Time, 17min. 18 1-5sec.

FURIOUS DRIVING CASES.

At the High-Bailiff's Court in Douglas, Isle of Man last week, Mr. Henry Brackenridge, manager of the Motor-Car Company, was charged under the new Light Locomotives Act with running a motor-car along a street in Douglas at a higher rate than six miles an hour. The suit had been brought in the name of the Highway Board, but was altered to the name of Superintendent Boyd, the offence having been committed out of the jurisdiction of the Board. P.C. Acheson said that at twenty minutes to seven in the evening he saw the defendant driving down Victoria Street at a rate of ten or twelve miles an hour. He slackened speed when opposite the Shakespere Hotel. There was not much traffic at the time in the street. The defendant said he had no recollection of the occurrence, but it was probably correct what the constable said. He considered he should have been informed of the complaint at the time. Mr. Creer said that the constable could not run after the car. He did not press for a heavy fine, it being the first case under the Act. A penalty of five shillings and fees, or six days' imprisonment, was imposed.

Before the Eastbourne Borough Bench, the other day, David Charles McCann, an American visitor, was summoned for driving a motor tricycle on the Grand Parade, Eastbourne, at a furious rate. Chief Constable Plumb stated that he was on the Grand Parade, at the top of Victoria Place, at eight o'clock in the evening of the day named. He saw the defendant driving a motor tricycle up the parade at a most furious rate. He stopped opposite Devonshire Place, and witness then went to him, told him that such furious driving was not allowed, and took his name and address. Defendant was driving at about twenty miles an hour, and the machine made such a dreadful noise that it frightened a horse that was being driven on the Parade. In consequence of so many complaints being made to him witness again saw defendant on Wednesday night, and told him he should not allow him to use the machine in the streets again, and defendant promised not to do so. Defendant pleaded that he committed the offence in ignorance, as he did not know the laws of England. The Chairman said the magistrates were determined to put a stop to such machines being ridden at a furious rate. He would be fined 32s. in all.

THE Universal Motor-Carriage and Cycle Co., Ltd., London, E.C., is being voluntarily wound up.

MR. R. E. CROMPTON sailed for the front by the "Canada" from Southampton on Saturday.

THE young ladies of the Thompsonville (Conn., U.S.A.) High School having discussed the proposition "That the automobile is more useful than the bicycle" have decided in the affirmative by a large majority. What will become of the bicycle now?

A dinner of the Automobile Club will be held at the Agricultural Hall on Saturday evening, when non-members will be welcome as guests. The Right Hon. the Lord Justice Clerk of Scotland will read a paper on "War and Power Traction."

THE committee of the Midland Cycling and Athletic Club have decided, as an experiment, to include a one mile open motor-tricycle handicap for nominal value prizes at the first evening meeting at Aston, on Wednesday, May 9th.

MR. C. CLIFFORD POTIER, proprietor of the Service Motor Co., 292, High Holborn, London, W.C., informs us that he has taken extensive store-rooms and workshops at Sutton, Surrey, and that on and after the 24th inst. his business will be entirely carried on at Sutton.

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COMMENTS.



THE event of which so much has been heard in the automobile world for months past—the 1,000-mile Trial—is now in progress, and naturally our space this week is largely devoted to an account of some of the performances of the competing vehicles. On Saturday last the bulk of the cars put in an appearance at the Agricultural Hall, and were subjected to a minute inspection at the hands of the judges. All day the cars were the centre of attraction to visitors to the exhibition, they being particularly interested in the operations of the owners and drivers, many of whom devoted almost the entire day to making little adjustments to the cars ready for the start on Monday morning. Elsewhere accounts are given of the start from Grosvenor Place and of the tour from London to Bristol on Monday, and from the latter city to Birmingham on Wednesday, together with reports from observers at some of the leading places passed through. At Bristol and Birmingham day exhibitions of the Trial cars were held, these being largely visited by country people and others interested in the latest method of locomotion. This morning an early start is to be made for Manchester, and should the fine weather of the past week continue there is every probability of the whole Trial proving a great success.

Sir Francis Jeune on Automobiles.

THE exhibition at the Agricultural Hall closed in a pleasant fashion, the Automobile Club holding a house dinner, over which the Right Hon. Sir Francis Jeune presided. His lordship made a splendid speech—one of the best we have ever heard on the subject of automobilism. He referred to the threefold aspect in which the matter might be considered—the healthy interests associated with the sport, its commercial utility, and the development of a great industry. From that he went on to dilate on its pleasures, and the expansive influence it had upon the minds of even those whose love for the country and country landscape was all too latent. Who would have dreamt, said the speaker, that living out in a country place, say, ten miles from a railway, one could pay a visit to a friend thirty miles away, lunch, and get back home to a cosy little tea, and a pleasant evening after—all in the same day? That was what automobilism enabled them to do in the way of sociability. He had had a tiring journey some time ago by train from London to Doncaster—trains were very wearisome at times—and his fellow-passenger, towards the end of the long journey, and not till then, evinced an evident desire to speak to him, but for some reason did not do so at once. At last he said, "There is a wide expanse of land this way, sir," a remark which he (Sir Francis) thought seemed to border on the obvious. His view was restricted by the conditions of railway travelling. It required a tour by motor-car to reveal the glories of the country.

War and Power Traction.

ELSEWHERE we publish practically the whole of the paper read after the dinner. It is really a valuable contribution to the study of automobilism and warfare, and had time permitted a useful discussion might have resulted. But time was limited, and after a few words from Major Holden, Sir M. Clark, Mr. Muirhead, and Colonel Magrath, in proposing and supporting a vote of thanks to the Lord Justice Clerk of Scotland for his able paper, the debate was adjourned.

Educating Horses.

IN addition to the usual qualifications of horses they are now expected to be guaranteed as to their good behaviour in the presence of motor-vehicles. Horse buyers should insist on that point, especially as automobilists are extremely willing to give facilities for the education of horses. Mr. H. Broadhurst, 75, West Hill, St. Leonards, has made a good suggestion for the benefit of the people of Hastings to which we give extended publicity. He says: "As motor-cars are likely to become more numerous in the future, and nearly all seaside towns have been running them for public hire—I would mention Bournemouth, Worthing, Brighton, Eastbourne, Folkestone, Lowestoft, and many others—I fear horses will have to get used to them. I would suggest that if sufficient support will come forward to defray the expense, I will have a motor-car in some suitable place, where horses may be sent to be trained to take no notice of it. People may send their own coachmen, or I will have a qualified man to ride or drive them. I think, after a few lessons and kind treatment, they would take no more notice of them than they now do of bicycles. Everyone on selling his horses likes to say they are not afraid of motors."

A Norwich Offer.

AT Norwich, too, horse owners are to have an opportunity of accustoming their horses to the automobile, for Messrs. Hayes, Thompson, and Kahler of that town have written to the local paper stating that they are willing to use either of their cars for a short period any morning before eleven o'clock for the purpose of educating or accustoming horses to them. They add: "Usually one or two lessons, such as allowing a horse to look at and walk around a car whilst at rest, then whilst a motor is at work, and finally to run the car round the animal, will teach any horse that a motor-car is nothing to be afraid of. Horses are possessed of such intelligence that, given a fair opportunity, they will quickly find this out for themselves."

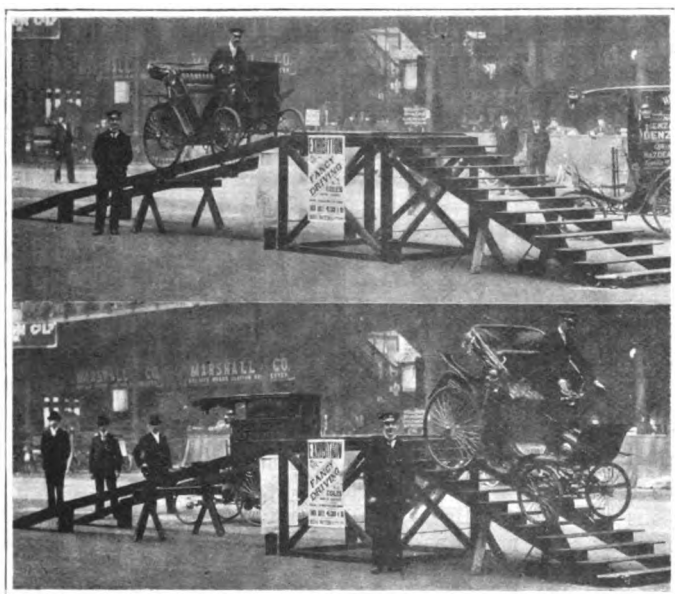
Touring in Northern Africa.

THERE would appear to be quite a rage for automobile touring in the French colonies of Northern Africa, for in addition to the voyages made of late by Baron Pierre de Crawhez and M. Arch-deacon, not to mention the names of many less notable *chauffeurs*, no less a personage than the Prince d'Orleans has recently been indulging in long drives on African

soil, and from the times recorded it would seem that in Tunis, the scene of his exploits, the roads are considerably better than those of Algeria, over which the previously named automobilists had driven. The Prince, accompanied by the Comte de Brettes, was driving a 12 h.p. car, and after leaving Tunis he travelled by way of Sousse and Sfax to Kairouan, so gaining the distinction of being the first automobilist to make the journey. The 140 kilomètres (87½ miles) separating Tunis from Sousse was effected in three and a-half hours, representing an average speed of 40 kilomètres (25 miles) per hour, while this performance was excelled on the return journey from Sfax to Tunis when the 294 kilomètres (183¾ miles) between the two towns were covered in seven hours, or at the rate of 42 kilomètres (26½ miles) per hour. When such performances can be achieved there cannot be anything very radically wrong with the condition of the roads, and Algerian tourists might do worse than make a few excursions in the sister colony.

Municipal Authorities and Motor-Vehicles.

THE step taken by the Chelsea and several other vestries in the London district in adopting motor-wagons is being watched by the Kensington Vestry, whose Wharves and Plant Committee is, however, not yet prepared to recommend the adoption of mechanical traction for carrying out the work of the parish. The experiments now being made by other public



MR. E. J. COLES PERFORMING IN THE ARENA AT THE AGRICULTURAL HALL.

authorities are, however, to be closely watched, with a view to future action if successful.

Touring in Wales and the West.

THE "Contour" road maps are recognised by automobilists as essential to the pleasures of motoring, and the new volume covering Wales, the Midlands, and the south-west counties is quite up to the standard. The total mileage of the roads "contoured" in this handy little book is 9,500, and the descriptions, gradients, and measurements have been supplied from original sources, the information being obtained personally by Mr. Harry R. G. Inglis in a survey of each district. The volume is published by Messrs. Gall and Inglis, and contains 500 maps and plans. The whole area covered by the book has delightful scenery, and some of the roads are of the steepest. Fortunately the main roads are excellent; otherwise cyclists and motorists would probably be compelled to leave much of the district alone. Nine English cathedrals and half a dozen Welsh castles are included in the itinerary.

A Projected Trans-American Highway.

THE Automobile Club of America held its first dinner on April 2nd in New York. The special object of the occasion was to start the agitation for a trans-continental highway. About a hundred persons were present, and resolutions were adopted which began by proposing a route from Portland (Me.), through Boston, Albany, Syracuse, Rochester, Buffalo, Niagara Falls, Erie (Pa.), Cleveland and Toledo (O.), Adrian and Coldwater (Mich.), Elkhart and South Bend (Ind.), Chicago, Davenport, Des Moines and Council Bluffs (Ia.), Omaha, Lincoln and Hastings (Neb.), Denver, Salt Lake and Sacramento to San Francisco. A southern branch from St. Augustine through Savannah, Charleston, Richmond, Washington, Baltimore, Philadelphia and New York to Albany, and a Pacific Coast branch from Seattle through Portland (Ore.) and San Francisco to Los Angeles was likewise proposed. The resolutions further recommend that the United States Congress be petitioned to authorise a survey of the route named, such survey to be performed in four sections, and if possible within four years, the section between Boston and Chicago the first year, that between Chicago and Omaha the second year, that between New York and St. Augustine the third year, and the remaining portions the fourth year. It was proposed that the expense be met, one-third by Congressional appropriation, one-third by the States for those portions lying within their respective boundaries, and one-third by the counties, towns, and cities through which the road should pass, the owners of the property benefited to be asked to donate the right of way. The need of ample width and of the avoidance of curves, to meet the conditions of automobile travel at high speed, was dwelt upon, and a right of way of 120ft., with road width (for the present) of half that, was recommended. The speeches after the resolutions were adopted dwelt on the benefits of the proposed highway, not to automobilists alone, but to farmers and the countryside in general.

Motor-Cars and Cemetery Walks.

CEMETERIES are now being closed to automobilists in the United States. We do not mean that they may not be buried there; but that they may not pursue their pastime along cemetery walks. At the main entrance to the Forest Hills Cemetery, Boston (Mass.), a notice has been posted to the effect, "Automobiles not allowed in this cemetery," thus placing motor-cars in the same category as dogs and perambulators. Even automobilists, it is complained, who wish to visit their own graves, have to leave their vehicles at the gates and proceed to their destination on foot. Why this should be accounted a hardship we cannot understand. True the automobile is going ahead in this country, but we have never yet seen a motor-car in a burying ground. Possibly the directors of this particular American cemetery have visions of automobile funerals, for which even the most enthusiastic British motorist is not yet prepared.

Lectures on Motor-Cars.

MR. SHRAPNELL SMITH, Mr. J. H. Knight, and other gentlemen have given lectures on automobilism to various societies illustrating their addresses by lantern slides. But for the fact that the War will probably be the only topic likely to draw large audiences during next winter's lecturing season we would have suggested that the extension of the lecture idea would have been a good means of popularising the motor-car. At the New York Athletic Club such a lecture has just been given, and the discourse was followed by a demonstration of electric vehicles in the gymnasium.

PHILADELPHIA is to have an Automobile Club, a provisional committee having just been appointed.

ARRANGEMENTS are in hand at Frankfort-on-the-Main for the holding of a motor-car exhibition during the coming summer.

A FIVE-MILE scratch motor-tricycle race is included in the list of events to be run off on the Catford track on Saturday, the 5th May.

The Automobile Club's 1,000-Mile Trial.



MUCH has been done to demonstrate to the British public the steady, substantial, and safe advance that automobilism has made since Parliament softened the severity of its attitude towards road traction. The tours of isolated motorists, the opposition of local authorities, the long runs of some of the best known enthusiasts, the discussions at the Automobile Club, and the annual trips to Brighton have each had their share in educating the public, while the Commercial Efficiency Trials in connection with the Motor-Car Exhibitions of 1899 played an important part in showing the capability of the modern motor. Such efforts did much; but it has long been felt by ardent automobilists that some greater task organised on a very complete scale would have to be undertaken if a really great impetus was to be given the industry and the sport.

In France and Belgium that filip has been found in racing at fearful speeds along the high roads to the accompaniment of official bands and with the assistance of the police authorities. The result has been the apparent popularisation of the automobile as a means of sport and the development of high-speed cars specially designed for record making. At length the risks have become so great that even the most enthusiastic *chauffeurs* are beginning to wonder as to the utility of it all, and the authorities, becoming alarmed, have decided to curb the pace of the daring riders. Fortunately in England no such venturesomeness has manifested itself; the organisations which are specially concerned with motor-car matters have wisely dis-
countenanced road racing, and although there may be a few



THE 1,000-MILE TRIAL CARS IN THE ARENA AT THE AGRICULTURAL HALL ON SATURDAY LAST.

foolish people who regard high speed as the only possible delight when motoring, it cannot be denied that the great majority of motorists are satisfied, as Sir Francis Jeune well remarked at the Automobile Club's dinner last Saturday, with the view of the country as seen from the motor-car travelling at a fair and reasonable pace.

Bearing this in mind, the Automobile Club decided to organise a tour upon lines which would be most likely to appeal to the practical character of the British people. It was to test the temper, patience, and skill of the drivers, no less than the construction and design of the cars taking part in the test. Instead of great speed over specially selected roads of an uniformly level surface, it was intended to show that the cars could successfully make daily runs aggregating 1,000 miles in a certain number of days. A car which could go through such a trial should be more suited

for ordinary pleasure or commercial purposes than one designed merely for speed. Thanks to the enterprise of the manufacturers and agents engaged in the automobile industry in this country, and also to the sacrifice of time and money on the part of several private owners, the organisation of such a Trial has been possible, and on Monday it commenced. Out of eighty-four motor-vehicles, including tricycles, which had been entered no fewer than sixty-four actually started. A variety of circumstances must be held responsible for the absence of the remaining score, the most regrettable being the serious accident which happened to M. Déchamps, on the road between Brussels and Antwerp, last Friday night. He was bringing his car to England for the Trial, but owing to an accident which resulted in smashing up the car and rendering M. Déchamps unconscious, the entry had to be cancelled.

In the pages which follow we chronicle the doings in connection with the Trial up to yesterday (Thursday) in a series of contributions dealing with the scene at starting, the chronicle of a correspondent taking part in the Trial, the reception at the leading towns, the various exhibitions and the journey as far as Birmingham, together with many interesting experiences and incidents on the way. Next week the same method of recording the Trial will be developed and amplified, so that our issues during May will form a complete record of the greatest event in the automobile world during the present century, thus fittingly preparing the way for the automobile industry to become a permanent and progressive British business in the era which will shortly begin.

THE ITINERARY.

In order that readers may conveniently follow each day's doings we give an itinerary showing also the places at which exhibitions will be held.

		Miles.
April 23	London to Bristol	118½
" 24	Exhibition at Bristol	
" 25	Bristol to Birmingham	92½
	Three hours' exhibition at Cheltenham	
" 26	Exhibition at Birmingham	
" 27	Birmingham to Manchester	110
	Hill Climbing of Taddington Hill	
" 28	Exhibition at Manchester	
" 30	Manchester to Kendal	73½
	Hill Climbing up Shap Fell	
	Exhibition in the evening	
May 1	Kendal to Carlisle	61½
	Hill Climbing on Dunmail Raise	
	Exhibition in the evening	
" 2	Carlisle to Edinburgh	100
	Hill-climbing on Birkhill	
" 3	Exhibition at Edinburgh	
" 4	Edinburgh to Newcastle-on-Tyne	121½
" 5	Exhibition at Newcastle	
" 7	Newcastle to Leeds	103
	One hour exhibition at York	
" 8	Exhibition at Leeds	
" 9	Leeds to Sheffield	74
	Three-hour exhibition at Bradford	
" 10	Exhibition at Sheffield	
" 11	Sheffield to Nottingham	82½
	Racing in Welbeck Park	
	Two hours' exhibition at Lincoln	
	Evening exhibition at Nottingham	
" 12	Nottingham to London	123½
	Vehicles proceed to the Crystal Palace	
" 12-19	Exhibition at Crystal Palace	
	Total	1,060

THE START.

BY AN OCCASIONAL EARLY RISER.

ENERGY and early rising are characteristic of the motor-car and the motorist alike. Such was my reflection on arriving at Grosvenor Place shortly after six on Monday morning. I found a score of enthusiasts were already there, and cars were arriving simultaneously with the morning milk. The morning was rather dull, and a chilliness was in the air—not the chilliness that comes upon us at night, but that curious condition associated with unaired things—whether clothes or thoroughfares. Policemen were less stolid than usual, workmen lingered on their way to work, and milkmen glanced from the housemaids on the one side to the curiously-garbed creatures formed into chatty groups on the other. It was a sight such as is not often seen. In fact, it has never occurred before, and only early risers are destined to see such an affair in the future.

It was evident something unusual was about to take place. Sandwichmen stood in the gutter bearing aloft banners—journalistic licence thus honours the commonplace boards of the advertiser—with the device “Class A,” “Class B,” and so on through the first five letters of the alphabet. Close scrutiny revealed the fact that these letters were duplicated, and that each bore a further reference to Section I. or Section II. On the pavement chalk marks were being made to indicate the positions to be assumed by the cars on their arrival, and from six to seven Mr. Lyons Sampson, Mr. H. J. Mulliner, Mr. C. Johnson, and other officials had a busy time in seeing that proper positions were occupied. Apart from the cars the greatest interest was taken in the raiment worn by the intending passengers, of whom there were about 200, with almost as many varieties of clothing, for certainly no two complete suits were alike. The headgear was equally varied and distinctive. One gentleman seemed to have distorted a flat piece of felt into some form resembling a cross between a billycock and a pie-dish, and was content. Others wore fishermen’s caps; the majority were seen under leather caps of different shapes and styles, and only a few kept to the ordinary bowler. As to jackets, they ranged from leather to fur and back again, in varying gradations, from fur to leather. Evidently there is no correct “fashion” in automobile attire, and even the Frenchmen who came over as though prepared to journey to the North Pole did not wholly satisfy the popular fancy. Altogether it was a kaleidoscopic scene, as the strangely-attired persons flitted about from one car to another, full of interest. Of course, all the prominent motorists of the country were there. Among amateurs the Hon. J. Scott Montagu, M.P., and the Hon. C. S. Rolls were recognised by the crowd, while a little crowd gathered around Captain Langrishe on Mr. Alfred Harmsworth’s Daimler. Messrs. J. A. Holder, J. Hargreaves, J. D. Siddeley, C. K. Gregson, C. Cordingley, E. Pitman, H. Edmunds, R. E. Phillips, and T. B. Browne were early astir, as was also Mr. S. F. Edge, who was to drive Mr. Kennard’s 8-h.p. Napier, and Mr. Frank H. Butler, the hon. treasurer of the Automobile Club, on his new 6-h.p. Panhard, having his daughter as one of the passengers. There were only a few ladies about, Mrs. Mann and Mrs. Friswell, with their respective husbands, and Mrs. Bazalgette, on her own car, being the best known.

Right up to the stroke of seven cars were arriving, one electric cab having specially honoured the occasion with its presence reminiscent of a score of others seen on London streets some months ago. Cyclists were plentiful and policemen polite, with the result that a clear way was made for the cars, which made a good show as they went round the corner of St. George’s Hospital. However new and novel may have been the appearance of the cars to the general public, the majority were all familiar to those who have faithfully followed the pages of this journal. So far as I could see, the only vehicles that started, and which had not previously been illustrated and described in these columns, were the new Georges Richard car, the Daimler public service char-à-banc (the latter having one of the few ladies taking part in the tour for a passenger), and the S. S. car, which had been kept as a kind of “dark horse”—another journalistic licence. Elsewhere in these columns this week will be found illustra-

tions of the former vehicle, while the momentary glance I had of the S. S. Motor Company’s vehicle on its arrival at Grosvenor Place showed that it was a four-seated car, fitted with wheel-steering and detachable body. The engine is a single cylinder one of 5½-h.p., the transmission being effected by gear wheels. The vehicle is fitted with three speeds forward—4, 10, and 20 miles per hour—and reverse motion.

Standing at the corner of St. George’s Hospital, and closely wedged between a full round policeman and a fair cyclist, I saw only the cars as they sped by. First came Mr. Hewetson on his Benz; then Mr. Coles, even more at home on the road than on the stage; then, in rapid succession, came the rest of the vehicles in Class A, the only non-starter being the Humber voiturette and one of the New Orleans cars, which, however, strolled along later and made a good start all to itself. With only a minute’s interval between, Class B followed the first fleet, and here the Princess cars and the Ariel Panhard voiturette were missing, the new S. S. carriage, the Renault cars (known in this country as the M.C.C. Triumphs), De Dion voiturettes, and the Wolseley and the Marshall cars—the latter driven by Mr. J. J. Mann—forming the rest of the contingent. Class C came along well, and proved one of the most attractive sections to the public, the number of passengers carried by most of the vehicles demonstrating the practical nature of the section. Mr. A. Burgess drove the Motor Manufacturing Company’s 6 h.p. phaeton, and was closely followed by the Brown-Whitney steam car, which had attracted much attention during the exhibition at the Agricultural Hall. Hardly had I saluted Mr. Albert Brown and Mr. Banks, who were aboard, when some well-known cars rounded the corner almost together, only allowing one to recognise such well-known faces as those of Messrs. Friswell, Critchley, Pedley, and Richardson, all apparently setting out on their long pilgrimage with lightness of heart and ease of mind. The cheerfulness of the passengers was, in fact, very noticeable—a condition probably based on the thorough overhauling of the cars which had taken place in the preceding hours. So anxious were the owners of cars to have everything in a perfect state for the start, that some had stayed up through a good many hours of the night attending to mechanism and generally looking to their cars. Such devotion deserves success.

Alas! for the curiosity of the public. It overwhelmed several journalists on Monday morning, and despite the way in which the police backed on to frail toes and smiled pleasantly if caught in the act, the crowd pushed outward from the kerb. I lost the protection afforded by the cycle of the spectator already referred to, and while engaged in preserving equilibrium missed some of the quadricycles and tricycles that I had seen standing idly in Grosvenor Place half an hour before. I did not, however, miss the Daimler public service vehicle driven by Mr. Straker. Then followed in rapid procession the privately-owned vehicles whose owners have already been mentioned, Mr. Grimshaw driving the Daimler car of Mr. Hargreaves, and Mr. Johnson being in charge of the wheel on Mr. Exe’s phaeton.

The long procession, which had only taken twenty minutes in passing, was brought to an end by Messrs. A. J. Wilson, H. Ashby, and E. M. Iliffe, the two former on tricycles and the latter on an Enfield quadricycle. One notable motorist was absent, and I turned round into Grosvenor Place to see if any laggards were about. There was the wagonette of the Thames Valley Motor-Car Company full of baggage, and suddenly Mr. Mark Mayhew, L.C.C., came into view. He was rather late, but he was going well, and seemed likely to quickly overtake some of the earlier starters. After I had left the scene, yet another competitor appears to have put in an appearance and to have gone on the journey to Bristol.

Several vehicles were about which intended to go part of the way, these including the Delahaye; but Dr. Lehwess and Mr. Weigel were the most prominent on their Vallée racer, which doubtless regarded the course as rather tame. And when the cars had gone the crowd dispersed to its work, having had a new education and an object lesson in what will, in a few years, be regarded as quite commonplace, viz., the advantages of motor traction over horses. Not a car “jibbed” at the start; every vehicle went off at the word of command, and it was clearly

demonstrated that if the motor-vehicle has come to stay, it has also come to go.

The following is a complete list of the cars that started from Grosvenor Place:—

SECTION I. (Cars entered by Manufacturer or Agent.)		Class F. 38	Daimler Public Service Vehicle
SECTION II. (Privately owned Vehicles.)			
Class A.		Class A.	
1 Benz Ideal		A25	Benz Ideal (Mrs. Bazalgette)
2 Benz Ideal			
5 Locomobile Steam Car		Class B.	
16 Gladiator Voiturette		A24	Mors Voiturette (Mr. Phillips)
18 Endurance Car			
19 Orient Express		Class C.	
27 New Orleans Car		A2	6 h.p. Panhard (Mr. Butler)
28 New Orleans Car		A3	6 h.p. Panhard (Mr. T. B. Browne)
29 Eureka Car		A7	6 h.p. Daimler (Mr. A. Harmsworth)
30 Eureka Car		A10	8 h.p. Napier (Mr. E. Kennard)
33 Décauville		A12	6 h.p. Daimler (Mr. H. Edmunds)
34 Décauville		A21	6 h.p. Daimler (Mr. E. Pitman)
42 3½ h.p. "Hurlingham"		A23	6½ h.p. Motor Mfg. Co.'s Phaeton (Mr. C. Cordingley)
41 International Victoria		A26	6 h.p. Daimler (Mr. C. K. Gregson)
44 International Victoria		A30	6 h.p. Daimler (Mr. J. D. Siddeley)
51 Star Voiturette		A31	6 h.p. Daimler (Mr. W. Exe)
52 Roots and Venables			
Class B.		Class D.	
14 De Dion Voiturette		A4	8 h.p. Panhard (Mr. Mark Mayhew)
15 De Dion Voiturette		A11	12 h.p. Daimler (Hon. J. S. Montagu, M.P.)
24 Marshall Carriage		A17	12 h.p. Panhard (Hon. C. S. Rolls)
31 M.C.C. Triumph		A22	12 h.p. Daimler (Mr. J. A. Holder)
32 M.C.C. Triumph		A27	11 h.p. Daimler (Mr. J. Hargreaves)
40 Wolseley Voiturette		A29	7 h.p. Peugeot (Mr. Mark Mayhew)
45 S. S. Carriage			
49 Marshall Carriage		Cl. E. (a)	
Class C.		A16	Ariel Tricycle (Mr. A. J. Wilson)
8 M. M. Co.'s 6 h.p. Phaeton		A20	Empress Motor Tricycle (Mr. H. Ashby)
9 M. M. Co.'s Iveagh Phaeton			
23 Brown-Whitney Steam Car		Cl. E. (b)	
26 8 h.p. Peugeot (Friswell's)		A28	Enfield Quadricycle (Mr. E. M. Iliffe)
35 6 h.p. Daimler			
36 6 h.p. Daimler			
37 Daimler Parisian			
43 L. M. V. and Wagon Co.'s Phaeton, 5½ h.p.			
46 Richard Car			
47 Richard Car			
Class D.			
17 16 h.p. Napier			
21 Lanchester Carriage			
22 Lanchester Carriage			
Cl. E. (a)			
12 Motor Manufacturing Company's Tricycle			
20 Simms' Motor Wheel			
Cl. E. (b)			
3 Ariel Quadricycle			
4 Ariel Tricycle with Whippet attachment			

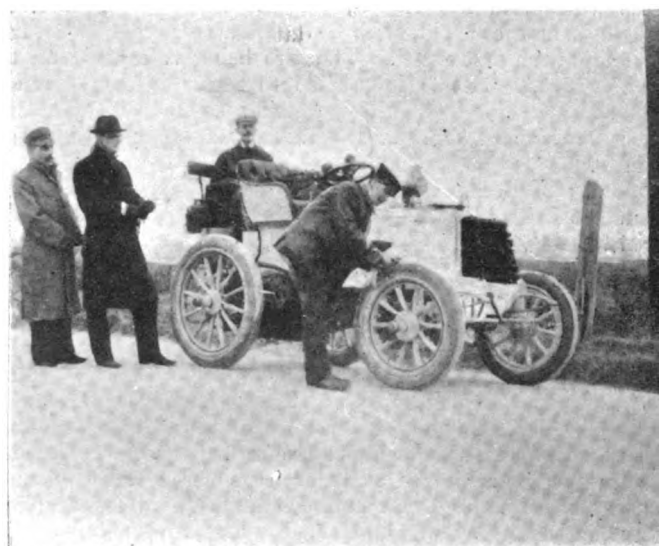
ultimately finding the hare-like cars stationary by the roadside, their passengers attempting to play the part of the philosopher while waiting for the repair of a punctured tire—or something equally annoying. One driver was seen calmly smoking his cigar while the axle of his car cooled after firing.

If I were asked for the dominant feature of the ride from London to here I should say, "Dust." It was everywhere, and we got more like millers as the day was gone through, until rain came after passing through Bath.

Leaving Hounslow we quickly came upon a "Star" car by the wayside, and soon after passed a second vehicle. Between



A SNAPSHOT AT HOUNSLOW CONTROL.



THE HON. C. S. ROLLS AND 12-H.P. PANHARD CAR AT HOUNSLOW.
Photos. by [Mr. Clarence Knight Gregson.]

ON THE LONG PILGRIMAGE.

BY OBSERVER.

BRISTOL, MONDAY.

AFTER a busy day one hardly feels in the humour of sitting down and detailing the incidents that have made St. George's Day, 1900, memorable in the annals of automobilism. There has been plenty to interest those who have had the good fortune to be members of the pilgrimage, but to give a connected story of what Mr. Mark Mayhew calls a "drive" would be well-nigh impossible. The cars have passed and repassed all day, reminding us very much of the fable of the hare and the tortoise, the occupants of the swiftly travelling cars smiling on those whose vehicles were of slower progress as they went ahead. But these tortoises have often been able to laugh in return as they have steadily pursued their way,

the thirteenth and fourteenth milestone the "Endurance" car was left behind, and before another two miles had been covered saw two "Eurekas" and a "Decauville" returning to town. Mr. A. J. Wilson then went ahead on his motor-tricycle, and I had the road practically to myself—save, of course, for the occupants of my car—until a level crossing was reached, where, owing to the gates being shut, eight other vehicles were grouped. Starting very well together a veritable cloud of dust was caused—such a cloud as could be seen, felt, and chewed. It tickled one's eyes, settled on the tongue, and clung with glue-like tenaciousness to one's garments. Even the most highly polished leather suits received

a whitened and chastened gloss, while fur coats and jackets became heavy with dust and sand. But that is one of the delights and novelties of motoring on a fine day on a good hard road. And so on till Colnbrook was reached, when the merry group broke up and each car became concerned only with its individual performances.

So far the appearance of the roads had been quite as interesting to the travellers by motor-car as mere sightseers on foot. The whole countryside seemed to have turned out, and men, women, and children cheered the vehicles as they sped by. Evidently public interest had been fully aroused, and as much attention was given to the costumes as the cars. Before entering Slough two more cars were descried resting by the way, and the Twin Daimler of Mr. J. A. Hargreaves, driven by Mr. Grimshaw, was passed. As we neared the town several cars came into view, and just beyond Slough our car came up with the Daimler char-à-banc, having passed a De Dion voiturette and a Benz car while the Twin Daimler had gone ahead. Arrived at the toll-gate, Maidenhead, about a dozen cars were waiting to pass through, and Mr. C. Johnson came up driving a Parisian Daimler. In passing through this pleasant riverside town the wisdom of limiting speed was seen, as the cattle which happened to be about seemed rather restless at the approach of our cars. Shortly after leaving Maidenhead Mr. Jarrott went to the front, and Mrs. Bazalgette, the only lady entrant, came along. The Wolseley car, stationary in the road with a chain off, was an object of much solicitude. Going ahead of the Twin Daimler we passed Mr. Herbert Ashby on his Empress motor-tricycle on the thirtieth milestone, and then the Twin repassed us, and was seen no more till we got to Bristol in the evening. In the town of Reading two of the M.C.C. Triumphs were seen, but breakfast was ahead, and few stayed to inquire how they were getting on. From Reading the trip to Calcot Park was short and enjoyable, and there Mr. Alfred Harmsworth royally entertained his fellow automobilists. Leaving Mr. Harmsworth, the cars had a straight run to Newbury, from whence a clear eight miles spin took us to Hungerford, where the hilly roads became noticeable, the roads up to that point having been fairly level. About eight miles from Reading the new vulcanised flat rim of the driving wheel of Mr. C. Cordingley's new car split, with the result that he had to return to Reading on the first speed. The tire being vulcanised on to the rim it was, of course, impossible to repair it on the road, and he had to return, ultimately getting to Bristol by train. Offers of assistance were made—but all, unfortunately, were unavailing.

By way of Beekhampton, Calne, Chippenham, and Bath we proceeded to Bristol, where cheering crowds welcomed the dusty motorists.

BIRMINGHAM, Wednesday.

More than fifty cars left Bristol for the second day's journey on Wednesday, and although rumours had been frequent as to the obstructive tactics being pursued by the police, it was quickly seen that nothing of the kind was intended, and we were all glad to find the authorities recognise the caution with which the Trial was being got through. On the way several stiff hills were encountered and some very fine performances were made, the New Orleans voiturette going extremely well. The morning was cold and grey, the sky betokening rain, and collars being almost universally turned up. Getting into the country lanes trouble was experienced on many cars owing to difficulties with the lamps, that on my car giving trouble for two hours—trouble and nothing else. The general difficulties were, it was suggested, owing to the inferior quality of the petrol obtained on the way. At Thornbury the Daimler char-à-banc broke one of its burners and passed us completing the journey to Cheltenham on a single cylinder. Incidents, however, were few, and save for missing breakfast at Gloucester the run into Cheltenham was uneventful. There, however, was a warm welcome and successful exhibition in a fine building which does credit to the town. The motorists left Cheltenham in fine style. Great delay, however, took place at the controls, and those townsfolk who had ventured thus far saw an exhibit of cars lining the road. We had a fine run to Worcester, the roads being in splendid condition. In fact, that has been one of the characteristics of the trip so far. The

result was seen in the fact that forty of the cars reached the city in the "control" time. There Mr. Alfred Bird joined the party. There was hardly time for tea at Worcester, through which city we passed with difficulty. This place was more crowded than any on the journey, and the enthusiasm was great. Unfortunately the tire on Mr. Hargreaves's car came off here. Resuming the journey to Birmingham, the air became colder and colder, and leathers, oilskins, furs, and other clothing were very necessary indeed.

SOME EXPERIENCES.

A Costly Trip.

MOTOR-CAR trials extending over 1,000 miles cannot be performed without financial resources. There are more than sixty vehicles engaged—representing a value of considerably over £20,000. So much for the first cost; then drivers have to be paid and lodged for three weeks; there are 200 passengers, whose expenses will probably be, at a minimum, 30s. each, a total of £300 a day, although £400 would be nearer the mark. So that in twenty days their expenses should total about £8,000. Add to this the wages, hotel expenses, etc., of mechanics, which will not be far short of £500 during the three weeks. Stabling, petrol, repairs, etc., have to be added, to say nothing of the time of business men. Hotel-keepers should welcome a repetition of the event at an early date, for such enterprises will materially increase their revenue between seasons.

Hodge Surprised.

THE first day's journey was entirely through agricultural districts, Reading being the only centre of real industrial importance passed through. At many points the hedges seemed as thick with faces as with bloom, the labourers leaving their ploughs and watching the passage of the motors with amused interest. At dinner-time in the fields some of the cars had a pleasant reception, the girls who had evidently taken the dinners to the labourers having, in many places, filled their aprons with buttercups and daisies, with which they pelted the travellers. Boys were less considerate; their attentions were chiefly vocal—and may be imagined.

Baggage Cars.

THOSE engaged on the Trial are like an army depending on its mobility for commissariat. There are only two luggage cars going the journey, and both of these are certainly keeping up well. One is heavily laden with the luggage of the Daimler party, and the other is the wagonette of the Thames Valley Motor-car Company, which is in attendance on the passengers of the New Orleans voiturettes. This car apparently carries every luxury of civilisation, even to a silk hat—an object of much curiosity when first seen, and one which led to the hope of a solution of the problem as to how to carry a top hat on a motor-car. This is a problem indeed. We accommodated a friend's bowler on our car, but, alas! for the frailty of bowlers. Its identity is beyond recognition, but it is the same bowler, as we are quite willing to guarantee.

Everyone at Work.

THERE seems a thorough enthusiasm on the part of all engaged in the run to get through without mishap. Not only are the owners, manufacturers, and drivers anxious that everything shall be prepared each morning for a successful run throughout the day, but ordinary passengers are quite as wishful for success. A fine sight it is to see every morning master and man both in overalls working at their cars overhauling every part, and taking every possible care that nothing shall be found faulty during the day's run. This general interest in mechanical details shows how strong is the enthusiasm for the sport.

The Exhilaration of Motoring.

HOTEL-KEEPERS on the line of route will long remember the appetites of those who ventured upon the 1000-mile Trial, as well as the dusty appearance of the travellers. Fastidiousness about looks and great concern for the neatness of one's attire are matters about which the automobilist knows nothing; and while wonder may be expressed at the strangeness of some of the garments, greater wonder would be felt at the sight of a man who ventured on a hundred miles' run in silk hat and frock coat. Although most of the party had been up from six o'clock in the morning till nearly midnight, there had been no complaints of fatigue. The effect of the trip on jaded mortals is as exhilarating as a sea voyage, and those who felt run down at the beginning of the tour should feel remarkably well braced up at its conclusion.

train for Bristol, where he found thirty-six cars had arrived. A complete set of new wheels arrived on Tuesday, and these having been fitted, the car was driven to Bristol and the journey to Birmingham completed on Wednesday in good style.

A Daimler Carries the Standard.

ONE of the 6 h.p. Daimler phaetons was driven by Mr. Percy Richardson, who had with him the Lord Justice Clerk for Scotland, and Colonel Magrath, an engineer, and a correspondent of the *Standard*. Everything went well, and the descent from Savernake Forest (where Mr. Pedley had his memorable drive through the snow) into Marlborough was accomplished with ease. At Marlborough our photographer took the snapshot given elsewhere—in which the gallant Colonel appears 'on guard.' The steep ascents after leaving Chippenham were



THE CARS AT CALCOT PARK (MR. ALFRED HARMSWORTH'S RESIDENCE), NEAR READING.

[Photos, by]

[Mr. W. H. Taylor]

Mr. Cordingley's Car.

ABOUT eight miles from Reading the failure of the tires on the driving-wheels of Mr. C. Cordingley's car led to his return to Reading. Things had been going well when suddenly a loud noise and "bump, bump" they went. The brakes were put on and it was discovered that one of the vulcanised flat rubber tires had come straight away from the rim. At Reading telegrams and messengers were dispatched for a complete set of new wheels, Mr. Cordingley having had quite enough of those upon which he had relied. They were very cool, had not run three hundred miles and yet were in rags, pieces two inches in diameter having been stripped off. Leaving his car at some stables, the owner took

all negotiated with confidence and the only incident occurred at the summit of Rowden Hill. There something connected with the water circulation went wrong, necessitating a stoppage of about an hour. Bristol was, however, reached at 7.10 p.m., only ten minutes after the appointed time.

Wayward No. 9.

PRESSMEN will come to the conclusion that there is something uncanny about the Motor Manufacturing Company's 6 h.p. phaeton "No. 9" in the official list. On that the *Daily Chronicle* representative had intended to journey as far as Carlisle, and Mr. J. H. Gretton, the chairman of the company, was also to be a passenger. Both these gentlemen were early at

Grosvenor Place, but no No. 9 could they see. They saw the last of the cars depart and the crowd disperse to go about its business; they then sought consolation in telephones and telegrams, and, after a while, took train to Reading. No. 9 had not been seen, but a telegram came to hand that it had left Hyde Park at seven o'clock. So, by common cab, they went to Calcot Park, and the first vehicle they saw was No. 9. Its time-sheet showed that it had started at 7.10 a.m., and that punctuality was more to be regarded than pressmen.

Its Character Redeemed.

BUT the character of the car was thoroughly redeemed, as it went from Reading to Bristol without any signs of distress, climbing hills with perfect ease. The thirty-two miles to Marlborough were covered in just under two hours. In all, the journey of 118 miles was performed in well under twelve hours, of which nine were actual running time. No real incidents occurred to call for graphic description, but variety was added to the drive by the way in which this 6 h.p. motor kept up for sixty miles with an 8 h.p. vehicle carrying two fewer passengers.

Hills Surmounted.

NEWSPAPER correspondents have been loud in their praise of the motor-vehicle as a hill-climber, and, whatever they may say as the cars go north, their eulogy has been noteworthy. As one observant Pressman observed, "No hill could have been negotiated by horses as was done by the cars, and no hills could have been descended safely by animals at the rate which the cars came down with ease."

Little Cars Doing Well.

WHILE the success of the larger cars was freely anticipated there were misgivings as to some of the smaller ones that had entered; but up to Wednesday many of the little cars had done exceedingly well, and were "going strong." One car, belonging to Mr. Moffatt Ford and driven by a little French lad with an equally diminutive companion aboard, has been particularly noticeable. The nonchalant way in which the little fellows lean back perfectly at ease in what appears an animated bath chair is simply delightful, and they know how to manipulate the car quite as well as older and larger motorists, turning up betimes at the controls. At the same time it must not be overlooked that a few of the small cars were running somewhat irregularly on the first two day's runs. Probably they will settle down as the trip progresses.

On a Richard Car.

A PASSENGER on the 5 h.p. Richard car, driven by M. Bertin, records that the baptism of dust was undergone about a mile from Hounslow. At Calcot Park he arrived fifty minutes in advance of the appointed time, being third or fourth to put in an appearance. Newbury was reached at noon, and Marlborough afforded the opportunity for luncheon. The long descent of Box Hill was done in good style, and everything promised well until, two miles from Bath, the leather driving band became torn and an hour's stoppage was the result. Other cars passed in irritating fashion; but, once started again, the Richard car made good progress, and reached the ancient city of springs about half way in the procession of vehicles. Tea having been taken, the run was continued and Bristol was reached in good time.

Pneumatic and Solid Tires.

VERY remarkable is the success attending the cars fitted with pneumatic tires. There are a large number of vehicles so provided, and they are going along splendidly. Certainly some of the cars whose wheels are shod with solid tires have envious passengers.

Miss Bacon's Mishap.

MISS BACON on her Werner bicycle was one of the first arrivals at Grosvenor Place on Monday, and was the first to reach Calcot Park. About half an hour's run from there, however, she came to grief, and reached Bristol by train late at night, her machine having been smashed on the Great Western Railway between Reading and Swindon Junction. Her battery gave out about two and a-half miles after leaving Calcot Park, so the lady rider pedalled back to Reading, and took the 2.25 train for Bristol. She paid 4s. for the carriage of her motor-bicycle, and got into the guard's van to take care of it, but the officials objected to her being in the van, and she got out at the next station. At Swindon Junction, where she had to change trains, the bicycle was handed to her with the lubricator broken, and it was supposed that on going round the curves into the station the machine was thrown down. But for the breaking of the lubricator a new accumulator could have been obtained at Bristol, and the journey continued.

The Daimler Parisian.

ONE who had never before been on a motor vehicle drove on the Daimler Parisian with Mr. G. F. Pedley from Gloucester to Cheltenham, and had his preconceived notions as to the vibration and perfume attached to automobilism quite exploded. He writes:—"The vibration which one fears so much on seeing the car standing still is entirely lost as soon as the start is made, and when a fair speed is attained nothing can exceed the smoothness with which the car runs. There is also very little smell, and in the hands of such a capable driver as Mr. Pedley the motor seems almost perfection. Of course the speed the "Parisian" attained on her run from Gloucester to Cheltenham was limited to regulations, but once or twice she fairly flew along, giving one a good idea of her capabilities. Loaded as she was with three passengers and a quantity of baggage her performance was first-class, and she has so far run the tour through without the slightest mishap."

The Steam Cars.

OUR American readers will be interested to learn that the Stanley car is going on alright, although suffering from constant tire punctures. The Brown-Whitney car, too, has made steady progress.

Photographs.

SCORES of photographs have been taken, both from and of the cars and passengers. Unfortunately the light at the start for Grosvenor Place was so bad that our photographers, who were stationed on an overlooking balcony at Hyde Park Corner, did not get a satisfactory picture of the commencement of the trip. Mr. Argent Archer, however, was more successful, and took a couple of interesting views, which, however, reached us too late for reproduction. Mr. Archer is accompanying the vehicles, and will probably have a splendid set of photographs as a souvenir of this important trip.

On a New Orleans Voiturette.

ONE of the New Orleans cars started very late on Monday and was a bit behind in getting forward on Wednesday morning. But it made capital runs and went from Bristol to Cheltenham without a stop, overtaking seven other cars which had started an hour earlier. It covered the distance of 42 miles in three and a-half hours, or at the average speed of 12 miles an hour, one noteworthy characteristic being that most of the passing of other cars was done on the hills, which the voiturette took with ease, winning the praise of those on other cars, as well as proving satisfactory to its own passengers.

Almost Together.

learn that the English-built car ran splendidly all the way—as did that of French make.

Travellers' Tales.

MANY have been the stories told in the hotels each evening, and some of the yarns will attain considerable dimensions before Edinburgh is reached. One neat little story we heard was that of a fly-wheel falling off from the car going down hill and careering along ahead of the car "on its own." Another was that of an innocent pressman on a local paper who mounted a petrol car and asked where the electricity was stored. Many such anecdotes have been told over supper, and would form interesting reading could a complete collection be obtained.

Motor-Wheels and Tram Lines.

SIMMS' motor-wheel has no particular liking for tram lines, and apparently a deeply rooted antipathy to such common matters is a characteristic feature. Certainly the driver had an exciting time. At Bath the machine skidded on a tram line and turned completely over, the driver being thrown off. Fortunately the mechanism was only slightly damaged and the driver was able to put things right and continue his journey on the fine road leading into Bristol. But there again the tram lines brought him low, for the car turned completely over again, owing to the presence of a flanged tram line. He was, however, able to set up his machine again and reached the Drill Hall in time to secure the club certificate for having attained the legal speed of twelve miles an hour.

Provincial Exhibition.

ON Tuesday we had a five minutes' chat with Dr. Lehweß, of the Automobile Association, who had spent the previous day on his Vallée racing car, with which he and Mr. Weigel had gone to Bristol. He was apparently well satisfied with the exhibition last week, not only with the arrangements made on behalf of exhibitors, but also with the business done by his association. So far as the provincial exhibitions about to be held are concerned he does not anticipate any of the exhibitors will do much business—although full of confidence as to the value of the Trial, in proving helpful to the automobile movement generally.

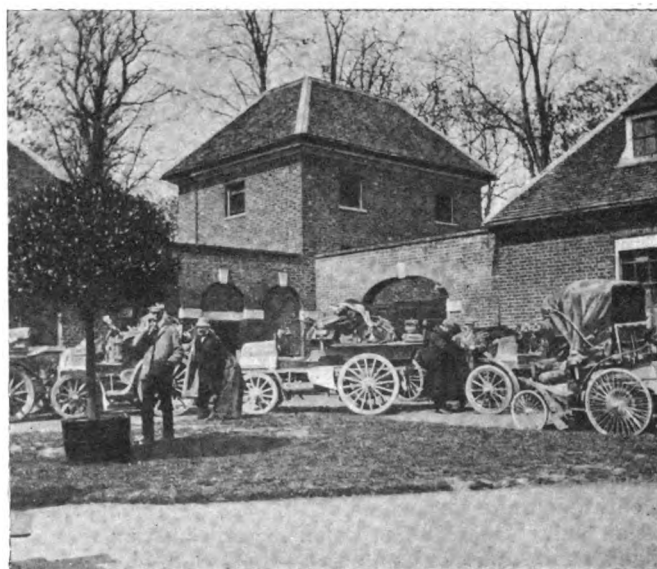
Pigeons and Sparrows.

WE had an interesting experience at Hounslow, when we came suddenly upon three pigeons in the road. They evidently did not notice our approach, for they made no attempt to escape. The car passed over them, and they flew out at the rear. Such an experience must have been a novelty to the pigeons. The Hon. Scott Montagu tells us he frequently has similar experience with sparrows, but unfortunately they do not seem to be keen judges of speed, and are frequently knocked down by the hood of his car. Such incidents have been rare this trip, and only one dog has been reported killed.

Climatic Changes.

ONE of the greatest troubles on such a tour is concerned with the rapid changes of weather. These are frequent enough on an April day in one place, but when it is remembered that the journey from London to Bristol is practically 120 miles, and that a day's course on this Trial carries one from the West

to the Midlands, and from the Midlands to the North, the difference is even more noticeable. Thus we start with a dull morning, which seems full of rainy prospects, and as the hours pass get into a warmer atmosphere, until the heat becomes oppressive under great coats at noon. This may be succeeded by a sharp crisp afternoon, and followed by a bitterly cold evening. Such variations have already been seen and felt, and doubtless many more "samples" of British weather will be experienced ere the Trial comes to an end.



MORE SNAPSHOTS AT CALCOT PARK, NEAR READING.

[Photos. by]

[Mr. P. Richardson.]

Late Arrivals.

MR. J. E. HUTTON arrived at Bristol about 10.30 p.m. on Monday night, having travelled straight from London. Unfortunately on entering the Drill Hall his radiator got broken. Another late visitor was Mr. Muhlenkamp, of Brighton, who travelled from Brighton to Bristol via London, on his 6-h.p. M.M.C. "Princess" car. This car certainly went very well. At Bristol a Lanchester car also returned to the ranks, having been taken off the route for some adjustment.

EN ROUTE.

READING.

Evidently automobilists cared more for breakfast than for biscuits, judging by the slight stop which was made. Doubtless the proximity of Calcot House, where Mr. Alfred Harmsworth had promised hospitality, was the cause.* Still they made a brave show, and although unfortunately one car seemed to be in trouble, the general impression made on the townspeople was distinctly good.

MARLBOROUGH.

Marlborough was *en fête* in honour of the automobilists, and the market place was thronged with spectators, inquisitive crowds inspecting the vehicles while their passengers were taking lunch. Particularly curious were the cyclists, many of whom had come from distant Wiltshire towns and villages to see the motor-cars. A very pleasing sight was a number of children, who waved Union Jacks with juvenile energy, whether in honour of St. George's Day or the motor-cars none seemed to know. Among the news brought by the first half-dozen cars was a report as to a defective casting in one of the cars having caused it to give out just before entering the town.

BATH.

The first arrival at Bath was the "Orient Express," and a dozen other cars turned up within the next half-hour. A splendid instance of how completely the cars can be controlled was given by one of the early arrivals, a lady being knocked down by a car, but getting up uninjured—in fact, the car had stopped before the lady reached the ground. In the amateur section, Mr. Ernest Pitman was among the first arrivals. Most of the tricycles came into the city in good style, although one rider coming up the steep above Cleveland Bridge had to make a second attempt, pedalling all the time, before he surmounted it. During the afternoon about half the vehicles passed through Bath. Somehow or other the idea was abroad in the city that the demonstration would take the form of a procession, and apparently some disappointment was felt as the cars came along in twos and threes instead of in regular review order.

BRISTOL.

The most enthusiastic motorist ought to be satisfied with the reception accorded the vehicles in this ancient city. Hundreds of people crowded into the main thoroughfares leading the way to the Drill Hall. The Hon. C. S. Rolls and Mr. E. Kennard were the first arrivals at the Drill Hall, the third car to put in an appearance being a Décauville voiturette. Mr. Herbert Ashby on his "Empress" motor-tricycle, Mr. J. A. Holder on his 12 h.p. Daimler, and the Hon. J. Scott Montagu were in the next batch of arrivals, and between 6 and 7 p.m. twenty-six cars had taken their positions in the hall, all bearing evidence of the dusty roads that had been encountered. The finish of the run of 118 miles was as stiff as anything encountered in the journey, Park Street having a steep gradient, but all the cars seemed to take it very well. According to the official records, twenty-four of the entries in the manufacturers and agents' section completed the entire journey at a speed up to the legal limit of twelve miles an hour. One, a 6 h.p. Daimler, made an average of eleven and a-half miles an hour, and two—the 1 S. S. 5½-h.p. car, and Roots and Venables' 2½ h.p. car—at an average of eleven miles an hour. Shortly before ten o'clock the Brown-Whitney car arrived, having made the journey at an average speed of rather more than nine miles an hour. Among those who joined the party at Bristol was Dr. Stewart Irwin, of Fockington (Glos.), who came on his M.M.C. Panhard dogcart—a splendid vehicle, which recently climbed a hill of 1 in 6, about a mile long, with four passengers aboard. The following is the official list of vehicles completing the journey at a speed up to the legal limit:—

Nos. 1 and 2, Benz "Ideals."

No. 4, "Ariel" tricycle, with Whippet detachable trailer.

No. 5, "Locomobile" steam carriage.

* Our correspondent is mistaken. The official programme only allowed a stop at Reading for the filling in of record sheets.—ED. M.-C. J.

No. 8, Motor Manufacturing Company's 6-h.p. phaeton.
No. 12, Motor Manufacturing Company's tricycle.
Nos. 14 and 15, De Dion voiturettes.
No. 16, Motor Power Company's "Gladiator" voiturette.
No. 19, Automobile Association's "Orient Express."
No. 20, Motor-Carriage Supply Company's "Simms' Motor Wheel."
No. 22, Lanchester Engine Company's 8-h.p. carriage.
No. 26, Friswell's 8-h.p. Peugeot.
No. 27, Burford, Van Toll's 3½-h.p. "New Orleans" car.
Nos. 31 and 32, Motor-Car Company's 3½-h.p. "Triumphs."
No. 34, Motor-Car Company's 3½-h.p. Decauville.
Nos. 35 and 36, The Daimler Company's 6-h.p. cars.
No. 37, The Daimler Company's 6-h.p. Parisian car.
No. 40, Wolseley Company's 3-h.p. voiturette.
No. 43, London Motor Van and Wagon Company's 5½-h.p. phaeton.
No. 44, International Company's 3-h.p. Victoria.
Nos. 46 and 47, Automobile Manufacturing Company's 7-h.p. "Richard."

No. 51, Star Motor Company's 3½-h.p. voiturette.

Privately-owned vehicles did well, eleven obtaining certificates as completing the journey up to the legal limit of twelve miles an hour, two for eleven and a-half miles, one for eleven miles, and one for ten miles an hour, the latter being Mr. Mark Mayhew's 7 h.p. Peugeot, Mr. H. Edmunds' 6 h.p. Daimler, and Mrs. Bazalgette's 3 h.p. Benz "Ideal" respectively. The eleven most successful vehicles were:—

No. A 3, Mr. T. B. Browne's 6-h.p. Panhard.
No. A 7, Mr. Alfred Harmsworth's 6-h.p. Parisian Daimler.
No. A 10, Mr. Edward Kennard's 8-h.p. Napier.
No. A 17, the Hon. C. S. Rolls' 12-h.p. Panhard.
No. A 20, Mr. Herbert Ashby's 2½-h.p. "Empress" tricycle.
No. A 21, Mr. Ernest Pitman's 6-h.p. Daimler.
No. A 22, Mr. J. Holder's 12-h.p. Daimler.
No. A 24, Mr. Robert Phillips's 4-h.p. Mors.
No. A 26, Mr. C. K. Gregson's 6-h.p. Parisian Daimler.
No. A 28, Mr. E. M. Iliffe's 2½-h.p. Enfield quadricycle.
No. A 30, Mr. J. D. Siddeley's 6-h.p. Parisian Daimler.
No. A 31, Mr. Wm. Eke's 6-h.p. Parisian Daimler.

Although one of Mr. Mark Mayhew's cars came in on Monday, that gentleman did not arrive on his Panhard till Tuesday evening.

On Wednesday morning the departure of the cars attracted much attention, and the local committee certainly deserve credit. That Bristol's welcome was appreciated may be gleaned from the telegram sent to the Lord Mayor from Cheltenham on Tuesday, as follows:—

"Cheltenham, 1.57 p.m.

"Automobile Club begs to thank Bristol for courtesy during recent visit."

GLOUCESTER.

In this ancient city great interest had been aroused, and there was considerable commotion in the streets as the vehicles made their way to the Cattle Market, where they were drawn up in the horse stalls while the drivers breakfasted. Never before has such a sight been seen in any cattle market, and many of the leading owners of horses made careful inspection of the cars in their strange and unaccustomed quarters. Very courteous were the police, who made excellent arrangements for directing the way through the city.

CHELTENHAM.

It was really a holiday occasion at Cheltenham, and quite two thousand people had gathered near the Winter Gardens to see the arrival of the cars, which were manipulated with wonderful skill. Certainly a splendid demonstration of controlling power was given, and no fear of mishap seemed anywhere in evidence. Quite as much interest was shown in the departure as in the arrival of the cars, and at three o'clock a local pressman counted fifty-eight vehicles in the departing procession. This was headed by a well-known local medical man, Dr. Fernald, on his motor-tricycle, who thus showed the way out of the pleasant town.

TEWKESBURY.

Tewkesbury and the neighbouring villages were alive with spectators, the country folk being particularly curious to see the cavalcade, and they came in by carriers' carts, on cycles, and by train to see the sight. Covered with dust, and well wrapped up in strange garments, the automobilists presented an amusing appearance, and seemed well within the police regulations, so far as speed is concerned.

WORCESTER.

A stop of a quarter of an hour for tea was allowed in the Cathedral City of Worcester, and the crowd was great indeed. Rarely has such an aggregation of humanity been seen in the

THE EXHIBITIONS.

Bristol.

To the first of the provincial exhibitions held in connection with the Trial the Lord Mayor of Bristol gave his patronage, and the officer commanding the Volunteers granted the use of the Drill Hall. Mr. W. M. Appleton was the local hon. secretary, and, favoured with fine weather, the exhibition proved a great attraction. Both on Monday evening and all day on Tuesday there was a capital attendance, and although some of the exhibitors would have liked to have received the



MR. J. R. HARGREAVES ARRIVES ON HIS 12-H.P. DAIMLER CAR.



MR. AND MRS. FRISWELL ON PEUGEOT CAR.



MR. J. A. HOLDER'S 12-H.P. DAIMLER CAR—MR. C. JOHNSON, SEC. A.C.G.B., STANDING BEHIND.



NO. 36—DAIMLER CAR, COL. J. MAGRATH IN FRONT OF CAR.

Photos. by

THE CARS AT MARLBOROUGH.

(Mr. T. Howard Mercer.)

place, and throughout the route through the city the populace had lined the streets in such numbers as hardly to allow the cars space to pass. In fact, the police were the greatest friends possible to the motorists, and to their kindly help the travellers owe much.

BIRMINGHAM

At Droitwich, Bromsgrove, and Lickey End there were great crowds of people assembled, and at Birmingham the police had the utmost difficulty in regulating the traffic for the passage of the automobiles. By eight o'clock more than three-fourths of the vehicles had reached Bingley Hall, among the first dozen cars into Birmingham being the Daimler phaeton driven by Mr. Critchley.

certificates of their performance earlier than was the case, excellent arrangements were made. The scene about the hall on Tuesday morning was one of briskness and bustle, many of the cars being taken from the hall to be cleaned after the dust and showers of the latter stages of the first day's journey. In the evening the band of the 1st V.B. (City of Bristol) Gloucestershire Regiment discoursed an excellent musical programme, and general praise was bestowed on the courtesy and willingness of those in charge of the cars to explain their working and their merits to visitors. Mr. Howard, a member of the Bristol local committee, had his motor phaeton on view, and as this has just done admirable work on Dartmoor, general interest was manifested in the vehicle.

Cheltenham.

At Cheltenham the exhibition was held in the Winter Gardens, under the patronage of the Mayor, with Mr. F. M. Bostock as the local hon. secretary. Although the exhibition only lasted an hour or two, the takings at the gate amounted to £25, and as probably very nearly that amount was realised by the sale of tickets, the War Fund should benefit considerably from the exhibition, which can certainly be described as a great success. Messrs. Clark and Morgan, motor engineers, at Clarence Parade, Cheltenham, had several cars on exhibition, and the large building, admirably adapted for the purpose, was the scene of much animation, many of the leading gentry of the district being present.

Birmingham.

With Mr. H. Berger Graham as local hon. secretary and a loyal committee, mainly composed of automobilists, the exhibition at Bingley Hall has introduced hundreds of Midlanders to the many varieties of automobiles. Not that such education was so urgently needed as at some other centres, for of the eighty-four vehicles entered in the Trial, thirty-five were manufactured in the Midlands, twenty-four of them at Coventry, the remainder hailing from Birmingham and Wolverhampton. Still, in the French and Belgian cars there was much to interest the crowds that attended, who showed their appreciation of recent advance.

NOTES ON ORGANISATION.**The Official Programme.**

THE programme provided for the entrants is a manual requiring much study and should train the mind in persevering endeavour, being a volume of more than two hundred quarto pages.

On Mr. C. Johnson, the secretary of the Club, its compilation has added a weight of responsibility, and it must be gratifying to the committee and all concerned to see how singularly free from errors is the published work. The organising genius of Mr. C. Johnson is well known, but on the present occasion he has eclipsed his former records. Every detail has been considered, and there should be no hitch on the journey; the only way in which the arrangements can be upset will be owing to the zeal of members in arriving much earlier than the appointed time arranged at the various stopping places.

Convenience of Controls.

ON opening the programme of the Trial the official list of controls appeared very formidable, but in active operation they have proved simplicity itself, causing practically no inconvenience. In fact, they have been distinct advantages, enabling the entrants to foregather every few miles and pass the time of day with each other, or indulge in good-humoured chaff at each other's personal appearance, or retail—with full play of the imagination very often—incidents on the way. Some of the drivers waited with some impatience the fall of the flags, wielded so well by those responsible for the controls, but all seemed willing to recognise the necessity of discipline. At Bath the impetuosity of one young gentleman driving a car was curbed for the rest of the tour by a useful lesson in "making haste slowly." He thought he would dispense with the fifteen minutes' allowance for tea, but on proceeding forward his control card convicted him, and he had to wait twenty-five minutes before receiving official permission to re-start—to say nothing of the mortification of seeing half a dozen other cars go on ahead.

Certificates.

THE value of the exhibitions to the manufacturing firms entered in the Trial depends largely on being able to show a good record to the people who visit the places of display early in the day—hence the necessity for the prompt and early issue of certificates to be affixed to the cars. Those responsible

have very exacting duties, and it is hoped that all competitors will help the officials in every possible way so that the certificates can be placed on the cars early on the morning of each day exhibition.

A Competitors' Committee.

ON Tuesday evening an emergency meeting was called by Mr. C. Johnson, at the Drill Hall, Bristol, to consider the question of the co-operation of competitors with the members of the Club Committee taking part in the tour, and to advise the officials as to the exercise of the duties entrusted to them under the Club rules. Mr. E. Edmunds was voted to the chair, and it was decided that the committee should consist of three representatives of the amateurs and five representatives of the makers. The election resulted in the appointment of Messrs. Browne, Holder, and Gregson on behalf of the former section, and Messrs. A. Burgess, Critchley, Friswell, Mann, and Van Toll on behalf of the latter class.

Local Committees.

A WORD of praise must be given to the local committees for the excellence of their arrangements in connection with the exhibition, controls, etc. On one or two occasions competitors and controllers have not always turned up at the identical moment, and while in some places the latter have waited for the former, at others the competitors have exceeded the controllers in punctuality. Still, everything seems to be working very smoothly, and when votes of thanks come to be accorded on the return to town, the local committees will well deserve any that are given to them.

POLICE PRECAUTIONS.

VERY solicitous with regard to the progress of the vehicles were the police authorities, whose interest in automobilism has been demonstrated in many ways. On the first occasion Toby, M.P., of *Punch*, mounted a motor-car he was delighted at the experience—the trees leaped by, the bushes were continuous along the hedges, and the air seemed fresh and free. His only regret was inability to hold converse with a figure he assumed to be that of a policeman—but who had disappeared ere he could dismount.

Not so on the present trip. With the deliberate speed at which the cars have progressed there has been every chance of clear discernment of the figures by the roadside; and among those figures policemen have been numerous. In fact, many of the law-abiding automobilists have never seen so many policemen in the course of a single day before. They have been ubiquitous, and although some have resorted to the Boer tactics of seeking cover of hedges from which to take observations, many, unlike the Boers, have come out into the open. One practical man, having regard to the exactitude of the law and his own personal comfort, had provided a chair and table with books and stationery, upon which were recorded the times of the cars as told by his Waterbury. It was an interesting sight, and although some feel honoured at this official recognition of automobilism, others deplored the kindly-intentioned care of the Automobile Club that had numbered the vehicles fore and aft. There was no dodging the eye of the law. One driver sought to escape the numbering process by rushing into the cloud of dust ostentatiously created by the preceding vehicle, but to no purpose. He went on; but the plate at the rear of the car gave his number, and with the help of the official catalogue identity will be disclosed, thanks to the amplitude with which every detail—even such little matters as names and addresses—has been attended to by Mr. Johnson and his staff.

There were other policemen less official in their equipment, but still taking times and numbers, and two or three laid on sloping banks with watches hanging from lower branches of shady trees, and notebooks in hand.

We do not know whether the police took snapshots, although such a procedure would have been extremely useful as evidence

of the progress of the industry, and the results would have enlivened and embellished the pages of the reports of the chief constables of the counties through which we passed. That some such photographic record was intended was in the mind of several drivers, and slower speeds than usual were indulged in certain cases so as to facilitate the labours of the police. Certainly we feel confident that the police will testify to the general desire of the automobilists to ease their labours in every way, and probably on another occasion they may be willing to help the club still further by taking charge of the controls. This trial should do much to give police and automobilists a new interest in each other. That this interest will be widespread may be imagined from the fact that between Colnbrooke and Calne no fewer than forty-five police officers were seen "observing."

THE GEORGES RICHARD FOUR-SEATED WAGONETTE.

THE accompanying illustrations show the latest type of Georges Richard petroleum-spirit car, in which the motor is located in the front portion of the frame instead of at the rear, as in the earlier vehicles. The frame is constructed of channel steel. The motor, which is located under a bonnet at *A* (see plan, Fig. 2), is of the horizontal two-cylinder type, fitted with water-jackets and electric ignition; it is capable of working up to 7 h.p. The cranks are set at an angle of 180 degrees to each other. The admission of carburetted air is effected by vertical valves with automatic movement, and the escape of the burnt gases by valves placed horizontally and actuated by cams mounted on the shaft, which also carries a centrifugal governor or speed regulator. This regulator acts on the escapement gear in such a manner that it automatically shuts first the right cylinder, when the speed increases (which is the case as soon as less energy is required from the motor), then the left cylinder

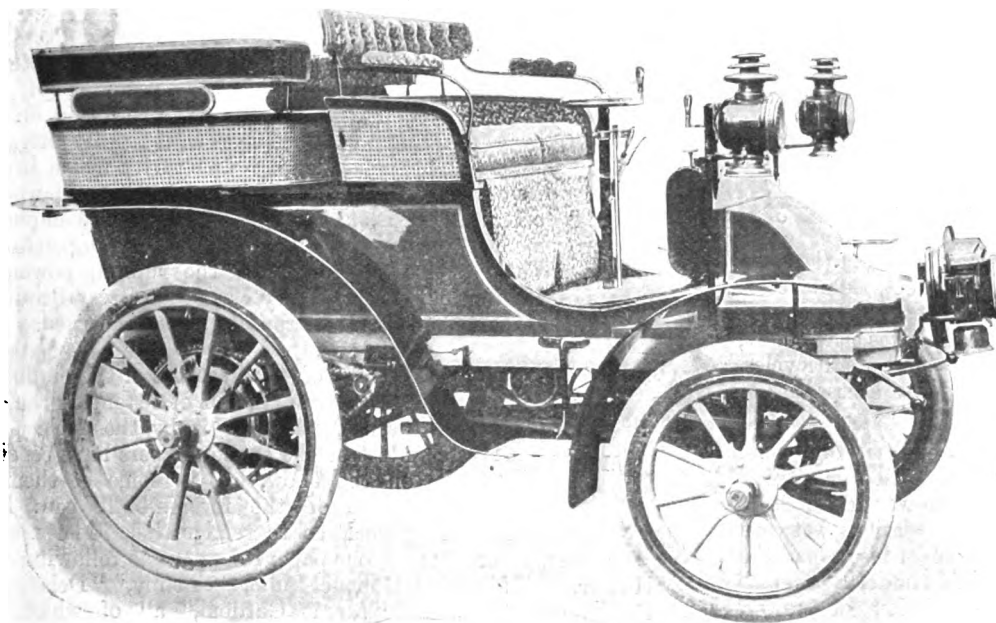


FIG. 1.—GENERAL VIEW OF GEORGES RICHARD FOUR-SEATED WAGONETTE.

either wholly or partially. The governing speed of the motor can be changed at will by an accelerator placed near the steering gear. According to the position of the handle of this accelerator the motor acquires a speed of 400, 500, 600 and 1,200 revolutions per minute; the normal speed is about 700 revolutions.

On lifting up the bonnet the complete ignition apparatus can be seen—the admission valves, the exhaust valves, and the governor. The motor is cooled by water circulating around the cylinder through a series of pipes fitted with radiating gills. This pipe is 36 feet long. The circulation is ensured by a special

pump worked by a gearing off the secondary shaft of one of the motors.

Coming now to the transmission mechanism, four speeds—7, 14, 21, and 28 miles per hour—and reverse motion are provided. A single belt connects the motor with a first countershaft, a jockey pulley *G* being employed to maintain the tension of the belt. The pulley *p* on the pinion countershaft actuates a moving train of gear wheels used for changing the speeds, this train being manipulated by a handle placed on a dial situated horizontally in

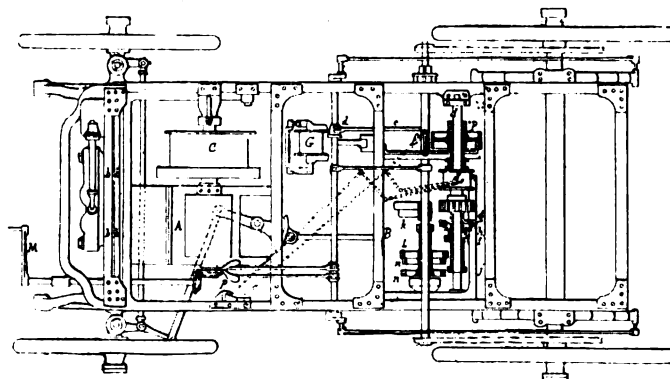


FIG. 2.—PLAN OF GEORGES RICHARD CAR.

front of the driver in the usual way. The pinions can be brought into mesh with corresponding spur wheels on a differential shaft, from which the usual sprocket-wheels and chains convey the power to the rear road wheels. The variable-speed gearing is enclosed in an air and oil tight case filled with oil.

The brakes are two in number, one acting on the differential gear by a foot-pedal, while the other acts on the two wheels by two powerful hands regulated by a hand-lever. Both the pedal and hand-lever throw out of gear the engine simultaneously with the application of the brake.

Steering is controlled by a hand-wheel, while provision is made for the taking up of any wear of the driving chains. The car complete weighs about 16 cwt. The road wheels are of wood, of strong construction, and are shod with pneumatic or solid rubber tires, as desired. Our illustration shows a four-seated wagonette, but any type of body may be fitted on to the standard frame. We may add that two Georges Richard cars of the type above described are competing in the 1,000-mile Trial. The agents in this country are the Automobile Manufacturing Company, Ltd., of North Street, Manchester Square, London, W.

THE Hozier Engineering Company, Limited, has been registered with a capital of £15,000. Object, to acquire and carry on the existing business of manufacturers of motor-cars and

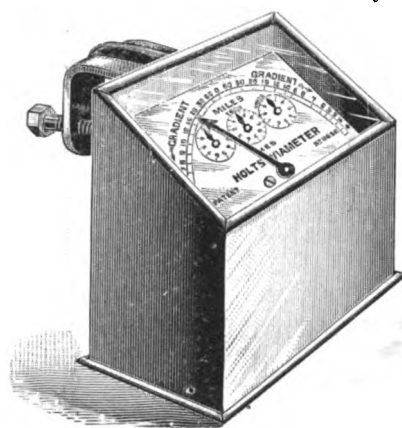
carriages, etc. The registered office is at 47, Hozier Street, Bridgeton, Glasgow.

AN automobile club, the first of its kind in America, has been formed at Columbia University. The purpose of the club is to hold runs throughout the surrounding country and perhaps speed trials later.

A RESOLUTION providing for the purchase of two automobiles for the use of the chief of the fire department and his first assistant has been introduced in the city council of Milwaukee, Wis.

THE HOLT VIAMETER.

THE Daimler Motor Company, Limited, of London and Coventry, have just brought out Holt's patent "Viameter," a device for indicating the gradient of the road traversed and the total distance covered by a motor-car on one dial.



An illustration of the device is given herewith. It is fitted on the dashboard in front of the driver, and is driven by a flexible shaft off one of the shafts of the transmission. The distance is recorded by three small dials similar to those in a gas meter, there being separate dials for units, tens, and hundreds. The pointer showing the gradient is luminous, so that the gradient may be readily seen at night. Another type of "Viameter" is made in which, in addition

to the gradient and the distance, the speed of the car is recorded; while there is still another form by means of which a complete analysis of a motor journey can be recorded in the form of a chart showing the distance traversed, the gradients, and the time taken over any portion. The device measures only 4 in. by 3 in. by 4 in.

ACCORDING to the *Birmingham Telegram* the project for running a motor-car service from the city of Birmingham to the more distant rural resorts has for a time fallen through, the proposed British Motor Touring Co. having come to an untimely end, the promotion having failed to obtain the necessary support to enable the ambitious programme being carried out.

WE learn that a new company is in course of formation, to be known as the Sports Motor-Car Company, with Mr. M. Capellen as managing director. The new concern, which has, among others, secured the agency for the Linon voiturette, a car of Belgian construction recently illustrated in these columns, is arranging for the opening of a large dépôt in the West End of London at an early date.

THE Automobile Manufacturing Company, Limited (late the Southern Motor Car Company), of North Street, Manchester Square, London, W., have sent in an advance copy of the new wholesale catalogue they have just issued. It gives particulars, prices, and illustrations of De Dion tricycles and quadricycles, "Papillon" ditto, trailers, and motor-car and cycle accessories of all kinds.

AT an extra meeting of the Institution of Civil Engineers, held on Monday night at its house in Great George Street, Westminster, the eighth "James Forrest" lecture was delivered by Sir William Preece, the subject being the "Relations between Electricity and Engineering." In the course of his paper the lecturer discussed the applications of electricity under a number of heads. Among these were the transmission of power, including the employment of electric motors to drive the machines in manufactories; traction, including electric railways and automobile cars, the lecturer expressing the opinion that the motor-car of the future will be an electrical one.

THE Horse, Carriage, and General Insurance Company, Limited, 17, Queen Victoria Street, London, E.C., is offering to owners of motor-cars (which are used solely for private pleasure purposes), for a moderate premium, the protection of their special three-fold policy of insurance under which the car is insured against the many risks of accidental injury it may sustain. The owner is indemnified against claims for damage done, or which may be alleged to be done, by insured car, to the person or property of third parties, and also the owner is insured against personal accidents he may sustain whilst riding in or mounting or dismounting from his motor-car.

EXHIBITION ECHOES.

Some South Wales Visitors.

REPRESENTATIVES from all corners of the kingdom were at the Motor Car Show last week. From South Wales came Mr. J. C. Morris, Mr. P. Thomas, and Mr. Walters, on behalf of the Swansea Motor Omnibus Company, accompanied by Mr. W. M. Morris, of Pontypridd, the South Wales agent for the Daimler Motor Company. They were particularly interested in the running of the new Public Service Vehicle, and Mr. Morris and Mr. Walters travelled down on this car to Bristol on Monday in the first stage of the 1,000-mile run. Representatives of the Merthyr Motor Car Company also came up during the week and were taken for a trial run on the ten-seated omnibus built for that company by the Motor Manufacturing Company, and seen on this concern's stand during the early part of the week.

A Great Future.

THE *London Argus* in commenting on the show remarks that the "Exhibition at the Agricultural Hall serves to emphasise the fact that the motor-car has a great future before it. So far the manufacturers on the Continent have been more alert than our own to its possibilities, and, as a result, have secured the immense bulk of the trade which has, up to the present, been done in every kind of vehicle, whether for pleasure or for business. It is, therefore, high time that the attention of British manufacturers should be turned in that direction, and some of the exhibits at Islington are proofs in themselves that in the making of compact, elegant, and smooth-going cars we are quickly regaining the ground lost in the early stage of the motor manufacturing industry."

A Much-Noticed Vehicle.

AMONG the vehicles which have been particularly referred to by the Press was that built by the Motor Manufacturing Company for the proprietor of this journal. Occupying a position on the stand of that concern it readily attracted attention as evidence of the style and finish with which British manufacturers are now turning out vehicles for pleasure purposes. The car is deserving of this special mention in order to emphasise the improvements in design which have lately been going on in this country. Whatever may be thought of the running powers of the cars of different nations, it is very clear that Great Britain is not behind French firms so far as appearance is concerned.

The Cycling Press and Motor-Cars.

ONE of the features of the exhibition is the large amount of attention that has been devoted to it by the cycle press. Most of the cycling papers have reported on the show, but to some of them the names of the foreign-built cars have proved such a stumbling block as to render their reports worse than useless. For instance, one paper refers to the following cars: "Hurter," "Didyer," "Gobonel-Bulle," "Benby," "Delabarge," "Peaugnot," "Renaix," "Marat Gardom," all of which, by these names, are unknown to us. Most of our readers will however, be able to distinguish the cars that are really referred to. But we think it will be agreed that a closer study of the motor-car press by the cycle journalist in question would be an advantage to him no less than to his readers. By the way, has the Delabarge car any connection with canal navigation?

The Arena on Saturday.

THE arena on Saturday presented quite a different aspect to that which had ruled on the preceding days. Early visitors found that over night the positions to be taken up by the cars entered for the 1,000-mile Trial had been clearly marked on the ground. The competitive vehicles began to arrive at an early hour, and at 5 p.m. we counted no less than forty-seven

cars and about six motor-cycles in the arena. Elsewhere in the present issue we publish a photo showing the vehicles on their marks ready for the inspection of the judges and the operation of sealing, which latter, by the way, did not meet with the approval of many of the owners of the cars, who objected to having little pieces chipped out of the frames and bodies of their vehicles. The public were given free access to the arena all day, and it is needless to add that the cars were subjected to keen inspection and criticism. Taking the vehicles shown on the various stands, together with those entered for the 1,000-mile Trial, in the arena, it can safely be said that never before have so many automobiles been seen under one roof—at least in this country. Allowing an average of £400 per car—and many would cost very much more than this, as, for instance, the Hon. C. S. Rolls' 12 h.-p. Panhard, and the Hon. J. Scott Montagu's 12 h.-p. Daimler—the value of the vehicles in the arena alone was close upon £20,000.

had been arriving all day, and towards 10 p.m. both the owners of these and many of the exhibitors began to think of turning their cars in a homeward direction. As the Barford Street entrance is the only way out of the Agricultural Hall for vehicles, the crush and excitement at this point had to be seen to be realised.

Well Satisfied.

SEVERAL instances of exhibitors selling all their exhibits were mentioned to us during the week, and during the course of a chat with Mr. J. J. Mann (Marshall and Company), we learned that he was one of the many who were well satisfied with the business done. Early in the week inquiries began and continued during Monday and Tuesday, his views of the class of



A GROUP OF MOTOR-CARS AND CYCLES AT THE EXHIBITION. TAKEN IN DEMONSTRATION ARENA.

Photo by]

[Curzon, Robey & Co., London, W.

The Yard.

We referred last week to the scene of "bustle" which the yard at the Barford Street entrance to the Agricultural Hall presented in the early part of the week. As the time for the close of the exhibition drew nearer the activity increased in extent, and the lively scene at this part of the exhibition on Friday night last will long be remembered by those who witnessed it. The demonstrating arena being required on Saturday for the 1,000-mile Trial cars, exhibitors all seemed anxious to make use of the last opportunity on Friday evening of displaying the capabilities of their cars, with the result that at one time fully a dozen vehicles were waiting in the yard for their turn to run into the arena. Finally, a couple of policemen had to be called in to help to regulate matters, and this resulted in several amusing incidents. Policemen as yet know little or nothing of variable speed gears and reverse motions, and could not see the point of the argument when, in answer to an order from one of them to go back, one driver retorted he had "no reverse"! The policeman did not care a brass button about such trivial matters, but insisted on the car being taken back, and consequently the driver had to dismount and push his car to the rear. Lively as was the scene in the yard on Friday night, it was even more exciting on Saturday evening. Cars connected with the 1,000-mile Trial

people attending coinciding with those of the exhibitor whose Diary we gave in our last issue. On Wednesday he had four customers who brought their cheques with them, and several likely clients could not be entertained to rides—so busy was Mr. Mann on that day. On Friday and Saturday the minds of visitors seemed mostly concerned with the 1,000-mile Trial, they having apparently determined to postpone purchases till its conclusion. But he was thoroughly well satisfied with the business he had done, and rather inclined to believe that Easter had proved an advantage in giving a chance to many provincial people to come to the exhibition instead of wasting their ordinary business time.

On the Road.

MR. MANN was probably the sole exhibitor—certainly one only of a few—who never took their cars round the arena. He believed, and certainly his experience justified him, that the better plan was to take likely clients for a ride on the road, the knowledge thus gained being much more convincing than a brief trip in the arena. Fortunately, the weather favoured Mr. Mann in carrying through his plan, and he was able not only to demonstrate the capabilities of the Marshall car on level roads, but the proximity of Pentonville Hill gave ample scope for testing the hill-climbing qualities of the vehicle.

CORRESPONDENCE.



THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I trust you will find room to insert this rather lengthy letter, but I have just read Mr. Canning's letter in your issue of the 20th inst., and feel impelled to give the results of my six months' experience of the Werner machine. I bought one last September, and have used it constantly in England, over English roads, not over French ones, which are acknowledged to be superior by all who have used them. As you will see, my experience with the machine has been in winter, mostly under the worst conditions. My third ride was of one 34 miles, from Peppard to Maidenhead and back, and I did the return journey under conditions I shall not readily forget, for it commenced to pour at Maidenhead, and I was drenched to the skin. The roads were deep in mud, but the machine carried me the seventeen miles without the least side-slip, and with but one halt, at Henley, to pick up a lady friend, who had preferred to come back by train. I have been over roads two inches deep in mud this last winter in Devonshire, mud like butter, which is excessively dangerous for any bicycle. In the whole course of my riding, I have had but two side-slips, once on turning a corner at right angles, almost; the second occasion, I was forced by a carriage to ride on the extreme edge of the road, on a sharp slope, to allow the carriage to pass. On both of these days, it was, I admit, absolutely tempting one's fate to go out on a bicycle, and I would frankly advise anyone *not* to go out on such roads. Mr. Canning is no doubt right in saying it is not a machine to play tricks on, but I may say that I can take my hands off the handlebar when in motion, but I have only done it to show friends who inquired "what would happen." I cannot play tricks on any bicycle, much less on this one. I forgot to say that I had non-slipping bands put on my tires, Vital's, and excellent ones they are too, but as they are smooth, I preferred the bands added, thus decreasing the chance of side-slips and punctures.

As regards stability, I cannot agree that the situation of the motor, which, after all, weighs but 20lbs., is so injurious as Mr. Canning considers it to be. If the forces passing through the centre of gravity are considered, it will be seen that the resultant R depends on the two components, W , the weight which is constant, and F , the so-called centrifugal force which depends upon the speed. The greater R becomes, in turning a corner, the greater the tendency to slip. As a matter of fact, the higher the centre of gravity when turning, the speed being constant, the smaller is the angle of inclination of the bicycle wheel to the plane of the road, *ergo*, the tendency to slip.

And now, in conclusion, I may say that my bicycle has never failed me for more than four or five minutes, and then only when I first had the machine, when I had no one to give me the little hints I have since found out for myself. I omit one occasion, where I had to pedal two miles home because I smashed my sparking plug by a blow, and had foolishly left my spare one behind. Any person of ordinary intelligence can use the machine and keep it in thorough going order. In support of my statement I invoke the fact that thousands of Frenchmen daily use

De Dion's tricycle, which is more complicated, after all, and are we to admit that we are unable to find as many intelligent Englishmen? Let "Engineer," especially if he is one, buy his machine in confidence that it will bear him safely over the roads, if he will but use ordinary prudence and also get a few hints from any user of a motor, and he will be delighted with the ease with which it will carry him about; and once let him master all the details, all the whys and wherefores of this most ingenious little engine which delights me so, and he will have no serious breakdowns.

If my experience and opinions are in opposition to Mr. Canning's I believe I may claim a longer use of the machine than he can, for I understand he had only possessed his a week or so before he had the great misfortune to break his leg. I should be pleased to give "Engineer" any information I can when I return to London in two weeks or so.

Yours faithfully,

21, Rue Beaujon, Paris, April 24th.

A. L. BENETT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have now possessed a Werner motor-bicycle over a month, and am happy to apprise you that I have not found it

skid or side-slip in so pronounced a degree as the writer upon motor-bicycles in your issue of the 20th inst. appears to have done. I am afraid we have not in this country any of the other motor-bicycles to which your correspondent refers, but as they seem to enjoy great merit they may surely be expected to arrive before long.

To perfect the motor-bicycle a free engine should be provided, *i.e.*, an engine which will remain stationary whilst the machine is being pedal driven, or is being coasted down an incline, so cooling the cylinder and greatly reducing friction. A diminution in weight of the motor-bicycle would also be a great acquisition, and not very difficult to accomplish.

Altrincham,

April 23rd.

Yours truly,

J. A.

ACCIDENT TO THE DÉCHAMPS CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I regret to inform you that in driving the four-cylindered Déchamps car (which was entered for the 1,000-mile Trial) from Brussels to Antwerp on the way to London, M. Déchamps met with a serious accident to himself, and at the same time caused damage to the car, which precluded its competing in the Trial. As the test for the previous six weeks had proved everything that was desired, this mishap at the eleventh hour was very unfortunate.

Yours faithfully,

J. BURNS.

44, Berners Street, Oxford Street, London, W.

April 24th.

THE works of the Madelvic Motor-carriage Company, Ltd., at Granton, including machinery, plant, stock of raw material, etc., are to be sold by public roup in Dowell's Rooms, Edinburgh, on the 9th prox.



MESSRS. SHIPPEY'S "OXFORD" ELECTRIC SPORTING DOG-CART.

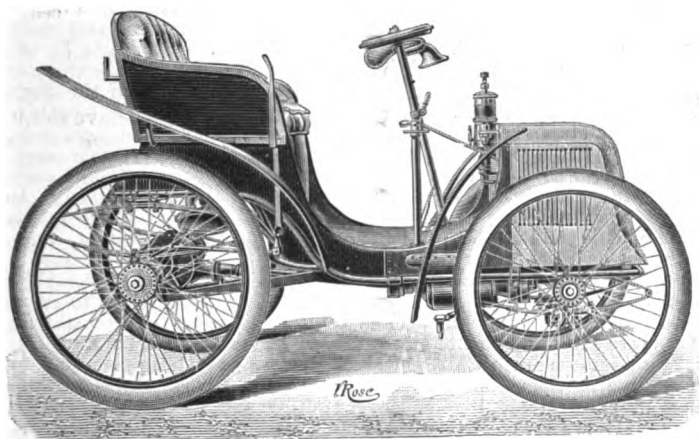
(For description, see last issue.)

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

The Club Pavillon.

LET me give a word of timely warning to those English visitors to the Paris Exhibition who may be members of either the Automobile Club of Great Britain or the Automobile Club of France. And it is simply this. Do not, I pray you, search for the pavilion of the "A.C.F." in the Champ de Mars section, for it existeth not. Yes, certainly it is marked upon the map of the Exhibition, a jolly little dab of red paint nestling up against one leg of the Tour Eiffel, and supported by the Chalet Suisse and Restaurant Français No. 17, but, nevertheless, as an actuality it does not exist. After a fruitless search I came to the conclusion that the automobile edifice had been pushed off the edge of the little lake upon which it is supposed to stand into the water, and that in all the wild turmoil and excitement of exhibition preparations it had been forgotten and left to die a watery death amid the miniature whirlpools of the cascade of the Palais Lumineux. But my theory was incorrect, for I have since learned that the pavilion will exist at the



THE SIRENE VOITURETTE. (For description see last issue.)

Vincennes section only, and that the Champ de Mars will not be favoured with a club rendezvous.

Paris-Lille Race.

THE first race to suffer from the unfortunate accident at La Croix de Noailles is the Paris-Lille course, which, announced for Sunday next, has now been cancelled by reason of M. Poirson's refusal to permit of its being run over the roads within his department. The decision of M. Poirson, who is the Prefect of the Seine-et-Oise, does not necessarily imply his intention to prohibit all races through his department, and as a temporary measure it will have a beneficial effect upon the general public and automobilists alike. In order not to disappoint the good people of Lille, who look forward with the greatest interest to their annual motor-cycle race, the organisers of the event have decided to hold a 100-kilometre invitation race on the Lille track, and have selected as competitors six veritable champions. Béconnais, Baras, Osmont, Rigal, Fossier, and Bathiat are certain to provide good sport, and, given favourable conditions, some very fast times are sure to be achieved.

In Belgium.

FROM Brussels it is announced that the general meeting of members of the Automobile Club was held on Thursday, the 19th instant, but that it brought together but a very poor attendance. After the usual secretarial reports had been read, the treasurer presented his balance-sheet for the financial year, which showed a balance of some £30 in the club's favour. The election of the committee was then proceeded with, and the

following members were duly nominated:—MM. Grégoire, Van der Straten, de Sanoye, Dombreley, Dewandre, Von Limburg, Fraipont, Van Hoobronck, and Ruys. Certain modifications in the club rules and regulations were unanimously agreed to, and the meeting then terminated. Outside of France there is probably no country in which greater interest is taken in automobilism than in Belgium, and with active leaders the club has a great future before it.

A Cup for Béconnais.

UPON the initiative of Mr. Léopold Canning, *Le Vélo* has opened a subscription list for the purpose of presenting Béconnais with a cup in recognition of his wonderful performances in the recent motor-cycle races in the South of France, and this project is to be warmly commended. As will be remembered, Béconnais achieved a startling performance on the outward journey of the Nice-Marseilles-Nice race, only to lose on the following day—when undoubtedly no racing whatever should have been indulged in—all benefit of that wonderful run. At La Turbie, too, misfortune dogged his footsteps, but in La Course du Mille, La Course de l'Estérel, and La Coupe des Motocycles du Sud-Est he made extraordinary times, and clearly demonstrated his right to the title of "le roi des motocyclistes." I understand, too, that although informed previous to starting for the latter event that he could not gain any money award, Béconnais nevertheless set out on his record ride, an example that some so-called amateurs might follow with advantage. As everyone will assuredly send to the *Vélo* some token, no matter how small, of his appreciation of Béconnais's pluck and skill, the list of subscribers will grow apace.

The War against "Chauffeurs."

THE unfortunate accident last Sunday week at La Croix de Noailles, on the occasion of the Paris-Roubaix, is likely to have far-reaching consequences, for the authorities, the general public, the police and the Press, all have taken up arms against everybody and everything connected with automobilism with a suddenness and intensity truly characteristic of the French nation. If *chauffeurs* are wise they will quietly let the storm blow over and not increase its violence by useless squabbling and discussions. Reforms are needed, but the wholesale suppression of all the privileges now possessed by automobilism simply exists in the heated imagination of certain journalists. The special commission has been hastily convened, cyclist policemen hunt in couples for *chauffeurs* exceeding the legal limit of speed, racing will be entirely suppressed, the forest of St. Germain will be closed on Sundays to the passage of automobiles, the cars will be numbered, the provincial towns will be protected by the placing of *caniveaux* on the routes just before their gates, the examinations of drivers will be rigidly enforced and so on *ad infinitum*. Good, but how many of these precautions will be continued and how many of the threats carried into effect? Let the special commissioner get quickly to work and we can depend upon just measures being proposed, and I hope adopted by the Government, but when each prefect and each commissioner of police draws up his own code of regulations just as his judgment dictates we shall never arrive at a satisfactory solution of our troubles.

The Turin Meet.

THE three days of automobile fêtes at Turin, which commenced last Saturday, the 21st inst., had been eagerly anticipated not only by Italian *chauffeurs*, but by many of the Riviera enthusiasts, who had learned at Nice of the very excellent programme prepared by the "A.C.I." As a result, the meet was largely attended and the visitors went away more than satisfied with the sport provided. A happy combination of excellent roads, glorious weather, and perfect management rendered the gathering a truly memorable one. The opening day was devoted to a series of races up the well-known hill of Madonna del Pilone, at Pino Torinese, which is some 4½ miles in length. The motor-

cyclists were the first to make the journey, and once again Marcellin's two-cylinder motor demonstrated its ability to convey its rider up hill at a speed at which some racing cycles do not even attain on the level. Gasté, too, would have done an excellent performance, but was stopped *en route* by a vehicle barring the road. The official returns were:—(1) Motor-cycles of one seat: 1, Marcellin, in 6min. 46sec. (average 60 kilomètres per hour); 2, Biscaretti, in 8min. 36sec.; 3, Cerano, in 9min. 13sec.; 4, Monti, in 9min. 14sec.; 5, Magli, in 9min. 43sec. (2) Motor-cycles of two seats: 1, Marcellin. (3) Voiturettes of two seats, weighing less than 400 kilos.: 1, Clerissy, in 15min. 42secs.; 2, Agnelli, in 19min. 10secs. (4) Cars of two seats, weighing more than 400 kilos.: 1, Stead, in 9min. 28secs.; 2, Cuchelet, in 10min. 42secs. (5) Cars of four seats: 1, Chauchard, in 15min. 20sec.; 2, Gondo, in 23min. 26sec. The second day witnessed the *course* Turin-Pignerol-Saluzzo-Turin, a race of some 130 kilomètres (81½ miles), which was decided over a really capital route. The times made by the motor-cyclists were excellent, the most notable performances being those achieved by Gasté and Marcellin. The former covered the 130 kilomètres in 117 minutes, which represents an average speed of 66 kil. 600 m. (about 42 miles) per hour, while the latter, mounted on a quadricycle and carrying a passenger, made the same journey in 137 minutes, equivalent to an average speed of 57 kilomètres (36 miles) per hour. The times recorded were as follows:—(1) Motor-cycles of one seat: 1, Gasté, in 1h. 57min. 15sec.; 2, Guggiari, in 2h. 24min. 24sec.; 3, Biscaretti, in 2h. 27min. 21sec. (2) Motor-cycles of two seats: 1, Marcellin, in 2h. 17min. 53sec. (3) Voiturettes of two seats, weighing less than 400 kilos.: 1, Storero, in 2h. 55min. 25sec.; 2, Clérissy, in 3h. 6min. 45sec.; 3, Agnelli, in 3h. 34min. 10sec. (4) Cars of two seats, weighing more than 400 kilos.: 1, Cuchelet, in 2h. 12min. 17sec.; 2, Dellaferrera, in 2h. 50min. 6sec. (5) Cars of four seats: 1, Chauchard, in 2h. 41min. 20sec.; 2, Gondoin, in 3h. 21min. 30sec. In a series of motor-cycle events subsequently decided upon the track Marcellin beat Gasté over a distance of 2,160 mètres (six laps), his time being 2min. 7sec., and Biscaretti scored a victory over Monti. In addition to a great crowd of automobile enthusiasts all the leading authorities of Turin and the surrounding country were present at different times during the meet.

The Italian War Department and Automobiles.

they will inspect every type of motor-cars at the Exhibition in view of the adoption of one for the Italian Army.

THE Italian Minister of War, General Pouza di San Martino, has appointed a commission of officers to study the question of the motor-car and its possible application to modern warfare. The commission will start for Paris shortly, where

A Trip from Vienna to Paris.

HERR LOEWY, an Austrian journalist, has made the journey from Vienna to Paris in a motor-car, having thus traversed a non-direct route of 1,500 kilomètres by the most modern means of locomotion. He started from Vienna on the 5th inst., accompanied by a *mécanicien*. His vehicle was of 9 h.p. The weather was bad, and there were many breakdowns, especially on the rough Austrian roads. Herr Loewy has not attempted to establish a record for speed, and only claims to have made a long, practical journey in a motor under due control. He had to take a long route in order to avoid bad roads, for the real distance between Vienna and Paris is only 1,200 kilomètres.

WE learn that the new two-seated voiturette exhibited at the Agricultural Hall last week by the Progress Cycle Company, Limited, Foleshill, was driven back to Coventry by road on Tuesday. Although the car had been hastily finished, and practically untried before being brought to London, it did the journey without trouble of any description, and took every hill on top speed.

WAR AND POWER-TRACTION.*

By THE RIGHT HON. J. H. A. MACDONALD, C.B., LL.D., F.R.SS. (L. AND E.) (COMMANDING THE FORTH BRIGADE).

AT a time when war as a factor in national life has been brought home to this nation in a very sudden manner, all who are interested in power-traction will, I think, agree that the question of its applicability to the purposes of war should be studied. There are two aspects in which it presents itself—the combatant and the non-combatant. The first relates to the uses which can be made of power-traction to move weapons of war to and within the area of the actual fight, and to carry armed men into or out of that area, and, it may be, to give them practical aid and protection while fighting. The second, and in some aspects the more important, relates to those less stirring, but absolutely essential operations which take place outside and even sometimes inside the fighting zone, by which the necessary supplies of ammunition, food for man and beast, camp equipment, ovens, and many necessary stores that need not be particularised, as also engineering implements and explosives, pontoons, horse-shoeing forges, duplicate parts, repairing tools, ambulances and many other indispensable appliances and munitions can be carried along with the army, so that it may be kept efficient, and maintained in strength and health and equipment for the exertions it must undertake. As regards the feeding question, there is no truer saying than that which is often quoted—that “an army marches upon its belly,” and if this were kept in view, we should not often hear the cry, “Why doesn't General ——— get on? What's the good of his sitting doing nothing; he seems to be wasting time terribly.”

It is plain that if means can be found by which the length of the transport train conveying a certain quantity of material may be reduced, the difficulties of transport and supply would be diminished in a corresponding degree. And further, if speed could be increased, still more advantage would be gained. At present, if a large force starts by one road, say, at 4 a.m., the last wagon may not move off for two or three or even four hours after that time, and will arrive at the end of the day's march correspondingly late. Therefore every reduction in the length of the column and increase in the speed of movement would be a great gain. Again, if the haulage be done by animals, delays for feeding are a necessity, and difficulties of watering may be serious and even in some cases make the use of a particular road impossible, or affect injuriously the laying off of marches, as halts cannot be made where water is not within reach. Add to all this, that in the case of animal traction, if the weather is very wet or very dry, the road will, under the shoe-pressure of such a multitude of traction animals, dependent upon foothold for their efficiency, have its surface completely destroyed, and thus made to cause greater wear and tear to animals and vehicles following, and possibly, if the road becomes badly rutted, to cause a serious breakdown of rolling stock, and impose much wearing fatigue on troops requiring to march by the road after some of the wheel traffic has passed. In short, war brings into exaggerated relief every disadvantage which appertains to animal traction. Notwithstanding its many disadvantages, animal traction has been till very lately the only mode of haulage in use by armies in the field, whenever any freedom of movement, either strategic or tactical, was sought for. A railway, of course, will bring forward supplies very rapidly, and as long as an army can accomplish what it has to do while clinging to a railway, no transport could be more efficient. But if an army is tied to rails, and has to limit its operations by the necessity of keeping close touch with an iron road, its commander loses all freedom of manœuvring, and his opponent is able to forecast his every move and foresee how far he can carry it. The present war has illustrated this very forcibly. As long as the commanders in the west and east of the seat of war were compelled to hold on to the railways, as their means of conveying bulk supplies, the Boers could make up almost impregnable positions to bar their progress. But where, with road transport, our generals were able to move out from the railways and round the entrenched positions without losing the power to bring food and supply munitions of war to their forces, the whole scene changed as by magic, and our opponents had to abandon their carefully prepared positions in haste, and even to suffer disaster.

The use of the road being thus an essential of successful military operations, does this not open out a promising prospect for those who are engaged in developing power traction? To this there can be but one answer from all who are familiar with the progress in mechanical haulage which has been already made. Even the now old-fashioned traction engine is not a power to be despised for army transport. At the risk of the imputation of egotism, I will say here that the volunteer brigade under my command was, as I believe, the first military unit to employ power traction in this country for this purpose. Five years ago, having arranged that the brigade was to march to camp as an exercise, the distance being a full day's march according to the military standard, I authorised the supply and transport department of the brigade to make a contract for the whole equipment and stores for 1,500 men to be conveyed by two traction engines. The military authorities at headquarters shook their heads over the proposal, prophesying that we should find our tents in the ditch when they should have been pitched, and our men waiting in vain for their evening meal when it should have been ready. But it was not so; our train came in in good time. There was, indeed, an accident to machinery, by which for the last mile or two one of our engines was not efficient, but the other, with its reserve of power, took on all the wagons, and triumphantly brought

* From a paper read before the Automobile Club, at the Automobile Exhibition, Agricultural Hall, London, on Saturday, April 21st, 1900.

them in. On our return march, the whole was accomplished without a hitch. Since then the War Office has become alive to the value of this mode of haulage, and a number of traction engines have been doing excellent work in Natal. I am informed also that an efficient traction engine transport was organised in India many years ago by Lieutenant-Colonel Crompton, who is at present engaged in obtaining additional steam transport for South Africa.

But such engines, drawing trains of wagons, are not the most suitable for military transport work. It is rather in the single self-driven wagon of moderate size, dragging one other wagon behind it, and having a capacity for speed considerably more than—say double—that of the ordinary traction engine, and with its machinery so placed as to add little to the length of the vehicle, that the most practical application of power traction for war supply is to be expected, for this would reduce the space occupied by a supply train on the road very considerably. In the first place, as the exigencies of military wagon transport make teams of four horses in many cases a necessity, a power train of double wagons would not take up so much as half the length of road occupied by an animal-drawn train, even if the wagons carried no greater load than at present. This, both from a convenient supply point of view and also from a military point of view, would be a much-to-be-desired improvement. For, of course, if a train is reduced to half its length, the necessary guard will only employ half the number of fighting men, and the exposure to risk of raids on the line of communications is diminished proportionately to the shortening of the line of vehicles. But the diminution would be more than one half, for as a train of 1,000 wagons will require probably 2,500 horses at least, in many cases the team occupies more road than the wagon. And where so many horses are employed, a considerable proportion of the train must be taken up with the necessary supplies for feeding and the appliances for tending, nursing, shoeing, clothing, and picketing the animals, and repairing and renewing harness. Also, as one man can only take care of two horses, the equipment and supplies for many additional men must be conveyed as compared with a system in which one man would take charge of each traction unit. Against all this there would be nothing to set except the weight of fuel and provision for repairs on machinery. Further still, a horse-drawn military wagon can seldom be loaded up to the extent of more than two tons, even if drawn by four horses, and therefore there would be a still greater reduction in the length of train, if each power vehicle could carry, say, four tons of load. Thus, if the horses were eliminated and the number of wagons reduced, it is not saying too much to assert that a convoy might be brought down to one-third of the present length, or even less.

Road difficulties would also be diminished in a marked degree. The surface of the road would not be cut up as it is at present, making it in dry weather a sea of dust, destroying foothold and causing wheels to run heavy, and rising in clouds to parch the throats, clog the nostrils, and close the pores of man and beast, while in wet weather it becomes a quagmire, hiding ruts and hollows produced by the excessive traffic, rendering marching a distressing exercise and traction an excessive strain on animal endurance. Also the power train, one-third of the length of the animal train, could be moved at six or even eight miles an hour, a speed twice as great as is now possible. Thus, while at present it may take some hours before the last wagon of a train can move off after the first starts, and accordingly it must come in the same number of hours late at the end of the march, an efficient power system would reduce the time to one-fifth of what it is at present. The capacity of the road for movement of troops and stores would therefore be greatly increased, and the fatigues and risks of the road sensibly diminished, as well as the delay at the close of the march by bringing up camp equipment and providing refreshment for the weary troops. Indeed, in any cases where an advance guard reported that the country in front was clear of the enemy, the supply officers could make use of their superior speed, could take with them a fatigue party and the cooks belonging to their column, and make progress in providing a meal while the troops were still on the march. And no one who has not experienced it can realise the difference it makes to the soldier, if after a long day he can at once, or at least without a tantalising delay, obtain his cooked meal. A wait of two or three hours in an exhausted condition in the evening may lower his capabilities for marching or work the next day, and his entire *morale* for more than one day, and in a very considerable degree. It is safe to predict that efficient power traction would do much to prevent risk of the soldier being exposed to such trials of endurance and the consequent loss in strength and addition to cost.

Add to all this, that the mechanically driven vehicle is not like a hauling animal in one particular vital to the question—it does not require periodical stoppages of considerable duration in order to gather physical strength that has been exhausted. An animal can only do a certain amount of work in a day. The power vehicle is not limited to what is called a day's work, and compelled to rest when extra work has been done. It is as fit for work the day following a forced march of, say, forty or fifty miles as when it has been standing idle for a day. The commander has no questions of exhausted transport animals to consider, a matter which may often be most serious, hindering his freedom for advance, and greatly increasing his difficulties in retreat.

All these considerations tend to one conclusion—that successful enterprise in the construction of transport vehicles for war purposes will be of incalculable service to an army in the field.

Turning now for a short time to the combatant side of the question, it will be seen at once that the possibilities of substituting power traction

for animal haulage are much more limited than in the case of transport. As regards all cases where the road is to be left for the open country, the only traction which requires to be seriously considered is that of guns and machine guns. And it is evident that as these must often be forced over broken and even obstructed ground, power traction, as far as it has been developed up to the present time, is not practicable. Anyone who has seen the way in which even field batteries are made to fly over ditches, low fences, and boulder-strewn ground, and up heavy gradients can have no doubt on this matter. Until lately, there has been no development of traction at all within the fighting zone for any other purpose than the handling of artillery, ammunition supply carts, and water carts. But we have in the armoured train the first beginnings of the use of power traction for combatant purposes. Both in Egypt and in South Africa such trains have done useful service, although their capacity for good work is necessarily limited by their being confined to a fixed line of railroad, which is easily destroyed, and if in any degree broken up may reduce an armoured train to nonentity, and expose it to capture. National defence is the primary consideration in the development of fighting resources, and if roads can be effectively used for fighting by aid of power-traction there is no country better equipped for doing so than our own. I think it will be found that there is great scope for development in this direction. High-speed motor-vehicles, with bullet-proof sides, would be of great value in the advance-guard and rear-guard work of an army. Such vehicles, capable of a speed of 15 or 20 miles an hour, could be moved out in front for long distances, each carrying ten or a dozen men and followed by cyclists who could search the country between their own road and the next on their flank, sure of assistance from a pivot machine gun on the wagon in covering their retreat if driven in, and confident that they could run the gauntlet, and get back under its protection if they were outflanked or outnumbered, the cyclists using the armoured car as cover by riding in front or at the side of it during retirement according to the direction of the enemy's fire.

But still further, there may be good ground for believing that the introduction of power-traction may prove the solution of the difficulty which to some extent hampers the efficiency of the fighting cyclist. But if cyclists were accompanied by a fast moving armoured power-vehicle, they would have much greater freedom. Ingenuity would provide a locking bar arrangement by which the cycles could be made up in groups, so as to run upright freely when hauled by the wagon. Thus they could be taken forward or back as required. The rifleman having been brought rapidly forward by his bicycle, would be able to do his field duty without troubling himself about the safety of his machine, which would be moved about and defended by those working the small moving fort, with its Maxim gun, and both could thus do their duty for the general end in view, the rejoining of cycle and man being for the time a secondary question.

Such small mobile forts as have been spoken of would certainly be useful in many ways. They might be invaluable in protecting a flank of an advance in battle, and nothing could be better in a retirement for enabling a rear-guard to hold on for some time, and so check a pursuing enemy. Their high speed would also make it possible to move them by cross roads to any point of a line of battle where they might be of service, and, of course, wherever there was fairly even surfaced grass land they could be taken off the road and run over the open country. Like the old *testudo* of the Romans, they would, in moving, carry their own cover against the missiles of the enemy, but with the advantage of travelling at a speed in proportion to the increased range of modern armament, and being able to disperse for fighting, with their *testudo* to aid them, and on which they could fall back, they would combine some of the mobility of the hare with the hardness and shell of the tortoise. Where it was necessary to defend, or to assault a bridge or a defile, or to repel an assault, such vehicles would be invaluable to race forward and cover an attack, or to hold on as a tortoise fort in defence until reinforcements could arrive. In a day when cover from musketry fire must be sought by both attacker and defender in the field, such movable armour would often be most useful as an aid to success in fighting.

I will ask you to consider two more points. The first is whether in such an accident as happened to our guns and convoy three weeks ago, to the east of Bloemfontein, the presence of a few military armoured wagons with pivot machine guns and haulage power, might not have made all the difference in saving of guns and the protection of the convoy. In these days when a successful ambush is a veritable death-trap, and when it is not bravery but foolhardiness to ignore cover, are there not great probabilities before us in mobile cover obtained by mechanical traction. The second is, whether there is not great gain in possessing a haulage power which has no nerves and no vice, which has no tendency to stampede, and never sulks or jilts, is unaffected by tetse fly, and never takes the bit between its teeth.

Allow me now for a few minutes to sketch what might be the traction equipment of an army in the field in the next great war, which, let us pray, may find us neutral. Out in the front, on every road, armoured high speed vehicles mounted with pivot machine guns, such as I have described, to co-operate with the mounted troops and cyclists in covering the advance, feeling for the enemy, and capturing and holding bridges and fords and places of vantage, and at another time aiding in the converse duties in covering a retreat, and also in general engagements giving support at points as required, and protecting flanks; in the transport, power vehicles, with a maximum speed of, say, 8 to 10 miles an hour, every tenth or twelfth being a service vehicle, armoured, and of extra speed and horse power, carrying a pivot machine gun, the

driving engine so fitted that its power can be used for working purposes, each being supplied with, say, 20 or 30 fathoms of steel ropes. These service vehicles would also carry certain appliances: for example, one would carry a small forge or smith's tools, another wheelwright's plant; another spare parts for the driving machinery; another screw jacks, anchor pulleys and block and tackle for heavy warping work; another small arms repairing plant; another spare bullet resisting plates; another search-light appliances; another an entrenching plough, to be hauled by steel cable, and all would carry some entrenching tools. These vehicles would be the centres of defence of the convoy, and a power traction transport would have many advantages for its own defence. In the case of horse traction drivers must stay by their horses and manage them, but with power traction all drivers can concentrate with the escort at the armoured vehicles, thus making the defence stronger. These vehicles being mobile could be moved as the exigencies of the resistance to attack might make necessary, and being armoured they could offer a much more effective defence. Again, where steep hills are encountered these service wagons having extra horse power could assist the ordinary wagons. In case of necessity they could be used with their steel ropes to work the wagons up gradients, either by warping over an anchored pulley at the top of the hill, or by simply first ascending the hill and towing till the towed wagon reaches the top and then returning to tow the next. One can imagine how much time would be saved in such a case. One can also see that where, as is the case in the present war, it is necessary to move heavy guns up very steep slopes, such service power wagons could be anchored and used to haul by wire ropes over anchored pulleys, and with block and tackle where necessary, instead of using teams of eighteen or twenty oxen, and in some cases hundreds of men. These are but some of the prospective advantages of mechanical traction. Many others will present themselves as experience widens. Lastly, these service wagons having extra power and only carrying a light load, could be attached to and haul any transport wagons whose traction power might be disabled from any cause.

It only remains in this outline of the subject to consider what is the best class of motor to be employed. It would appear that there are at present only three possible sources of power which would be suitable for the class of work which is likely to be required in war—steam, heavy oil, or light oil. The other sources of power sometimes used in traction—compressed air and electricity—are evidently out of the question. Kerosene, petrol or benzoline, although they have proved themselves highly efficient for ordinary road traction, present serious difficulties when it is proposed to apply them to war transport. They are ill adapted for use in hot climates, and might be a source of considerable danger if carried in bulk in a military wagon which may be struck by heavy shells, and the volatile spirit scattered over the wagons near and set on fire. Heavy oil does not present the same difficulties, and it may be found that the progress of invention will develop this mode of traction to a high practical efficiency for wagon haulage. Steam raised by oil fuel or by a combination of solid fuel and oil fuel presents only two difficulties; the one is its dependence upon a water supply sufficient in quantity and of a quality not tending to incrustation. Such a supply may not always be available, and without it steam traction must break down. The other difficulty is that any escape of steam would betray the presence of the convoy to the enemy at very great distances. Everyone knows how easily condensed steam can be seen over many miles of country. Upon the whole, although one must express any opinion with diffidence, it seems likely that explosion engines worked with heavy oil give the greatest promise of success for war transport.

It is certainly matter for congratulation that while on the Continent and in America attention in motor-traction circles seems to be mainly concentrated on fast passenger vehicles, much progress is being made in this country in the development of heavy van and wagon power traffic. Those who are engaged in the study of this important branch of a new industry may rest assured that there is a great field open for design of vehicles suited for war purposes. The present war has led to Her Majesty's Government announcing many changes in the military organization of our forces in time of peace. And one of the most important of these is that the Volunteer force is to be supplied with transport, the purpose being that there may always be a large number of standard military vehicles ready for use on an emergency. It will lie with the manufacturers of mechanically-driven wagons to convince the War Office authorities that they can turn out efficient vehicles for transport purposes. If so, it is difficult to believe that they will not be adopted, and orders given for their supply to our home defence forces, for nothing can be more certain than that such vehicles, if found practical, will be most suitable for the purpose. In time of peace transport carriages must necessarily stand idle for considerable portions of the year, particularly if employed for volunteer corps. Intermittent horsing is always expensive, and as a preparation for active service most unsatisfactory. But the motor part of a power wagon can be always ready for use, and will cost nothing for up-keep beyond the price of proper preservative grease when it is laid up unused for a time. At any moment it can be turned out efficient, and the training for its management under proper skilled inspection is not difficult. And as the wagons can be constructed for heavy loads, and can cover at least twice the number of miles that can be covered by animal traction, in any given time, a much smaller number would be necessary, thus compensating for any extra initial cost per wagon.

May the British citizen from motives of humanity as well as of patriotism give attention to the question of war traction, and if he does so, the members of this club cannot doubt that mechanical power will prove itself efficient above all other modes of road haulage. But the designer and the builder must not wait until a Government Department

seeks them out and asks for their aid. The war authority is too busy at present, making the best use it can of the means now at its command, to take any initiative in the adoption of new appliances. But the departmental powers of other nations, and notably of Germany, having no war on their hands, are working at the problem, and we are told that the Emperor has offered a large premium for the most suitable motor-vehicle for war purposes. Our designers must not be behind the world, nor must they wait for offers of premiums. They must put trust in their own exertions and in nothing else. Let them put before the country, as we know they can, specimens of their thought, their experience, and their inventive power—vehicles which will not break down under trial, but will be as efficient for the road as the locomotive engine has so long been for the rail.

FURIOUS DRIVING CASE.

ON Thursday, last week, at the Stockport Sessions, a Mr. James Lowe, described as a music dealer, of Manchester, was summoned for furiously driving a motor-car at Handforth on April 7th. A police-constable stated that on the date mentioned he was in Wilmslow Road, Handforth, when he saw the defendant coming down the hill at a rate of seventeen miles an hour. Mr. Lowe said that he had covered 2,000 miles on his car, and the average speed was only nine miles an hour. He could not go so very fast because the car was only geared at twelve miles per hour. Constable Mellor gave evidence that, armed with a stop-watch, he timed the speed of the motor. It covered 220 yards in twenty-six seconds, which was equal to a speed of more than seventeen miles an hour. The Clerk: How do you get the distance? The Constable: Oh, we have the distance marked out and measured. A fine of 20s. and costs was imposed.

A MOTOR-CAR ACCIDENT AT LOWESTOFT.

THE *Eastern Daily Press* announces that, "on Thursday, last week an accident occurred at Lowestoft, in which a motor-car played an aggressive part, and at least eight persons suffered injuries more or less serious." Mr. W. R. Youngs, who was driving the car, furnishes us with the following account of the accident:—"I shall esteem it a favour if you will insert a few facts in reference to the motor-car accident, as the reports that have gone forth are not altogether accurate. It was an accident pure and simple. To avoid colliding with two lads on cycles, who crossed in front of me, I turned sharp to the right, only to find about a dozen or more children within a few feet of the car. Though fitted with powerful brakes I dared not apply them, as by the time the car stopped many of those children would have been crushed between the car and the wall. The only chance I had was to throw the steering lever hard over to the opposite direction, which would have cleared the children, but for a mail-cart which was standing with them. Just one inch of my hub of the rear wheel caught the mail-cart, with the unhappy result of sending the children spinning against the wall. I found on getting off the car I had knocked down a man and his little boy on to the bank, the front wheel still resting on his leg. I might say that up to this time my passengers did not know that anything had happened. I got the man on my car and drove him home. No damage, not even a scratch, was done to the car. The road is one which I have come up and down scores of times and is not in any way dangerous."

SAD DEATH OF A MOTOR-CYCLIST.

LATE on Friday last the death occurred at Coventry of Mr. John Slaughter, eldest son of Councillor Slaughter. An inquest was held on Tuesday, when the evidence of Mrs. Emma Slaughter showed that the deceased was a cycle traveller, employed by Messrs. Bayliss, Thomas and Company, Limited. He was forty years of age. About a month ago he went for a three weeks' tour on a motor-cycle, and the evening after he returned he said he had met with an accident, that he was going along the road behind a carriage and pair when the noise of the motor frightened the horses, who pranced and backed, and knocked him off his machine. He lay in the road for an unknown period, as the man drove the carriage on. He showed Mrs. Slaughter marks on his hands, and said it had given him a good shaking. He became ill, and three weeks after receiving the injury he went to bed. Dr. Brown was sent for, but deceased grew worse, complaining of great pain between the shoulders, and coughing, and died on Friday last.

Mr. Chas. Timberlake, the Tunbridge Wells agent of Bayliss, Thomas and Co., proved that on March 16th deceased came to him and asked for his cycle to be sent for from the station, as he had had an accident. He said he was coming from Guildford by Dorking to Tunbridge Wells, and when about six miles from Tonbridge he was riding behind a carriage and pair, when the horses took fright, and the coachman kept pulling the horses back right on to him. The motor was stationary when the accident happened, as the deceased was waiting to see how the horses would behave. He further said that he fell between the wheels, and that they drove away and left him unconscious. When he recovered he wheeled the machine to Tonbridge. He was a good cycle and motor rider, and a strong, healthy man.

In summing up, the Coroner expressed the sympathy of himself and the jury with the relatives of the deceased. The evidence, though of a second-hand nature, was absolutely clear, and the only point for the jury to consider was whether the ribs of the deceased had been fractured at the time of the accident, upon which matter the medical evidence was very conclusive.

The jury returned a verdict of "Accidental death," and expressed their sympathy with the deceased's relatives.

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COMMENTS.



proving a really arduous pilgrimage and is something more than a mere holiday—as can be inferred from some of the photographs published in our pages this week.

Dr. Turner's Experiences.

In the current number of *Chambers's Journal* Dr. Dawson Turner, of Edinburgh, gives some of his experiences with motor-cars. His first car was a De Dion-Bouton quadricycle, and he tells how, on one occasion when his stock of petrol was exhausted he filled the reservoir with ordinary lamp oil. He then made a bonfire with some newspapers under the reservoir, continuing the heating until the vapour of the lamp oil could be seen escaping up the float-chimney. The result was magnificent and the following six miles were covered at a great speed. On the motor slackening the experiment was repeated with success. Dr. Turner did all these things in his innocence and, needless to say, does not recommend others to do likewise. His present car is a Delahaye phaeton on which four people can be conveyed from Edinburgh to Carlisle at a cost of less than ninepence each for fuel. Dr. Turner's article will be of general interest to the public whose curiosity in automobilism will have been aroused by the great Trial now in successful progress.

Modern Motor-Vehicles.

At a meeting of the Leeds Association of Engineers on Monday, the President (Mr. Joe. A. Tempest) in the chair, Mr. Rowland Winn read a paper on "Modern Motor-vehicles." These, he said, were a great improvement on the machines of three years ago. There were complaints about the price, but this could be reduced when the demand increased. He described in detail the various kinds of motor-vehicles made in this country, in France, and in America, and pointed out the more important features of each. He preferred the smaller sizes of cars, driven by spirit motors. Electricity was an ideal power, there being no connecting rods or gear for producing different speeds required; but up to the present satisfactory accumulators had not been invented. A discussion followed, in which Messrs. J. C. Jefferson, C. Koerte, J. H. Mann, R. W. Crabtree, and others took part. A vote of thanks was accorded to Mr. Winn.

The Postal Motor-Van in Ceylon.

CEYLON has often been described as "a plucky little, tight little island," and this is not a fancied description. As an instance of the "push" of the island a paragraph from the *Times of Ceylon* shows how the authorities are endeavouring to further improve a comparatively good inland postal service, which is at present conducted by horse-coach. "The post office motor-car left Colombo on February 21st on its trip to Avisawella, returning the same day without any mishap, the journey out being performed in good time. The car, in charge of Mr. Summers and his assistant, left the Fort at 8 a.m. and reached Kaduwella at 9.45 after a smooth run, while it next stopped at Hanwella, and then went direct to Avisawella, which was reached at 12. No difficulty whatever was experienced, and the hilly portions and bends were negotiated without any mishap occurring. After a few hours at Avisawella the return journey was commenced at three o'clock, the ground being covered at an easy speed, with occasional halts by the way, Colombo being reached at eight o'clock. The experiment was made with a view to see how the car would travel on long-distance journeys, and the result was satisfactory. The distance, we understand, could have been covered in half the time, but there was no necessity for a hurried trip." The van in question was, it may be remembered, built by the Lancashire Steam Motor Company, and supplied through Messrs. J. Harvey and Co., of London.

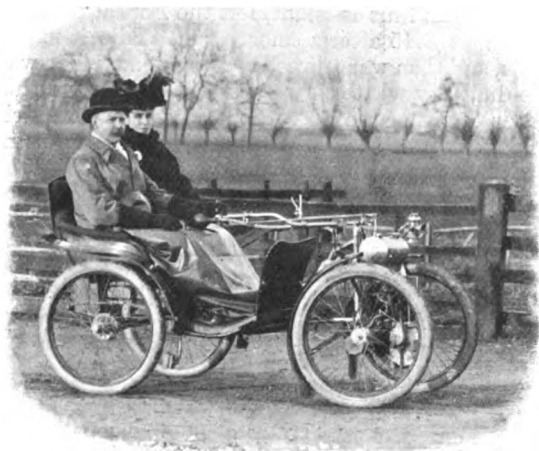
Municipal Authorities and Motor-Vehicles.

HARDLY a week passes by without some local authority announcing its intention to adopt motor-vehicles. The matter has for some time been agitating the minds of the members of the Public Health Department of the City of London Corporation, and while not going as far as the Chelsea and several other Metropolitan vestries, they have decided to give the automobile a trial, for it is now announced that the Streets Committee are prepared to consider proposals from firms experienced in the manufacture and use of electric motor-cars for the hire of an electrically-driven dust-cart for collecting and removing the dust and trade refuse and street sweepings from the City to the Corporation's dépôt at Letts Wharf, Commercial Road, Lambeth. June 1st is the last date for the receipt of tenders.

Protection of Municipalities.

AMONG the many suggestions put forward for the efficient protection of French towns and villages against the onslaught of the ferocious *chauffeur*, not the least original is that of Paul Meyan. The proposal of this gentleman is simply to place across each road, and in close proximity to the town, one of those deeper species of *caniveaux*, or water courses, which occur at regular intervals on many of the French routes. There is but little doubt that the adaptation of this scheme would effectively reduce the speed of cars when entering a town, and if, in addition, the main thoroughfares were constructed of good bumpy *pavé* the motorist's passage would in the future be as humble and subdued as it is to-day overwhelmingly aggressive. As would naturally be expected, M. Meyan's suggestion has

given rise to a storm of protests from certain sections of the automobile world, mingled with much amusing chaff. "As a fair example of the latter," writes our Paris correspondent, "I may instance the humorous circular which recently appeared in the columns of *Le Journal des Sports*. This circular, headed 'The Improved Water Courses and Caltrops Company, Limited., for the rapid destruction of automobiles (patents Meyan),' goes on to announce 'that in order to meet the wishes of a great number of municipalities we have founded, under the patronage of M. Meyan, a society for the construction of exceedingly treacherous *caniveaux*, designed to destroy with the least possible delay the most perfect automobiles.' Then follows a brief specification of each of the three types actually being delivered. The first designed to provide slight shocks to voituresses and cycles, the second guaranteed to smash the springs, etc., of the same classes of automobiles, while the third type, specially constructed to give a multiplicity of shocks, and provided with a layer of broken bottles and bayonet points, assures, without possible contestation, terrific croppers, and the infliction of serious injuries. In conclusion it is announced that "the engineer in chief, M. Meyan, is studying a new type of *caniveau* with bath, douche, and irrigation complete of the *chauffeur* and motor, which will assuredly command a great success. There should be a great future for this new society, and the shares will certainly be eagerly taken up."



MR. DAN ALBONE ON HIS "VICTORIA COMBINATION" VOITURETTE.

Exhibition at Antwerp.

ON the 23rd ultimo the Salon de l'Automobile et du Cycle, at Antwerp, closed its doors after an exceptionally successful display, during the course of which some 10,000 visitors made a tour of the thirty or so stands installed in the beautiful halls of the Société Royale d'Harmonie. This is the second occasion upon which the Salon has been promoted by the Syndicate of the Sporting Press of Antwerp, and unquestionably it is greatly conducive to the advance of the industry in Belgium. In the absence of the burgomaster, M. Jan Van Ryswijck, the task of formally opening the exhibition fell on Alderman Verspreuwen, and he was assisted by many of the city dignitaries. The gala day of the show, however, was that when Prince Albert of Belgium paid a visit to the exhibition, for the assembly of *chauffeurs* demonstrated their loyalty in no half-hearted fashion and accorded the Prince a right royal welcome.

Registration of Motor-Cars.

AT a meeting of the City of London Corporation last week the County Purposes Committee brought up a report in reference to a letter of the clerk to the Surrey Standing Joint Committee on the subject of the registration of motor-cars, with instructions to confer with the Police Committee thereon, and recommended "that a representation be made to the Local

Government Board as to the desirability of a registered number being affixed to all light locomotives, so as to provide for their more easy identification." The recommendation was agreed to.

America's First Automobile Race.

THE first real automobile race ever held in America was conducted on the 14th ult., on the famous Merrick road on Long Island, the start and finish being at Springfield and the turn at Babylon. Electricity carried off the honours of the day, with steam second and petrol a very good third. The race was under the auspices of the Automobile Club of America for a silver cup, donated by M. Léon Blanchet, of the Automobile Club of France. The distance was fifty miles and the competitors were started at intervals of thirty seconds to prevent confusion. Messrs. S. T. Davis, jr., V. Everett Macy, William H. Hall, A. L. Barber, jr., and David H. Morris drove steam carriages; and Messrs. Albert C. Bostwick, George F. Chamberlain, David Wolf Bishop, jr., J. C. McCoy, Jefferson Seligman, C. F. Weston, and A. Fischer drove petrol vehicles. Mr. C. J. Field, with Kenneth Skinner for his companion, drove a De Dion voiturette, and Mr. A. L. Riker had an electric racing carriage. The race was won by Riker in 2 h. 3 mins. 30 secs., with S. T. Davis (2 h. 18 mins. 27 secs.) and A. Fischer (2 h. 30 mins.), second and third respectively. Mr. Riker's vehicle carried sixty cells of batteries and weighed 2,500 lbs. A unique feature of the race was an unofficial contest between Mr. C. H. Tangeman and Mr. Riker. Mr. Tangeman was not entered in the race, but he started on his De Dion tricycle at the same time as Mr. Riker and beat the latter by nearly 5 minutes on the home stretch from Babylon to Springfield.

The Sultan's Automobile.

It is reported that the Sultan of Turkey is so delighted with the automobile supplied to him by a German firm of constructors, that he has conferred the Order of the Medjidieh upon Herr Kuhlstein, the works manager of the Charlottenburg factories, near Berlin, under whose direction the car was built. The automobile is already going far afield, for almost every week one hears of its use in countries many miles removed from the centres of its manufacture. In the French colonies on the north and west coasts of Africa several cars are employed, and their number would undoubtedly be largely increased but for the difficulty in obtaining petrol.

A CORRESPONDENT, signing himself "K. M. F.," writes:—"Could any of your readers recommend me a reliable motor for a sea-going dinghy, 11ft. by 4ft. A speed of 5 knots per hour would suffice."

UNITED MOTOR INDUSTRIES (Paris), 64 and 65, Holborn Viaduct, London, E.C., inform us that they have secured a renewal of the sole British agency for Messrs. Bassée and Michel, the well-known makers of coils, sparking plugs, etc., etc., and also for the "Universal" motor-tricycle saddle.

A FLORAL fête, organised to commemorate the raising of Bournemouth to the status of a county borough, was carried out on Wednesday with great success. As some valuable prizes were offered for the best decorated vehicles, best tableaux, and fancy costumes, there was a splendid show. One of the most interesting prize winners was a decorated motor-car, bearing the legend, "Looking Ahead."

MR. HENRY EDMUNDS, a member of the Automobile Club Committee, is offering a prize of £5, or, if preferred, a cup or object of art of that value, for the best twelve photographs taken on the 1,000-Mile Trial. Mr. Edmunds will select two members of the club committee to assist him in judging as to which is the best series of photographs submitted. The photographs selected are to be the property of the Automobile Club. Prints of photographs which are submitted for this competition should be mounted on cardboard and sent to the club under cover, marked "Photographic Competition."

The Automobile Club's 1,000-Mile Trial.



THIS Trial is now in the second week of its progress, and the results, so far, have completely justified those who urged the Automobile Club to embark on the undertaking. Such a contest, conducted without the incitement of great rewards or large gains, must assure the public with regard to the future of automobilism in this country, and prove to all that mechanical traction on our country roads is rapidly passing beyond the experimental stage, and is destined to play an important part in the transit of goods and the conveyance of passengers in the Twentieth Century.

The weather has been favourable on the whole, although the dryness has revealed a quantity of dust on our roads, which even veteran drivers of horse-drawn vehicles could hardly have regarded as possible. Those who have taken part in the tour have certainly experienced a succession of varying climatic conditions that must have proved exceptionally interesting to those unacquainted with the differences in temperature which make themselves felt over a long stretch of country in our little island, and many will be the reminiscences they will have to tell when they return to town as to the trials and ordeals they have undergone.

The first stages of the trip were duly chronicled in our issue of last week. From London to Bristol, and from Bristol to Birmingham, the trial took place through agricultural districts, and opened up delightful vistas of delightful English landscapes such as could never be realised from a railway carriage. Then from Birmingham to Manchester the aspect of the country changed, and on the cobbles of some of the Lancashire roads quite a different set of circumstances prevailed. The route from Carlisle to the modern Athens must have proved exceptionally interesting, and the day spent at Edinburgh yesterday (Thursday) was a really welcome change after more than a week of hard

week's reports. Next week's chronicle will tell of the return of the automobiles Londonwards, and the following concluding portion of the itinerary will be of interest as marking the later stages of the great Automobile Trial in the closing days of the nineteenth century:—

		Miles.
May 4	Edinburgh to Newcastle-on-Tyne	121½
" 5	Exhibition at Newcastle	
" 7	Newcastle to Leeds	103
" 8	One hour exhibition at York	
" 9	Exhibition at Leeds	
" 9	Leeds to Sheffield	74
" 10	Three-hour exhibition at Bradford	
" 10	Exhibition at Sheffield	



PREPARING FOR THE DAY'S RUN.

" 11	Sheffield to Nottingham	82½
	Racing in Welbeck Park	
	Two hours' exhibition at Lincoln	
	Evening exhibition at Nottingham	
" 12	Nottingham to London	123½
	Vehicles proceed to the Crystal Palace	
" 12-19	Exhibition at the Crystal Palace of all the vehicles that succeed in going safely through the 1,000-mile Trial.	

ON THE LONG PILGRIMAGE.

BY OBSERVER.

MANCHESTER, FRIDAY NIGHT.

EARLY this morning we were astir getting the vehicles ready, and despite the early hour a good concourse of people saw us leave Bingley Hall and start on our way for Sutton Coldfield to Dr. Johnson's ancient city of Lichfield. Sir Francis Jeune not long ago reminded us of the worthy doctor's suggestion as to travelling in a postchaise, and as the reflection as to his feeling with regard to motor-cars is obvious I will not pursue Dr. Johnson any further, but continue the chronicle of my journey with the interesting statement that breakfast was indulged in at Lichfield. From thence to Burton we went along steadily and well, nothing of importance passing us on the way, but it was clear from the muddy state of the roads that rain had fallen during the night, and so we had a condition that had befallen us but once so far.

It was market day at Derby, and we were cautioned to drive at nothing more than six miles an hour owing to that fact. Naturally the streets were abnormally crowded, and a quicker pace would have been both difficult and dangerous. Probably the only incident of importance—if such an affair can be deemed worthy of publication—was the attempt of a cow to enter a car: an adventure to be ascribed to the excitement of the animal's nerves and not to any idea of curiosity. Beyond Duffield the



THE TOLL GATE AT MAIDENHEAD, WHERE THE CARS WERE TIMED FOR THE CONTROL THROUGH THE TOWN.

Photo. by]

[Mr. Edgar Scamell, Crouch Hill.

driving and riding. In the following pages we publish some interesting articles dealing with the progress of the cars from Birmingham to Edinburgh, and also some minor incidents in connection with the earlier stages which were crowded out of last

vehicles ran through the valley of the Derwent, and, passing through Bakewell to Macclesfield, permitted the tourists to enjoy a fine sample of Derbyshire scenery.

In the pleasant town of Matlock I took lunch—amid the most pleasant surroundings so far seen on the tour. Green hedgerows and long winding lanes may be the dream of the poet, but there is a pleasure and beauty of their own associated with the low stone walls that intersect the fields of Derbyshire, especially when there are hills to go up and hills to go down, giving one sensations of a peculiar and wonderful character. From Matlock to Bakewell was a grand run, and at all the corners on the way to Ashford little knots of people assembled to see the rather straggling procession. On the way out from Matlock an unfortunate accident occurred to one of the De Dion voitures, which had done very well in the early stages of the journey. The car had to cross a patch of stone, and this evidently proved a finishing touch to a latent flaw in the spindle of the near front wheel. The spindle snapped, and its fellow on the off front wheel followed suit, with the result that both wheels left the car, the fore part of which fell on to the road. But that was a mere incident in the campaign, and the rest of the cars went on, little heeding the pieces. Sometimes cyclists would venture to outpace us, but gave up after a few miles. One venturesome rider came up too



UNOFFICIAL OBSERVERS ON DUTY.

near our car, and was nearly knocked down as we suddenly stopped because of an obstruction in front. Why do men risk their lives for the little "cover" they get from a motor-car?

At Bakewell there were some peculiar styles of roads. Deep ruts had been covered with dressings of macadam, and one sharp flint, more obtrusive than its low-lying fellows, played upon the tire of the Wolseley voiturette. Still the other cars went on, their passengers truly thankful at escaping without breakdowns the fearsome character of these treacherous roads. Probably one of the most delightful parts of the "drive" was from Darley Dale to Rowsley, and not a few would have been glad to have turned into Chatsworth. But we were motoring, and motoring is not mere sightseeing. It is something more; some would say something less.

HILL CLIMBING AT TADDINGTON.

Taddington Hill is sixteen miles beyond Matlock and over two and a-half miles in length, with an average gradient of one in twenty-one. At places it is as stiff as one in twelve and a-half, so that it will be seen to constitute no particularly easy test. The ascent really began two and a-half miles from Ashford and finished at the sign post, about 140 yards from the summit, a little above Taddington village. Herewith I give the official figures in connection with the climb, which show that the general average was a very good one. It would have been interesting had the

time occupied by the cars in making the ascent been also given, but those who are curious on that point can work it out for themselves:—

		Miles per hour.
A 16	Mr. Wilson's Ariel tricycle	18. 9
A 17	Hon. C. S. Rolls's 12 h.p. Panhard	17. 7
3	Ariel quadricycle	15.13
A 22	Mr. Holder's 12 h.p. Daimler	14.40
4	Ariel tricycle and trailer	14.40
A 10	Mr. E. Kennard's 8 h.p. Napier	13.74
A 11	Hon. J. S. Montagu's 12 h.p. Daimler	11.19
5	Locomobile steam car	10.08
15	De Dion voiturette	10.08
A 4	Mr. Mark Mayhew's 8 h.p. Panhard	10.08
40	Wolseley voiturette	10.08
20	Simm's motor wheel	9.45
26	Mr. C. Friswell's 8 h.p. Peugeot	9.45
31	M.C.C. Triumph	9.45
37	Daimler Company's Parisian	9.15
51	Star voiturette	9.15
A 28	Mr. Iliffe's Entfield quadricycle	9.15
22	Lanchester 8 h.p. car	8.62
A 30	Mr. Siddeley's Parisian Daimler	8.39
A 24	Mr. Phillips's Mors Duc	8.39
16	Gladiator voiturette	8.17
A 3	Mr. Browne's Panhard	8.17
A 31	Mr. Exe's Parisian Daimler	8.17
A 29	Mr. Mayhew's 7 h.p. Peugeot	7.74
32	M.C.C. Triumph	7.56
2	Hewetson's Benz	7.18
33	Decauville	6.70
A 25	Mrs. Bazalgette's Benz	6.70
36	6 h.p. Daimler	6.55
47	Richard car	6.43
A 12	Mr. Edmund's 6 h.p. Daimler	6.43
27	New Orleans voiturette	6.30
34	Decauville	6.30
35	Daimler	6.30
A 23	Mr. Cordingley's Motor Manufacturing Company's 6½ h.p. Phaeton	6.30
44	International	6.17
52	Roots and Venables car	5.80
A 26	Mr. Gregson's 6 h.p. Daimler	5.80
A 2	Mr. Butler's 6 h.p. Panhard	5.69
9	Motor Manufacturing Company's Iveagh Phaeton	5.49
1	Benz Ideal	5.39
8	Motor Manufacturing Company's 6 h.p. Panhard	5.29
41	International Victoria	5.29
49	Marshall 5 h.p. car	4.94
23	Brown-Whitney steam car	4.56

No. 35, a 6 h.p. Daimler, was very unfortunate in the fact that when about half-way up the hill the petrol gave up, and five minutes were lost in requisitioning the reserve supply—not an important matter on a 1,000-mile journey, but decidedly awkward on a hill-climbing contest for only two and a-half miles. The performances of the tricycle and quadricycle driven by Mr. A. J. Wilson and Mr. J. Stocks respectively are remarkable, but it must be borne in mind that the motors driving these vehicles are capable of assistance, and were in each case assisted by pedalling. The speed obtained by Mr. Rolls's car in ascending the hill, viz., 17½ miles per hour, was exceedingly good.

The hill climbing over, the journey was resumed, and into Buxton, with its stately and dignified aspect amid typical Peak scenery, the first of the "cars" was the "Century" motor-cycle. On the way to the Cat and Fiddle Inn many cars showed more trouble than up the previous hills, and there was a good deal of snorting and puffing and plodding. Macclesfield seemed delighted, and then we rushed into Manchester—whither some had preceded us, and many were to follow.

The order of getting on to the day's destination has been rather varied to-day, and instead of Messrs. Rolls and Edge occupying a twin position of honour they are in the third and fourth positions respectively, for Mr. J. R. Hargreaves' 12-h.p. Daimler and Mr. Alfred Harmsworth's 6-h.p. Parisian Daimler were before them. Other vehicles early into Cottonopolis were a M.C.C. Triumph, which was the first of the voiturettes, the Gladiator voiturette, a De Dion voiturette, No. 15, and the Empress bicycle ridden by Mr. Herbert Ashby. In this short list it will be seen the little cars occupy a good position, one of the remarkable results that is occasioning much comment among the ardent automobilists now assembling in the city.

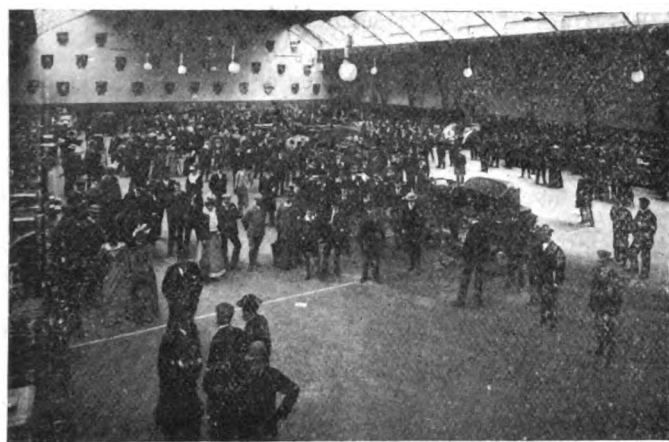
KENDAL, Monday Night.

The first week of the Trial being over, some experience has been gained, with the result that for the first time the way was led this morning by a pilot car, an innovation which, had it been adopted earlier, would have given us more the appearance of a procession than has been the case, and the disappointment of many towns on account of the straggling way in which the cars arrived would have been avoided. Anyhow, this morning we streamed off in single file, with strict injunctions as to observance of the passing rule. As the first half of the day's journey lay through populous districts, a pilot car, that of the Hon. John Scott Montagu, M.P., with Mr. J. Slater, of Pendleton, on board, was deputed to lead the procession all the way to Preston, a distance of about thirty miles, and no car was allowed to pass it at any time. The remaining cars were also forbidden to change positions unless any of them were temporarily disabled or slowed

Daimler, a Star motor-car, the Locomobile steam car, and a Daimler phaeton, driven by Mr. Critchley.

At Preston there was a brief halt for breakfast, and then the journey was resumed for Lancaster and Kendal. We had an eight-miles-per-hour spell through Garstang ere reaching Lancaster, at which place, despite the short-time allowance for lunch, the local control officials unconsciously led the cars right through the town and away from the hotels before the signal for a halt was given. After luncheon in the old Lancastrian capital the journey was continued amid pleasant conditions, as not only had the early rains laid the dust, but the road surface was better, the country more picturesque, and a great deal of spontaneous enthusiasm was shown by the people of the rural localities through which we passed.

Again Mr. Rolls and Mr. Edge came first and second as regards the entry into the town of our night's stay, the third



THE EXHIBITION AT THE DRILL HALL, BRISTOL, ON TUESDAY, APRIL 24.

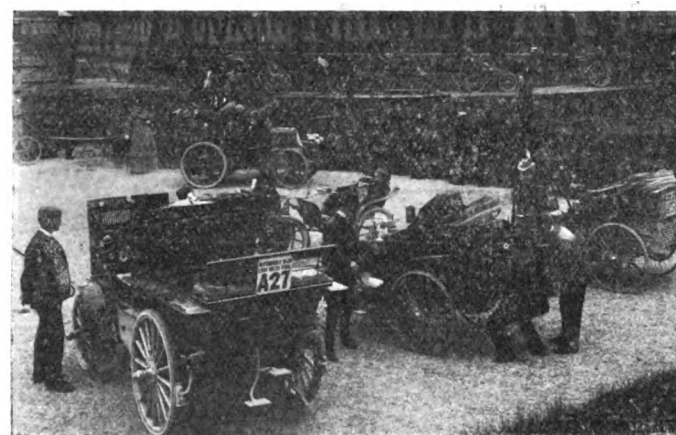


THE ARRIVAL AT CHELTENHAM ON WEDNESDAY, APRIL 25.



THE EXHIBITION AT THE WINTER GARDENS, CHELTENHAM.

[Photos by]



PREPARING TO LEAVE CHELTENHAM.

[Mr. Argen' Archer, Kensington.]

down from any cause to a speed of less than eight miles an hour. This was the speed maintained through the various towns, while even on the open road the pace of the pilot car never exceeded twelve, as shown by the fact that Preston was not reached until close on ten o'clock, an average of nearly ten miles an hour. The places passed through were Pendleton, Bolton, and Chorley, and up to Bolton the roadway was paved with granite setts, which were not only very bumpy, but somewhat dangerously coated with grease, owing to the rain of yesterday, which confirmed one's impression of the legend that it always rains at Manchester. Among the members of the Manchester Automobile Club present to witness the start from Old Trafford were Messrs. D. H. Simpson, Frank Gresham, J. Hoyle Smith, and W. E. Rowcliffe, and the five cars to lead the procession in the wake of Mr. Montagu's were Mr. Kennard's Napier, Mr. Holder's

arrival at Kendal being the Ariel tricycle, with a Whippet detachable trailer. By permission of the Mayor and Corporation a very successful exhibition has been held in the Market Hall.

CLIMBING SHAP FELL.

The main interest of the day was centred in the optional hill climb on Shap Fell. Twenty-nine vehicles volunteered for this, and all except two succeeded in reaching the summit. From Mint Bridge, a little over a mile from Kendal, the ascent began, and continued with a few short and one very steep descent of half a mile to the summit of Shap Fell, ten and a-half miles from Kendal. The top is 1,400ft. high, and about 1,250ft. above Mint Bridge.

For the trial it was divided into two portions, with the steep declivity in between. Down this bit cars were instructed to travel as slowly as possible, to test brake power. The hill-

climbing test comprised (1) an ascent of seven and a quarter miles, during which there is a net rise of about 800ft., and (2) an ascent of one mile 686 yards, rising 500ft. The fastest car, driven by the Hon. Charles S. Rolls, took the first seven and a quarter miles at a speed exceeding twenty-four miles an hour, and, after a test of brake power down the dip which precedes the final rise, scaled the last mile and a half, including some hundred yards of a gradient of one in ten, at a rate of eighteen miles an hour. Second to this 12-h.p. French car came an English-made 8-h.p. car, which was very little slower. The



THE HILL-CLIMBING COMPETITION AT TADDINGTON HILL.

following list includes all cars making an average of over five miles an hour up Shap Fell (the steep part):—

	Miles per hour.
A 28 Mr. Hiffe's Enfield quadricycle	17.0
A 20 Mr. Ashby's Empress tricycle	14.48
A 17 Hon. C. S. Rolls's 12 h.p. Panhard	13.29
3 Ariel quadricycle	10.8
A 30 Mr. Siddeley's Parisian Daimler	9.3
31 M. C. C. Triumph (Renault)	9.3
26 Mr. C. Friswell's 8 h.p. Peugeot	8.9
4 Ariel tricycle and trailer	8.85
A 2 Mr. Butler's 6 h.p. Panhard	8.5
53 Wolseley voiturette	8.5
12 Motor Manufacturing Company's tricycle	8.2
37 Daimler Company's 6 h.p. Parisian	8.2
A 29 Mr. Mayhew's 7 h.p. Peugeot	7.7
14 De Dion voiturette	7.58
15 De Dion voiturette	7.58
5 Locomobile steam car	6.37
36 6 h.p. Daimler	6.12
35 6 h.p. Daimler	6.12
40 Wolseley voiturette	6.12
32 M.C.C. Triumph (Renault)	6.12

	Miles per hour.
A 31 Mr. Exe's Parisian Daimler	5.6
A 3 Mr. Browne's 6 h.p. Panhard	5.6
A 4 Mr. Mayhew's 8 h.p. Panhard	5.3
A 22 Mr. Holder's 12 h.p. Daimler	5.3

CARLISLE, Tuesday night.

To-day we have had the shortest run of the tour—only 61½ miles in length—but it included the ascent of Dunmail Raise and various other gradients, instead of starting at 7 a.m., we postponed the start for more than a couple of hours—a concession which even the earliest risers appreciated, for the Trial is proving something more than a lazy holiday. We have seen snow on the crags, and we have been up among the clouds, where the moisture probably affected the cars which had belt transmission gear. But fortunately my car was otherwise designed, and of the effects of moisture on belts I know nothing from personal experience. Running through Staveley and through Troutbeck Bridge to Grasmere *via* Ambleside, we had a comparatively quiet time, the latter part of the distance, however, requiring particular care and caution on the part of the motorist, owing to the narrow lanes and many corners which had to be negotiated.

UP DUNMAIL RAISE.

On Dunmail Raise there was a goodly company watching the struggles of the cars up the steeper parts of the long stretch, and much interest was evidently taken in the event. If they had expected to gaze upon failures they must have been disappointed, for all but two of the vehicles were timed up the ascent. The following is the official record of the cars whose average was more than 5 miles per hour:—

	Miles per hour.
A 24 Mr. Phillips' Mors Duc	17.9
A 28 Mr. Hiffe's Enfield quadricycle	17.06
A 17 Hon. C. S. Rolls' 12 h.p. Panhard	17.05
A 20 Mr. Ashby's Empress tricycle	15.80
3 Ariel quadricycle	10.8
14 De Dion voiturette	9.79
A 29 Mr. Mayhew's 7 h.p. Peugeot	9.79
5 Locomobile steam car	9.79
A 22 Mr. Holder's 12 h.p. Daimler	9.33
A 30 Mr. Siddeley's Daimler Parisian	9.33
31 M.C.C. Triumph (Renault)	9.33
26 Mr. Friswell's 8 h.p. Peugeot	8.92
53 Wolseley voiturette	8.155
A 3 Mr. Browne's 6 h.p. Panhard	8.22
37 Daimler Parisian	8.22
A 31 Mr. Exe's 6 h.p. Daimler Parisian	8.22
12 Motor Manufacturing Company's tricycle	8.22
40 Wolseley voiturette	7.9
35 6 h.p. Daimler	7.9
46 Richard car	7.9
4 Ariel tricycle and trailer	7.67
16 Gladiator voiturette	7.67
23 Brown Whitney steam car	7.67
45 S. S. Car	7.33
34 Decauville voiturette	7.08
A 12 Mr. Edmund's 6 h.p. Daimler	7.08
A 10 Mr. Kennard's 8 h.p. Napier	6.84
22 Lanchester car	6.84
2 1900 Benz Ideal	6.64
A 26 Mrs. Bazalgette's Benz car	6.64
27 New Orleans voiturette	6.64
36 6 h.p. Daimler	6.41
A 21 Mr. Pitman's 6 h.p. Daimler	6.04
49 Marshall car	5.86
8 Motor Manufacturing Company's 6 h.p. phaeton	5.86
44 International victoria	5.86
47 Richard car	5.86
33 Decauville voiturette	5.81
41 International victoria	5.55
9 Motor Manufacturing Company's 6 h.p. Iveagh phaeton	5.4
29 Eureka voiturette	5.4
A 11 Hon. J. S. Montagu's 12 h.p. Daimler	5.26
A 16 A. J. Wilson's Ariel tricycle	5.16
1 Hewetson's Benz	5.01

After the climb the run along the west side of Thirlmere by the new road was greatly appreciated, for not only was the surface in grand condition, but even automobilists are fully alive to the attractions of the environments. There is one terribly steep

rise before the lake is left behind, and it proved trying to some of the cars, while the last hill into Keswick was none too comfortable to descend. Luncheon was taken at the capital of Lakeland, and then we started off for Carlisle, about thirty-two miles further on, between Rothel and Thursby. Before getting to our destination for the day, Mr. Rolls had a flare up with his ignition-lamps and spoiled the appearance of his motor bonnet, but halted at a village wheelwright's and made smart again with white paint before entering Carlisle. The roads were in good order generally, but dusty, and at places there were annoying patches of flints newly laid on the road, to which one or two punctures are attributed, several machines reaching Carlisle with a tire down. The party were dust-begrimed when they arrived at the "control" at the Raffles, about a mile from Carlisle. The first in was Mr. S. F. Edge's party on the 8-h.p. Napier; the Ariel tricycle with trailer was next, and a few minutes later came Mr. J. W. Stocks on the Ariel quad. Mr. Mark Mayhew and Mr. T. B. Browne's Panhards were also early arrivals. To-night there is an exhibition, and to-morrow we set off on the last stage for the first half of the great Trial.

EDINBURGH, Wednesday Night.

Carlisle gave us an enthusiastic send off, and we have had a most enjoyable trip. The success of the venture is well assured, no fewer than fifty-four cars being reported as having left Carlisle this morning. The run through Gretna Green, Ecclefechan, Lockerbie, and Beattock, was delightful, although the sky was rather overcast and the roads inclined to be greasy. As the journey proceeded, however, there was an improvement, and the high wind that prevailed was at the backs of the motorists. At Lockerbie the roads proved very heavy, as was the case for a great part of the journey, and most of the passengers were bespattered with mud. Reaching Moffat the main road was left, and we proceeded to the hill-climbing trial on Birkhill.

ON BIRKHILL.

The climbing competition was held upon a course of just two miles, with a rise of 150ft. in the first mile, and 300ft. in the second. The gradient at its worst was one in eleven, and this was near the summit. The Hon. C. S. Rolls' car averaged 16 miles per hour, and would have done better but for a temporary trouble; and the Napier car, the Ariel tricycle with trailer, the Motor Mfg. Company's tricycle, and others, went up in good style. The medium-class cars also accomplished the ascent with credit, but sundry of the slow brigade were in difficulties until the passengers dismounted. In all forty-five cars were timed past the base, and they all succeeded in reaching the summit, the Locomobile steam car doing the trip at the rate of 10½ miles per hour. Next week I hope to give the official record of the times of the various cars.

Through picturesque scenery we went on to Innerleithen, where rain was encountered. Through the border counties generally there was a raw Scotch mist. The roads, however, were not at all heavy, and for most of the journey the motorists were able to thoroughly enjoy the variety of scenery through the Scottish lowlands. At Peebles there was evidently a half-holiday, and the crowd was great. Then to Edinburgh the cars were enthusiastically cheered, and we had done the first half of the Trial.

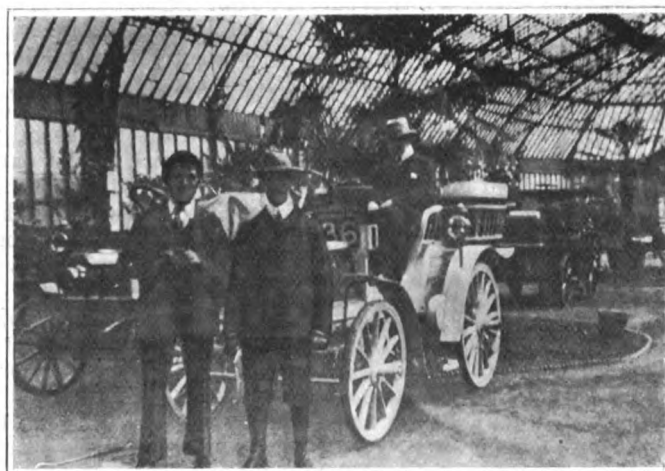
HOW THE CARS CAME INTO MANCHESTER.

BY MANCUNIAN.

AS "Fair Lancastria" prides itself on it being the case that, whatever its good people approve to-day, England will look upon with favour to-morrow—or something to that effect—we thought it might not be unprofitable to find out, as far as possible, what Manchester and district opinions on automobile matters were, as expressed by "the man in the street." With that end in view, therefore, we determined not only to keep our eyes upon the cars and their occupants, but to let our ears also do duty as we rubbed shoulders with the folks along the last two or three miles of the route from Birmingham to Cottonopolis.

The general impression of the expectant people, in the outlying districts, at all events, was that the cars would pass by *a la* a circus procession. A little "Tommy" or a "Mary Ellen" was stationed at the end of many a street, in order to "let nuther know when thaay coom," and the disappointment was very keen when the true condition of things was at length realised.

The little flags which were attached to the lampposts and elsewhere, and whose purpose was, of course, to indicate the route, and the turnings, and so forth, were a source of strange



TWO VIEWS OF THE CARS ON EXHIBITION AT THE BOTANICAL GARDENS, MANCHESTER.

Photos by

[Mr. Clarence Knight Gregson.]

comment. Some thought they were significant of welcome and criticised it as a stingy display, and we actually heard one old lady informing her inquisitive little grandson that why the flags were of various colours was "because it looked prettier." But she was more correct in her conclusion that he might *not* have a blue one after it was done with. The last we heard of the colloquy was "Will they send them to the war, grandma?"

At the point at which we then stood it was the sense of hearing which first realised the approach of the foremost car, and "expectation stood on tip-toe" until it hove in sight; and many and novel were the comments it and its occupants evoked. At short intervals, other cars went "putting" past, and strange were the names bestowed on the vehicles which in technical circles are designated voituresses, phaetons, broughams, victorias, etc. The variety and colours of the cars called forth admiration or condemnation in accordance with the preferences and predilections of the critics, whose reasoning we sometimes thought was as unaccountable as the poetic gentleman who wrote, "The reason why I cannot tell, I do not like thee, Dr. Fell." Mr. Harmsworth's car,

with its large expanse of burnished metal still shining through layers of dust, was on every side declared to be "a perfect beauty," and another car, over the destinies of which a lady presided, was gallantly acclaimed. And of course the inevitable khaki was there, and duly commented upon.

But if the cars came in for "quizzing," their occupants were treated in the same way, only more so. The "goggles" were subject to jocular remarks generally speaking, but one good-hearted dame sought to excuse their use in one case by hazarding the belief that the wearer had weak eyes. The hollows of the eyes of those who did not wear protectors presented the appearance of a *comédienne's* after a liberal application of belladonna.

As in the case of the goggles, so with the clothing; for the people did not seem to understand that when rattling along and cutting through the air at, perhaps, a score of miles an hour, it is absolutely necessary to be protected from the cold and dust; and therefore the wearing of leather and oil-skin coats, furs, wraps, Sou' westers, slouch hats, tweed caps with ear-flaps, and so on, was regarded less in the light of utility than as the eccentricity of automobile genius. But as the philosopher says that there's many an honest heart beats beneath a ragged coat, so beneath that ollapodrida of apparel were fashionable garments that saw their sartorial birth in Bond Street.

Here and there we noticed a disposition on the part of the drivers of horse-vehicles to be disagreeable, and in one instance such conduct necessitated the speedy stoppage of the motor-car, but this was so well accomplished that it earned the audibly-expressed admiration of the on-lookers. One amusing little episode we may here record. There was heard a shout of "Here's a big 'un!"—but it turned out to be a steam roller that had just turned the corner.

At the junction of Barlowmoor Road and Seymour Grove, there was a fair concourse of people, anxious to watch the cars sweep round the curve; and so anxious was one British workman to impress the fame of the locality upon the occupants of a certain Daimler car that he shouted (pointing to a marked spot on the wall), "Hi, guv'nor, this is where Charlie Peace shot the hobby!"

It was really too inconsiderate of the powers-that-be to select that very day for re-macadamising the Old Trafford end of Seymour Grove. For some distance the entire breadth of the roadway was laid with rough new stones, and here and there were heaps of stones just deposited. A steam roller was also at work and blocking the traffic. The observations of the by-standers were not complimentary to whomsoever was responsible for the unfortunate choice of a day and hour to begin such drastic road repairing.

At the Deaf and Dumb Asylum, at the corner of Boyer Street and Stretford Road—a few hundred yards on being the Botanical Gardens, the goal of the motorcarists—a lot of the deaf-mutes were interested spectators, and even if one were not familiar with the finger language and display of pantomime, the lads' animated countenances were sufficiently indicative of their admiration. But chancing to know something of the manual alphabet, we asked one little fellow what he thought of a car that had just passed, and he replied, "Goes very fast." But the query, Would he like to have a ride on it? caused him to pout his lips and shake his head—whereupon several of his companions nodded and smiled, and tapped their fingers on their breasts, to signify "We would." Wise little boys!

By this time we are very nearly at the Botanical Gardens, which are in Old Trafford. The Gardens are too far from the city to have brought a big miscellaneous crowd, nor to say the truth are they popular with the proletariat—for which relief the pious inhabitants of the district often ejaculate "Thank Heaven!"

The arrangements of the local committee seemed to be excellent. The carriage entrance to the gardens has an ugly centre stone against which the folded gates are bolted when shut; and an official was thoughtfully told off to warn the car-drivers to exercise due care. The way the steering apparatus answered was quite a theme of remark to those uninitiated into the mysteries of autocarism. After Mr. A. Heatly, the honorary timekeeper, had taken the necessary particulars the cars entered the glass-domed buildings and took up their places for the exhibition on

the morrow. And here parenthetically we may tell that we noticed a well-known gentleman cleaning up his car with all the affection with which a mother washes her first baby.

A long interval having elapsed without the arrival of a car, we cycled off to meet any belated ones. At Chorlton-cum-Hardy we saw one being dragged along by a "growler," and could not help thinking, "Oh, what a falling off was there!" and indeed it looked as if there had literally been a falling off for the occupants.

Thence we wheeled towards Didsbury, past the Crematorium and Southern Cemetery—and an ominous place of buried hopes of getting in first it must have seemed to the occupants of a slow travelling car we met, but who were nevertheless bravely endeavouring to wear a look indicative of "Oh, we might have been earlier if we had chosen!"

And now may the present writer make a suggestion? If it be that this 1,000-mile Trial has largely been induced by a desire to educate the public on the subject of motor-vehicles, would it not be well to select a halting place a few miles out of the large cities and towns visited, where all the cars would collect and thence travel at short distances apart? There would then



A BUSY SCENE.

be opportunity to make accurate comparisons and awaken the interest of those whose alliance with the movement would be very valuable.

THE EXHIBITION AT MANCHESTER.

BRISTOL, Cheltenham, and Birmingham having been favoured with exhibitions of the competing vehicles, it was only fitting that Manchester should also have its one day's display. Some have wondered why Liverpool was omitted from the itinerary; but it must be remembered that, thanks to the efforts of the Liverpool Self-Propelled Traffic Association, the maritime city is far more familiar with automobiles than the textile centre. And so the work of education was devoted to Cottonopolis. Our special correspondent describes elsewhere the reception accorded by the populace; and it is interesting to know that the commercial men and others of influence in the industrial world also gave heed to the coming of the motor-vehicle.

The Royal Botanical Gardens, in which the Exhibition was held on Friday last, presented an unusual sight as the cars were negotiated round and about the flower beds—an exercise that tested the capacity and skill of the drivers to a considerable degree.

The exhibition was opened by the Lord Mayor of Manchester

(Mr. Thomas Briggs). There was a large attendance at the opening ceremony, and great interest was taken in the fifty cars or more on exhibition. Mr. W. E. Rowcliffe, of Manchester, presided, and the Mayor of Salford (Alderman S. Rudman) was among those present.

The Chairman, before calling upon the Lord Mayor, said that in the near future something would be done in the form of power traction in regard to warfare. There could be no doubt that sooner or later mechanical power would supersede horses. There was and had been a gradual evolution of the battery for storing electricity, and so by degrees reducing the weight to such an extent that it would become a practical commodity. As soon as they were able to secure a battery which with a minimum amount of weight would take storage and run for a period of, say, ten hours, it might be reasonably expected that so soon would all large towns, within reasonable distance of each other, have their own electrical installation with charging stations. Electricity would perhaps be the most popular motive power. It

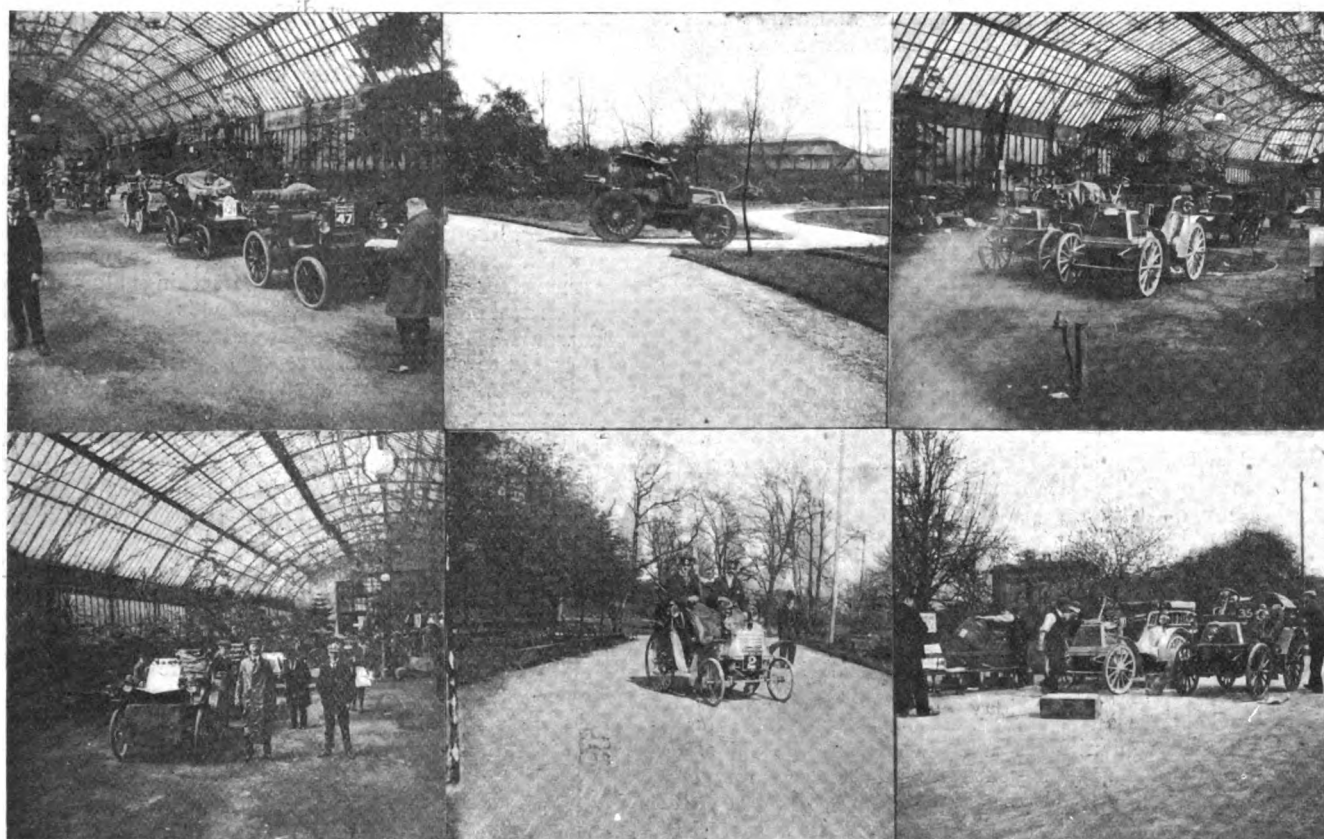
would still last, it was important that the sum in hand, which now amounted to about £44,000, should be increased. He had great pleasure in declaring the exhibition open.

Mr. S. Okell, of the Manchester Club, proposed a vote of thanks to the Lord Mayor.

The Hon. J. S. Montagu, M.P., seconded the motion, and recalled the importance of Manchester in the early days of the railways, and expressed the belief that the city would move ahead rapidly in England in regard to motor-cars. He said that all the way from London the occupants of the cars had met with nothing but good-will in the towns and villages they had passed through.

The motion was supported by Mr. J. Hoyle Smith, and adopted.

The Lord Justice Clerk of Scotland (the Right Hon. J. H. A. Macdonald, C.B.), in proposing a similar vote to the Manchester Automobile Club, said that if he had announced only a few years ago that he was about to undertake a trip such as they were engaged upon he would have been told that he was mad. The riders



Photos by

SCENES AT THE BOTANICAL GARDENS, MANCHESTER.

[Mr. Percy Richardson,

was almost free from noise, had no smell or oscillation, was entirely under the control of the driver, and not explosive. Therefore there was no risk to either life or limb, and one was enabled to go almost any distance.

The Lord Mayor said that on looking round the exhibition he had come to the conclusion that a great improvement had been made in the design of the cars. He believed, with the chairman, that the cars of the future would be run by electricity, but in the meantime oil and steam were found to be very satisfactory substitutes. If motorists intended, however, to have public opinion with them, they must be cautious and remember that other people had rights to the road as well as they. There was no doubt that motor-cars would prevent a good deal of cruelty to horses, particularly where long journeys had to be made. He was particularly pleased to know that the proceeds of the exhibition would be handed over to the local War Fund. They were distributing now about £1,000 a week in relief, and more would be wanted. As there was no telling how long the war

would have been received with the jeers of the grown-up and perhaps with the stones of the younger population. He remarked that people in the towns showed their confidence by standing nearer to the cars than they would have done if horses had been attached to them. With regard to the effect on horses of the driving of motor-cars, he said he believed that horses themselves had more sense in the matter than the ordinary population. They were apt to suppose the horse did not understand the cars, and was set in a state of excitement by them. He appealed to all who had been on that expedition to confirm his statement that not one horse in two hundred took the slightest notice of a motor-car, unless his driver was nervous and would not quietly leave the horse to take events as they happened. He thought the public had begun to see that the motor-car had come to stay. In the crowded Manchester streets motor-cars would occupy about half as much space as vehicles drawn by horses, would turn more easily, and would never jib, plunge, or kick over the traces. Nothing could happen as long as the

driver kept his head and other people kept theirs. In conclusion, he commented on the extraordinary rapidity with which a motor-car could be brought to a stand as compared with a vehicle drawn by horses.

The Hon. C. S. Rolls seconded, and Mr. Henry Sturmer supported the resolution, which was cordially adopted.

The proceedings were shortly afterwards brought to a close.

REFLECTIONS AT CARLISLE.

BY A WORLDLING.

IT is Tuesday evening. Those of us who have survived the hills of the North have tasted of the hospitality of Carlisle, and have found it not wanting in any respect. The smoking room of the County Hotel has been turned for the moment into a *chauffeurs' tabac-papier*, where we have laughed over the disasters of our friends, and boasted of our deeds of "derring do," till the rafters—if there are such things in modern hotels—rang with wondrous tales of hill-climbing and *virages* that have set at naught the principles of dynamics to which we were trained in our school days.

That of which we have been talking the most is the wonderful performance of Mr. S. F. Edge on his Napier car. On one of the hills between Keswick and Carlisle—I speak only from hearsay—he missed his change of speed, and owing to the faulty arrangement of his brake, began to travel backwards at about twenty miles an hour. With that presence of mind which is his chief characteristic he told Mr. Kennard and young Mr. Cusens to jump from the car, and steered her backwards on to the upward grade behind him. Two or three minutes of adjustment and all was well again, and the twelve miles an hour or thereabouts, which the car subsequently developed, brought him first into Carlisle.

The hill-climbing competitions have been a bit trying to the nerves and tempers of many of us. I never felt so angry in all my life as when I was running the gauntlet of a thousand or so cameras on slow speed. At the top of Dunmail, whizz past me went Mr. Ashby on his tricycle, but I got a little consolation when Mr. A. C. Edge, Mr. Stocks, and an Ariel quad came by, all three walking up the steeper part. By the way, their machine has got the best record after Mr. Rolls' Panhard, which is, of course, much faster up hills, and which, I regret to see, is credited with a pace above the legal limit.

What surprises me more than anything is the way in which the small fry are getting through. I passed a boy gazing sadly on a Victoria Combination that, he said, had something wrong with its "innards," ten miles from anywhere on the Cat and Fiddle road, and yet that same youth smiled encouragingly on me to-day as he sailed past me at Bassenthwaite, where I had stopped for some small repair. Two cars were incapacitated to-day by broken countershafts, but I hear that some lightning repair work has been done, and that they will be on the road again to-morrow. A Star car, which we all thought was a corpse, turned up again smiling to-day, and there are similar illustrations hourly of the fact that the dead automobile is as rare a bird as Sam Weller's dead donkey.

The nicest place we have stopped at yet is Kendal, where we slept, or tried to sleep, last night. I regret to say it was all trying in my case, because my room, in a perfectly delightful little hotel called the Dolphin, was opposite a church with a clock. There is nothing particularly unusual about that, but as luck would have it the machinery working the chimes had broken down, and the ringing of them had been entrusted to some fiend who amused himself by playing patriotic tunes all night. Nobody seemed to have heard them but myself, so I must add that the Dolphin is a temperance hotel. From an æsthetic point of view the tour is not a success. Covered with dust and dirt, on cars laden with petrol and oil cans, spare tires, &c., we must appear singularly unprepossessing to the thousands of people who daily watch our flight. I wonder if they understand that a superlative degree of uncleanness is not necessarily part of the price to be paid for the delights of

automobilism, and that the *chauffeur* is sometimes clean. I am personally rather worried by noticing that girls, who under other conditions would turn their eyes away from my masculine gaze, now stare at me with a boldness which is only made the more disgraceful by the inevitable giggle which accompanies it. Am I a freak that I should be treated in this way?

NEARING THE BORDER.

CARLISLE, Tuesday.

AT the time of writing the Automobile Club's educational course in the geography of our own country (as we may not unfitly term the 1,000-mile Trial) is still in progress. Up to the present our total cumulative mileage tots up to 447½ miles, and we rest to-night in the fair city of Carlisle, only eighteen and a-half miles short of the Scottish border. Not, mark you, that we are so many Dr. Syntaxes in search of the picturesque. Neither, on the other hand, are we (or at the least of it should we be) motor scorers emulative of pace. Ours are aims of another sort: to form a kind of perambulating object-lesson in the appearance and capabilities of motor-cars in those benighted regions that do not already know them well, and to collect a mass of carefully-noted data for the use of the Automobile Club and for the industry in general. When we have finished this pilgrims' progress, and the long story of our several and collective doings is duly digested, we shall be certificated, medalled, and bonused until we shall scarce be able to recognise ourselves. We shall not, like the hymn-singers, at the end of our journey wear a crown in the New Jerusalem, but we (or those among us who are in the industry) will be able to sport things almost as pretty and a great deal more useful. We shall, that is to say, be enabled to show the would-be motorist, shivering on the brink of automobilism, and yet afraid to make the change from the horsed to the horseless vehicle that we can climb gradients of 1 in 9 for three weeks on end; that we can descend pitches of equal steepness at very much less than a walking pace if we want to do so; and that "from morn to dewy eve," as the poet remarks, we can urge the flying wheel, coming up dusty, but smiling, at the end. There may have been those who, hearing of this 1,000 miles or so of travelling, have waited to hear of early breaks down by wholesale. If such there were, they are disillusioned by now. As Mr. W. S. Gilbert says, in the "Mikado":—

"Perhaps you suppose this throng
Can't keep it up all day long.
If that's your idea you're wrong."

The throng (or most of them) have kept it up all day, and for nine days up to date. That is to say, of the sixty-four actual starters, fifty-five had actually arrived at the Butter Market, Carlisle, up to 8 o'clock this evening, a very small wastage when one considers the severe tests of endurance which the eleven miles of uneven granite setts between Manchester and Preston and the trying hills of the Lake country have imposed. The nine cars that are missing may, indeed, be arriving even now, for we have no official pronouncement of their final dropping out, and even if they do not keep the twelve-mile record throughout, those of Section I. are still eligible for the £10 *Daily Mail* premium, to be awarded to those which perform an average throughout of five miles an hour.

But what of the tour from Friday last? Friday seems a long way back, so far have we come and so varied have our experiences been. The seven o'clock start from Birmingham on that morning was duly made, amid cold and lowering weather, so that when we reached the end of the long Birmingham control at Sutton Coldfield, 7¼ miles out, and had, in accordance with official regulations, to stop there for the due filling in of cards, there were not a few who, shivering in the blasts that swept across the open country at that point, found Sutton Coldfield well named. Thence to Lichfield, where those of us who had not breakfasted employed the half hour's stop for that meal in stoking the human machine. There is a Cathedral at Lichfield, but few or none saw it. At nine o'clock we all pressed on to Burton-on-Trent, and thence to Derby and Matlock. Here the coy and fitful sun at length condescended to shine, and rendered the luncheon—three-

quarters of an hour—pleasant. Also, which was more important, it showed off the assemblage of cars to advantage before the crowds which gathered out of curiosity and stayed to admire. We have marched onwards since 1896, and no one can deny the taste and real beauty of many of the cars in this representative assemblage. Happily, we had little dust this day, and were not so travel-stained as on the phenomenally dusty trip from London to Bristol. Here, therefore, the neat finish and handsome painting of the big carriage-built cars were well in evidence. Of the

coach days, with its post-office red wheels and black and red body. Mr. Alfred Harmsworth's A 7, a Parisian Daimler, is a quiet shade of green. Several cars are painted in a slate or French grey colour, which does not betray the dust, including A 17, the Hon. C. S. Rolls' 12 h.p. Panhard; A 22, Mr. Holder's 12 h.p. Daimler; and A 31 the Secretary's 6 h.p. Parisian Daimler. One in Section I., a Daimler, No. 36, is of the same hue. These do not exhaust the pretty colours. Section I. has in No. 27, a New Orleans car entered by Messrs. Burford, Van Toll and


Photos by]

THE MOTOR-CARS IN LAKE LAND.

[Mr. Percy Richardson.

fourteen English and Parisian Daimlers, the seven Panhards, the numerous Benz's, Peugeot's, Napier's, and De Dions, many are finished in light and cheerful hues, and were much admired by the knowing ones. Of course Section II., the A, or amateur's class, was chiefly in evidence in this respect. A 2, Mr. Frank H. Butler's 6 h.p. Panhard, is a daring but successful "confection" (as the milliners say) in pure white upper body and sealing-wax red lower frame and wheels. Then there is Mr. T. B. Browne's, A 3, Panhard, which reminded some old stagers of the old mail-

Company, a charming finish in gamboge; a Daimler in light brown; two or three more Daimlers in blue-green; a Richard car (No. 46) in black and crimson lake; and two Marshall carriages in yellow and black. To return to the A class, No. 19, Mr. Hargreaves' big yellow and black Daimler, looks among the smartest.

Of course, with this long tour before us, we go somewhat heavy laden with luggage and with spare odds and ends that may be needed on the journey. For instance, the extra tires

carried by many of the cars, which, slung on behind, perhaps detracted from our neatness to the rear view, and looked oddly like lifebelts. Fortified with lunch, for the climbing of Taddington Hill, that 4,440 yards of varying gradients ranging from 1 in 12½ to 1 in 200, we did it with ease; passing, half way up, that treacherous bend by the roadside quarry where two brakeless cyclists descending with the wind at their backs were killed at Eastertide. We looked at the spot with interest, and, thinking of the much steeper descents before us, in Cumberland, dwelt with satisfaction upon the fact that every motor-car is provided with a plenitude of powerful and reliable brakes, calculated to safely bring a car to a standstill within six or seven yards. Tea at stately Buxton, and thence to the ascent among the Derbyshire limestone crags up to the wind-swept "Cat and Fiddle" Inn, supposed to be the highest situated inn in England. Manchester, at the end of the day's run, was reached by the foremost cars about 5.30 p.m. Hitherto we had come through enthusiastic crowds, but Manchester and its neighbourhood were strangely apathetic. No cheering school-children as of yore, no crowds,



A CHAT ON THE ROAD.

and few locally-owned cars to meet us. We drove into the Botanical Gardens at Old Trafford, where the public exhibition of cars took place that evening, and on the next day, Saturday. It was, after all, well attended, and by crowds of well-dressed Manchester people. An odd thing is that go-ahead, shrewd, business-like Manchester has not yet taken up with the motor-car movement, and up to our advent horseless vehicles had been rare in her streets. Even the Lord Mayor of Manchester, who officially declared the exhibition open, patronised and chid us a little. Speaking to one of us, a Manchester man (one always speaks of "Manchester men," just as one always says "London cockneys," "Paisley bodies," and "Yorkshire bites") let the secret out. "Manchester," said he, "always likes to be first in any enterprise, and if she *isn't* first, won't take it up afterwards with a good grace." So there you have it!

Sunday was kept quietly, and rain made the day somewhat dismal; but Monday made amends, even though the roads were greasy and the setts already mentioned from Manchester, through Pendleton, Horwich, Bolton, and Preston made our pilgrimage somewhat penitential, by reason of jolting. Happily, we all came through without a smash, which incidentally proves the good workmanship of motor-cars in general, for no more cruel test than this could be applied. Fortunately for me who rode, the setts came to an end at Preston, and the roads for the rest of the day were perfect. Popular enthusiasm began again at Bolton, and continued with us for the rest of the day, through Lancaster, where a halt was called for lunch, right away to Kendal, our stopping-place for the day's run, where the whole town made holiday to witness our arrival and to visit the evening exhibition. We arrived at various times in the afternoon, and twenty-nine cars afterwards took part in the optional

climbing of Shap Fell, which involved an out-and-home run from Kendal of twenty miles. It is a ten-miles climb up to the bleak expanse of Shap Common, 1,400ft. above sea-level, with gradients of 1 in 10, 1 in 13, 1 in 15, and so on, down to 1 in 25, with an intermediate descent of 600 yards from Huck's Brow to Huck's Bridge, with a gradient of 1 in 10, which had to be descended as slowly as possible. This involved practically restarting from a stop at the bottom, where an immediate ascent of 1 in 11 faced the assemblage. That the cars did it bravely is excellent testimony to their powers; but it entailed hard work upon the 2½ and 3-h.p. engines of the motor-tricycles, and upon their riders, who aided their machines by pedalling up. We were all glad to descend again from the bleak plateau at the summit, and came back to Kendal helter-skelter.

Starting this (Tuesday) morning from Kendal at 9.30, we had the compulsory hill-climbing of Dunmail Raise on our itinerary. We came to it by way of Windermere, whose waters looked a cold steely blue in the chary sunshine of this backward spring, by Ambleside, and by romantic Rydal Water. Dunmail Raise is a 1½ mile climb, with successive gradients of 1 in 17, 1 in 15, 17, 11, 12, 13, 15, and then to the trying stretch of 166 yards of 1 in 8½, after which it eases off to the summit. The official times are not yet issued (at this time of writing), but nearly all, it is understood, successfully negotiated the Raise. Thence by Thirlmere and its rock-girt road, followed by a steep and large drop into Keswick, we arrived early at Carlisle, the first to reach here being Mr. S. F. Edge, driving A10 and the Ariel tri cycle, with the Whippet detachable trailer, at the same moment. Carlisle is in the thick of a race meeting, but the evening exhibition in the Butter Market has been exceedingly well attended. To-morrow we run to Edinburgh, our most northerly point, starting, thank goodness, at 9.30 a.m., instead of the more usual 7 a.m., a time when the world is not yet properly aired, and when, at this season, and in these northern latitudes, the air still bites shrewdly.

SOME EXPERIENCES.

French v. English Cars.

ONE pleasing feature of the Trial, and one upon which British manufacturers are to be congratulated, is the conclusion forced upon all who have followed the trip as to the excellence of the 6 h.p. English cars. These have evidenced a running ability equal to the much-vaunted 6 h.p. Panhards, and have demonstrated that English firms will ultimately hold a very high position in the automobile world.

Children and Motor-Cars.

So deep has been the interest aroused in the Trial that in most of the schools along the route in Derbyshire and Lancashire work was suspended in the morning or afternoon to allow the children to see the automobiles. Doubtless the occasion will be regarded as a great event, and certainly the action was well calculated to get the motors "talked about."

The First Three Days.

ON the first day of the Trial sixty cars arrived at Bristol out of the sixty-four that started from London, and forty-four averaged 12 miles an hour; on the second day—from Bristol to Birmingham—fifty-nine cars arrived at the latter place, thirty-four of which averaged 12 miles, and on the run from Birmingham to Manchester thirty-one out of fifty-two which reached the Lancashire city were up to the legal limit. There seems a little confusion as to the actual number that started from Grosvenor Place. Our own observers—stationed at two different points—gave the number of starters at sixty-four, but a report received from Bristol gives the number at sixty-seven. Anyhow, all such little variations may be expected to be cleared up by Mr. Johnson—when he gets a few minutes to spare.

Three Little Incidents.

As the Trial has gone forward the incidents which gave a zest to the performances of the first two or three days have not been repeated, and the contest is settling down into an uneventful parade of reliable and steady cars. On the day of the hill climbing at Taddington Hill there were only three little mishaps to chronicle, and they were of quite minor importance. In one case a governor was broken in the neighbourhood of Lichfield, the victim being the Richard car. In the other a De Dion voiturette broke its front spindle outside Matlock Bridge, but nobody was hurt. A passenger fell out of the car of the Hon. S. C. Rolls while it was descending from the Cat and Fiddle to Macclesfield; altogether a trio of really unimportant matters—unless the descending passenger has a different opinion to offer.

The County Surveyors.

ALMOST without exception the county surveyors have given excellent facilities to the motorists, and their practical appreciation of the new movement has been well demonstrated. On the cars leaving Manchester the county surveyor for the Salford Hundred had a seat on Mr. Montagu's car as far as Horwich, and directed the driver at the difficult points of the route, and another county surveyor accompanied the car to Kendal.

Journalistic Slips.

JOURNALISTS have followed the Trial with interest, and have apparently enjoyed themselves changing from one car to another with all the enthusiasm of expert judges trying the capabilities of an equine stud. Some of their slips of the pen have been curious. The Benz Ideal car has appeared as the Bentz and as the Bean Ideal. Because of its name, the "New Orleans" car has been described as of American origin, and the *Daily News* man, whose descriptive matter has been about the best of that appearing in the general press, went into Kendal on the hind seat of "an aerial tricycle with whippet detachable trailer." He will be trying a flying machine next.

A Festive Gathering.

ON Saturday evening the members of the Automobile Clubs of Manchester and London were entertained at dinner at the Conservative Club at Manchester by Mr. Henry Edmunds, who is a member of both clubs. In toasting the Manchester Club, Mr. C. Johnson, secretary of the London Club, spoke with pleasure of its excellent arrangements in connection with the trials, and said that the place selected for the exhibition had been eminently satisfactory.

Northern Horses.

IT is very clear that the horses in some of the northern parts of England through which the cars have journeyed are not so well accustomed to the automobile as those of the south. Some have shown a coyness, a shyness, and, sometimes, a restlessness which was never noticed during the earlier stages of the journey, and one collided with Mr. Siddeley's car breaking its leg and disabling the vehicle until the local smith at Keswick put things right.

Horses Undisturbed.

THE horses on the road from London to Bristol were evidently desirous of sustaining their reputation for good behaviour, and the motorists had nothing to say as to any equine want of manners. At the start we noticed several grooms accustoming their horses to the motors as they stood at ease in Grosvenor Place, and correspondents on the route testify to similar training having been observed near Newbury, Beckington, Box, and other places.

INCIDENTS.

AMONG the visitors at the exhibition at Cheltenham was Mr. J. W. Boughton, of St. John's, Worcester, who proceeded thither on his motor-car, which is said to be the only vehicle of the kind privately owned in the Faithful City.

OWING to the breaking of the chain of the Brown-Whitney steam car the water tank was perforated. Otherwise a better average would have been obtained on the run from London to Bristol.

SEVERAL cars skidded on the tram lines at Bath, where recent rain had made them greasy.

THE first car into Newbury was that driven by Mr. S. F. Edge. The Hon. C. S. Rolls was second. At Bristol, these two were still leading although in reversed positions.

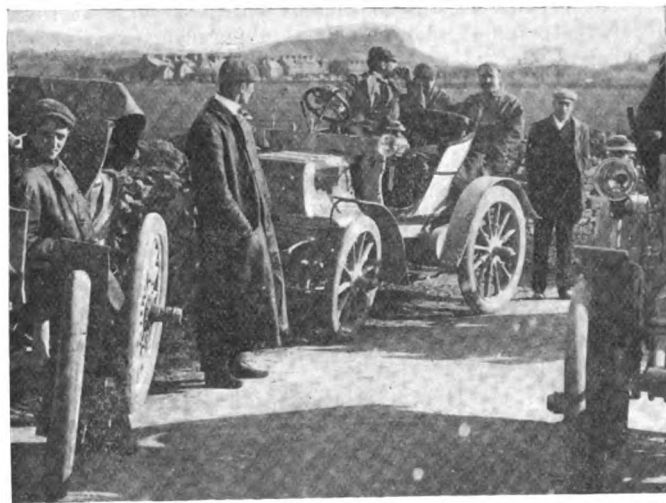
NEAR Newbury, Lord Carnarvon drove over a part of the course on his Panhard car, and among other motorists observed near that town were Mr. and Mrs. Neville Cross, of Inkpen, Berkshire.

FROM Worcester the car of Messrs. Roots and Venables mistook the turning at Barbourne and went to Ombersley where the supply pipe for the oil was broken. Fastened to the back of a cart the vehicle proceeded to Droitwich where the necessary repairs were made.

THE Mayor of Lichfield invited the citizens to welcome the automobilists by decorating the houses on the line of the route with flags, etc.

SAID the *Times* on Monday morning: "So far the tour has been free from accident to any member of the public, and nothing more serious to the competitors than an involuntary but harmless fall from one of the cars at a sharp corner has to be recorded."

THE longest "control" was that from Manchester to Preston, a distance of thirty miles along a road which is practi-



ENJOYING THE VIEW.

cally that of a continuous town, and the greater part of which is lined with cobbles.

THE Hon. J. Scott Montagu, M.P., interviewed at Gloucester, spoke in high terms of the condition of the roads on the Gloucestershire side of Bristol, and also contrasted the courteous conduct of the police of the county with the brusqueness shown by the authorities in some other districts.

EN ROUTE.



BIRMINGHAM.

Thursday last was rather a dull day in Birmingham, and at least one automobilist took the opportunity of the chance to run up to London. Late in the afternoon some stir was created by the unexpected arrival of Mr. Alfred Harmsworth's splendid 12 h.p. Panhard, which was driven in from Reading. At the exhibition in Bingley Hall the attendance was larger than was anticipated, and much interest was shown in the construction of the machines by the greater portion of the visitors, many of whom were manufacturers and others desirous of becoming acquainted with the mechanism of the various vehicles. From noon, when the exhibition opened, until the closing hour, ten o'clock, there was a steady inflow of visitors.

The official records concerning the run from Bristol to Birmingham, via Cheltenham (92½ miles), which took place on Wednesday last week—the roads being hard, but dusty; weather fine—show that the following motor-vehicles in the manufacturers' and agents' section completed the journey at a speed up to the legal limit of twelve miles an hour, namely:—

- Nos. 1 and 2, Benz "Ideals."
- No. 3, "Ariel" quadricycle.
- No. 4, "Ariel" tricycle, with Whippet trailer.
- No. 7, Motor Manufacturing Company's 12-h.p. phaeton.
- No. 9, Motor Manufacturing Company's "Iveagh" phaeton, 6-h.p.
- Nos. 14 and 15, De Dion voituresses.
- No. 16, Motor Power Company's "Gladiator" voiturette.
- No. 19, Automobile Association's "Orient Express."
- No. 20, Motor-Carriage Supply Company's "Simms' Motor Wheel."
- Nos. 21 and 22, Lanchester Engine Company's 8-h.p. carriages.
- No. 23, Brown-Whitney steam car.
- No. 26, Friswell's 8-h.p. Peugeot.
- No. 27, Burford, Van Toll's 3½-h.p. "New Orleans" car.
- Nos. 31 and 32, Motor-Car Company's 3½-h.p. "Triumphs."
- No. 34, Motor-Car Company's 3½-h.p. Decauville.
- Nos. 35 and 36, The Daimler Company's 6-h.p. carriages.
- No. 37, The Daimler Company's 6-h.p. Parisian car.
- No. 39, "Century" Tandem Tricycle.
- No. 40, Wolseley Company's voiturette.
- Nos. 41 and 44, International Company's 3-h.p. Victorias.
- Nos. 46 and 47, Automobile Manufacturing Company's 7-h.p. "Richard" cars.
- No. 49, Marshall and Company's 5-h.p. carriage.
- No. 51, Star Motor Company's voiturette.

In the Section for privately-owned vehicles, the following completed the journey at a speed up to the legal limit:—

- No. A 2, Mr. Frank Butler's 6-h.p. Panhard.
- No. A 3, Mr. T. B. Browne's 6-h.p. Panhard.
- No. A 4, Mr. Mark Mayhew's 8-h.p. Panhard.
- No. A 7, Mr. Alfred Harmsworth's 6-h.p. Parisian Daimler.
- No. A 10, Mr. Edward Kennard's 8-h.p. Napier.
- No. A 11, the Hon. John Scott Montagu's 12-h.p. Daimler.
- No. A 12, Mr. Henry Edmunds' 6-h.p. Daimler.
- No. A 16, Mr. A. J. Wilson's "Ariel" tricycle.
- No. A 17, the Hon. C. S. Rolls' 12-h.p. Panhard.
- No. A 20, Mr. Herbert Ashby's "Empress" tricycle.
- No. A 21, Mr. Ernest Pitman's 6-h.p. Daimler.
- No. A 22, Mr. J. Holder's 12-h.p. Daimler.
- No. A 23, Mr. Charles Cordingley's 6½-h.p. Motor Manufacturing Co.'s phaeton.
- No. A 24, Mr. Robert Phillips's 4-h.p. Mors car.
- No. A 26, Mr. C. K. Gregson's 6-h.p. Daimler phaeton.
- No. A 28, Mr. E. M. Iliffe's 2½-h.p. Enfield quadricycle.
- No. A 30, Mr. J. D. Siddeley's 6-h.p. Parisian Daimler.
- No. A 31, Mr. W. Exe's 6-h.p. Parisian Daimler.

DERBY.

In any case there would have been a crowd here, but the fact that it was market day and that some of the schools were closed in honour of St. George and Automobile Day, helped to swell the

crowds. Some excitement was caused by restive horses, but all, even the police, were willing to acknowledge that excitement on that account was caused by the carelessness of the drivers rather than by the presence of the cars.

MATLOCK.

Here, beneath the shadow of the High Tor, a great deal of interest was taken in the tour, and it was confidently predicted by many of the knowing ones that the cars would find the hills of Derbyshire too much. At the local schools the children had been given a holiday, and they, of course, cheered to the echo. The police gave every assistance, and the only matter that aroused concern was the upsetting of a furniture van in trying to get out of the way of one of the cars.

LANCASTER.

The presence of the motor-cars at Lancaster attracted a good deal of attention. Very few were much behind the scheduled time. The roads from Preston were in excellent order, and the journey was made with ease and comfort. The police arranged the route so that the cars passed through several streets instead of passing straight through the town, and the parade created a good deal of interest. The party stayed over an hour in the town, and lunched at the King's Arms Hotel, the cars meanwhile being on exhibition in Parliament Street, where an interested company inspected them and made various inquiries. One or two cars needed re-adjustment, but there were no casualties requiring serious repairs, and the ease with which sharp corners were negotiated in the progress through the town was remarkable.

CARLISLE.

The counter-attraction of the local spring race meeting robbed the arrival of the cars in Carlisle of a good deal of the interest they would otherwise have excited; but even as it was, hundreds of spectators turned out to watch the entry of the party into the Butter Market, where the vehicles remained on exhibition during Tuesday evening. After the first of the cars arrived, every few minutes a fresh vehicle turned the sharp corner into the market entrance, and fifty-five cars were counted during the afternoon. The weather enjoyed on the way was brilliantly fine, but the begrimed appearance of both cars and occupants showed clearly how dusty the roads had been. The beauty of the scenery of the Lake district came as a revelation to the foreigners who are of the company, and scores of snapshots were secured during this part of the journey.

EDINBURGH.

The local time-keepers were taken by surprise, and the occupants of the first few cars had to wait awhile. The first car to arrive was a Napier motor, driven by Mr. S. F. Edge. The next, a 12-h.p. Panhard, driven by the Hon. C. S. Rolls, passed the red flags a quarter of a minute later. The others arrived as follows:—Ariel tricycle with Whippet trailer for extra passenger. E. S. Cheel, driver; Daimler Parisian, driver G. White; Mr. J. A. Holder's 12-h.p. Daimler; Mr. Mark Mayhew's 7-h.p. Peugeot, driven by D. Haxton; Mr. J. W. Stocks on his Ariel quadricycle; Mr. E. Buck on the Motor Manufacturing Company's tricycle; the Hon. J. Scott Montagu, M.P., on his 12-h.p. Daimler; Mr. Friswell on his 8-h.p. Peugeot; Century tandem tricycle driven by S. Begbie; and Mr. T. B. Browne's 6-h.p. Panhard. As one car after another passed along, occupants and everything white with dust, no little stir was occasioned, and all along the route to the Waverley Market soon became crowded. The "inward control" at Liberton Brae were Messrs. A. Alexander, of the Cyclists' Touring Club, and W. L. Sleight, of the Scottish Automobile Club; while the "outward control" with white flags at the Bridges were Messrs. Normand Macdonald and John Macdonald. At the Waverley Market the cards were obtained from the drivers, and a note of the time of their arrival at the Market taken, and the card signed by the timekeeper there. An exhibition of the vehicles took place within the Waverley Market yesterday (Thursday), among the attractions announced being an exhibition of motor driving by Mr. E. J. Coles, who recently performed at the Agricultural Hall exhibition.

THE DAIMLER PUBLIC SERVICE CHAR-A-BANC.

—S—

THE vehicle illustrated herewith has been designed for the Daimler Motor Company, Limited, Coventry, by Mr. Sidney Straker, A.M.I.C.E., the consulting engineer to the company, specially for its employment in public service to meet with the approval of licensing committees, and to comply with the demands of the public for cheap conveyance. The construction throughout is of a different practice to that previously embodied in the company's manufactures. The strength and general arrangements of the vehicle provide for a normal load of eleven persons, capable of being exceeded within reasonable limits. The tare weight is given as 28 cwt., so its classification comes under Section 3 of Article 2 of the Locomotives on Highways Act. The motive power is a two-cylinder Daimler engine, standardised to give a propulsive effort of 9 h.p. The use of sprockets and chains is eliminated, the engine being directly geared to the road wheels through the intermediary of a clutch, a universal joint being employed as the connecting link between the sprung and unsprung portions of the vehicle, the company's object being to produce a vehicle of a somewhat heavier and more durable description than has hitherto been brought into use, and to travel at speeds suited to its requirements.

Both axles are inclined or set to provide for the employment of dished wheels, the advantages claimed being a material increase in stability due to the power of resistance to bending of axles, which is a prevailing tendency in all vehicles, especially when excessive loads are carried.

The water cooling of the motor cylinder is arranged on the radiator practice with the provision of a centrifugal direct-geared circulating pump, having a branch of two deliveries to facilitate circulation.

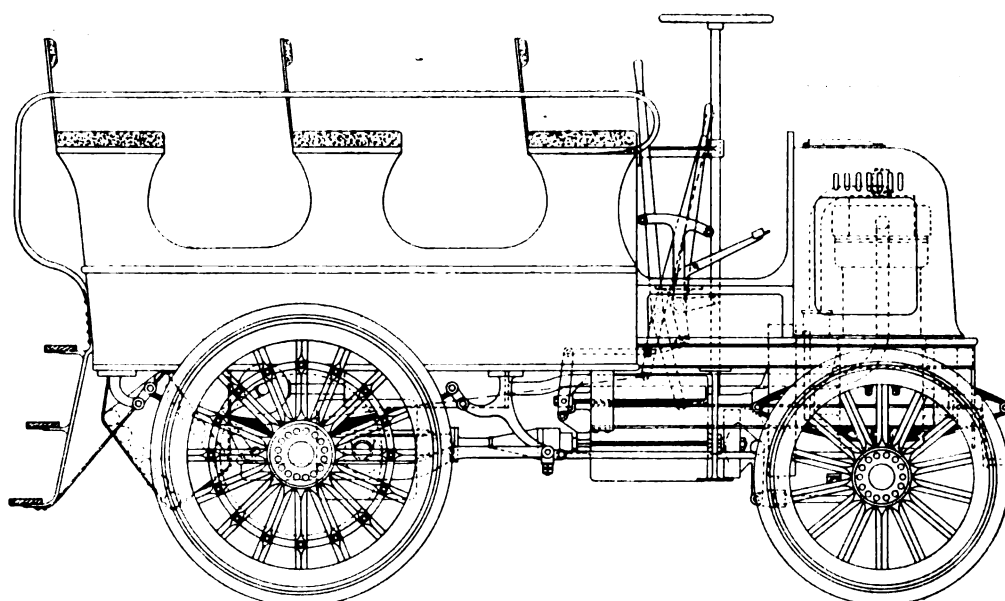
The steering is designed to embody a vertical pillar with worm and wheel. The variable speed gear changes provide for three speeds only, it being found in practice that for public service a fourth speed is unnecessary. The changes are five, seven, and twelve miles per hour, with motor running at the normal velocity of 650 revs. per minute. From the change-speed gear case, which is the terminal portion of the sprung part of the frame, the drive is transmitted through a universal joint by means of bevel wheels, and through differential gears to the two transverse countershafts which carry the pinions gearing direct with the circular racks mounted on the spokes of the road wheels. The gear case and sleeves in which the gearing and transverse shafts are contained are made in cast steel and are fixed to the back axle and entirely encased; this is also the same with the change-speed gear box, all being built in steel, so that rigidity and the practice of oil-bath lubrication are ensured.

The two axles are tied together by perches and tie rods, joints being interposed in this connection and in the vertical central line with the universal joint drive, so that as the sprung portion of the vehicle ascends and descends the under carriage reciprocates up and down, thus retaining a constant distance between the two axles and between the joint centre of the under-

frame, vertically with the sprung frame, and providing for the jolting of the vehicle due to the unevenness of the road without throwing any strain upon the drive or working parts.

Two brakes are attached to the vehicle, the one on the countershaft being a double purchase brake actuated by the same foot pedal which throws the clutch in and out of gear; only a downward movement of the foot lever is required to perform the double function, the traverse being about 4 in. The first inch of depression disengages the clutch, and the other three engage the brake to an extent that will, it is claimed, hold the vehicle on an incline of one in six. The secondary brake is a positive double-grip brake actuated equally well under the conditions of forward or reverse movements; it grips on two brake pulleys secured to the hubs of the back wheels.

The lubrication is automatic throughout, sufficient feeders being provided on the dashboard for the regulation of all the important bearings. The car is entirely controlled by the steering wheel and the one-foot pedal. The tires are of solid rubber vulcanised on to the iron rims fitting on the felloes. The new car is now being put through its paces in the 1,000-mile Trial, and the latest reports received show that it is going steadily and well through the various stages.



THE NEW DAIMLER PUBLIC SERVICE WAGONETTE.

A RUMOUR that has been current this week in automobile circles is that Mr. M. D. Rucker is to be appointed the European representative of the recently-formed Anglo-American Rapid Vehicle Company.

In addition to the solid tires described in our report of the recent Motor-Car Exhibition, the Sirdar Rubber Company, Limited, also exhibited their patent pneumatic motor tire treads and covers. These are compressed both laterally and longitudinally, and are endless, so that they can be bound on to the pneumatic

tires in addition to the usual solution or vulcanising applied. If these treads and covers are cut lengthways or across they automatically close up, and do not wear ragged, and if a little solution is put in the cut as it presses together the cover will unite and no appreciable injury is done.

LA COMPAGNIE BELGE DE CONSTRUCTION D'AUTOMOBILES, of Brussels, which has a capital of £10,000, reports a profit of 639fr. (£25) for last year.

MR. T. R. OUTHWAITE, the manager of the Edinburgh Autocar Company, has betaken himself lately to the track with his De Dion motor-tricycle. We understand that he intends to have a trial shortly to test the full-speed capabilities of his new machine.

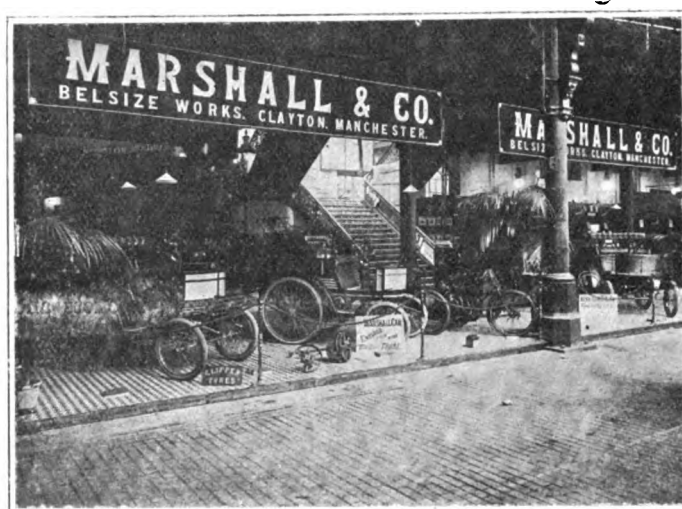
THE Eadie Manufacturing Company, Limited, Redditch, is now fitting a new 2½-h.p. De Dion engine to their motor-quadracycles. The Eadie Company obtained a consignment of the very first 2½-h.p. motors sent into this country from Paris, and are now prepared to give prompt delivery of quadracycles fitted with the same.

It may be of interest to note that the magnificent ride accomplished by Baras from Paris to Roubaix, when he equalled the express train time, although he had twelve kilometres further to travel and encountered thirty kilometres of *pave en route*, was done by the aid of a motor fitted with the Buchet *cubess*.

Scenes at the Agricultural Hall Exhibition.



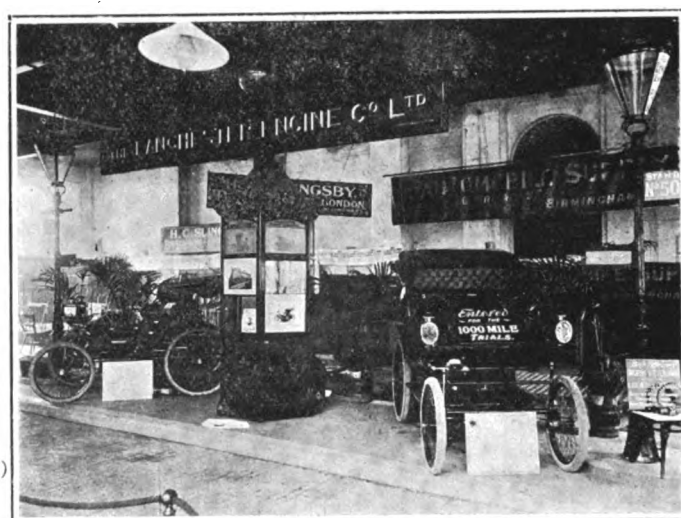
THE DAIMLER MOTOR CO.'S STAND.



MESSRS. MARSHALL & CO.'S STAND.



MESSRS. FRISWELL'S STAND.



THE LANCHESTER ENGINE CO.'S STAND.



MESSRS. BROWN BROS.' STAND.



THE MOSSBERG ROLLER BEARINGS' STAND.

[Curzon Robey and Co., London, W.]

Photos by

MOTOR-CARS ON THE CONTINENT.

(From our Correspondent.)

A Permanent Automobile Exhibition in Berlin.

DIE AUTOMOBILAUSTELLUNG GESELLSCHAFT is the title of a company which has just been formed in Berlin, on the initiative of Count Talleyrand-Périgord, to establish a permanent motor-car exhibition in the German capital. The new company also intends to open up business for motor manufacturers and makers of parts and accessories, and to deal in patents relating to the industry. It will also open motor driving schools, where beginners may be instructed in the manipulation of motor vehicles.

Another New Club.

STILL they come! At Béziers a new automobile club has just been promoted under the title of the Moto-Club Biterrois, and the intention of its members to place their society in the front rank of provincial organisations is manifested by the issue of a circular announcing an automobile meet for Monday, June 4th. On that occasion there will be a race in which separate classes will exist for cars, voiturettes, and cycles. Only local automobilists will be eligible to compete for the three handsome cups put up as prizes, but as the Languedoc boasts of several prominent *chauffeurs*, the contest in each section is certain to be pretty keen. A battle of flowers, too, is being organised for Tuesday, May 8th, so the new club is losing no time in getting to work. The committee consists of MM. Georges Prot, president; Alexandre Terral and Balthier, vice-presidents; F. Rieusset, secretary; Fourcade, assistant secretary; Izard, treasurer. Good luck to them!

Records.

THE three days' automobile meet at Turin concluded, Gasté still remained in the town, and on the afternoon of the 26th ultimo he went out on the Stupinigi road to have a dash at a few short distance records. The route selected was slightly uphill, and this told heavily against his chance of setting up fresh figures, but in one instance he proved successful, knocking one-fifth of a second off Béconnais' record for the two kilometres with flying start. Gasté's times were:—

1	kilometre from stationary start	... 57 $\frac{3}{4}$ sec.
1	" " flying " "	... 42 $\frac{1}{2}$ sec.
2	" " " " " "	... 102sec.

Another excellent performance has to be recorded, and this is the time recently made over one kilometre with flying start on the famous Achères road by M. Caron, an amateur rider. This gentleman actually covered the distance in 39 $\frac{1}{2}$ sec., so equalling the record made by Béconnais at Nice in March last, and would probably have made an even faster performance but for the strong wind against which he had to battle. It is but very seldom that an amateur aspires to beat the times achieved by his professional brethren.

The 100 Kilometres at Lille.

ON Sunday last there was decided on the Lille track the 100-kilometre motor-cycle race organised by *Le Vélo*, in place of the original course from Paris to Lille, this year prohibited by the Prefect of the Seine-et-Oise, whose department was traversed by a portion of the selected route. This 100-kilometre race would appear to have been promoted not only to please the good people of Lille, whose disappointment at the forced abandonment of their annual fixture was very great, but also to lodge a protest against the suppression of road races. The organisers having decided to make their course one of invitation only, selected as competitors half a dozen of the fastest motor cyclists of the day. Five of these are well known by name to English readers, these being MM. Béconnais, Baras, Osmond, Rigal, and Fossier, while the sixth, Bathiat, is generally regarded as the champion of Northern France, and was selected as the local representative. Favoured with magnificent summer-like

weather the course attracted a goodly crowd, who were rewarded by seeing some exciting racing. The six competitors were despatched at 4.27 p.m., and ere the completion of the first lap Rigal abandoned the struggle owing to the breakage of eight spokes of one of his wheels. Baras momentarily took the lead, but appeared hardly comfortable on the track, and soon lost the pride of place to Fossier. Fossier made the five kilometres in 5min. 15sec. and the ten kilometres in 11min. 2sec., his immediate attendants at the latter distance being Béconnais and Osmond. The latter broke his ignition plug at the sixteenth kilometre, and was compelled to retire for a time, thus leaving Fossier and Béconnais to fight it out for first place. Twenty kilometres were covered by Fossier in 21min. 45sec. and thirty kilometres in 34min. 2sec., but he was severely handicapped by the damaged condition of one of his tires, and after passing the forty-fifth kilometre he commenced to ride on the rim. It was at this point that Béconnais took the lead, and Fossier's progress being impeded by his tire, Baras secured the second place, only to immediately lose it by reason of a bad puncture. Osmond, too, seems to have had an extraordinary career, for, after replacing the damaged plug, the head of the cylinder broke, and then a series of punctures completed his tale of woe. Béconnais' time for the 56 kilometres was 55min. 30sec., and he covered 54 kilometres 130 mètres within the hour. Fossier continued to ride, seated on the petrol tank of his machine and minus a tire, but he was always losing ground, and at the seventy-fifth kilometre Bathiat went up into second place. The 90 kilometres were covered by Béconnais in 1h. 40min. 40sec., and then, just when the race appeared all over bar shouting, a broken piston pulled the leader up short. Only ten laps to go, and so Béconnais set to work, and by means of pedalling and pushing accomplished those ten laps, but not before Bathiat had caught up and passed him. The official return of this race of mishaps was as follows:—

1. Bathiat, in 1h. 53min. 44sec.
2. Béconnais, in 1h. 58min. 22sec.
3. Fossier, twelve laps behind.
4. Baras, who covered 62 kil. 400 mètres.
5. Osmond, " 59 " 600 "
6. Rigal.

If really speedy performances are to be made on the track, the number of competitors should be limited to two or three, as any increase over that number renders the work extremely dangerous, and renders fast times impossible.

The Rallye Auto-Club.

IT is at Meulan that the recently-formed Rallye Auto-Club has established its chalet, and it would be difficult to find within easy distance of Paris a more charming spot. Beautifully situated, and with several fine reaches of the Seine in close proximity, it appeals particularly to those automobilists who are fond of boating and sailing, and during the summer months very many *chauffeurs* will certainly avail themselves regularly of this opportunity of combining their pleasures by land and water. On Sunday last the chalet was formally inaugurated in the presence of some fifty members of the club, all of whom had journeyed out from town on their cars. The day had been specially selected for this little ceremony on account of the automobile canoe regatta, promoted by the Cercle de la Voile, taking place during the afternoon. It is hoped that the motor-launch trade will be helped forward considerably by the coming of the Rallye Club to Meulan, and that ere long petroleum regattas will be quite the order of the day.

Touring Competition.

As for the moment, at any rate, the races of the Exhibition, in common with all other automobile courses, have gone by the board, the organising committee has prepared a series of rules and regulations governing a *concours de tourisme* destined to take place from May 14th to 19th. In this contest no competitor will be permitted to travel at a greater speed than 20 kilometres per hour in populated districts, or in excess of 30 kilometres per hour in the open country. Accurate note of the consump-

tion of fuel, or expenditure of energy in the case of the electric vehicles, will be made, and reports will also be prepared on the conduct of the motor, the facility of steering, the action of the brakes, and the general comfortability of the vehicle. There will be four categories, all for vehicles exceeding 400 kilos in weight—two, four, six, and more than six-seated cars, all of which must be comfortably built and upholstered, and provided with a reverse speed. Intending competitors should send in their inscriptions, accompanied by the 200 fr. entry fee, on or before the 12th inst., to the Automobile Club of France. They must at the same time forward a photograph and drawing of the vehicle and of the motor. They are required to quote the sale price of the car and the apportionment of its weight upon the axles. Further they must specify the fuel employed and the quantity necessary for a day's journey, indicating also whether the vehicle will require a fresh supply in order to accomplish the task required by the commission. Handsome prizes will be awarded to the successful competitors, and the jury's report will be sent to the Society of Civil Engineers of France and to the leading foreign automobiles clubs. The itineraries selected are as follows:—

MONDAY, 14TH, WEDNESDAY, 16TH, AND SATURDAY, 19TH.

Morning.

Leave Vincennes at	9 o'clock
Joinville...	6 kil. 500
Champigny	3 kil.
Ozouer	13 kil.
Croissy	7 kil. 500
Malnoue...	5 kil. 500
Villiers-sur-Marne	4 kil.
Bry	2 kil.
Nogent	3 kil.
Fontenay	2 kil.
Vincennes	2 kil.

48 kil. 500

Afternoon.

Leave Vincennes at	1 o'clock.
Joinville	6 kil. 500
Créteil	2 kil.
Choisy-le-Roi	6 kil.
Croix-de-Berny	8 kil.
Petit-Bicêtre	7 kil.
Versailles	4 kil.
Buc	4 kil. 700
Toussus	4 kil. 200
Châteaufort	1 kil. 500
Saint-Rémy	5 kil.
Orsay	8 kil.
Palaiseau	5 kil.
Wissous	8 kil.
Villeneuve-Saint-Georges	9 kil.
Valenton	3 kil.
Créteil	5 kil.
Joinville	3 kil.
Vincennes	6 kil. 500

96 kil. 400

TUESDAY, 15TH, AND FRIDAY, 18TH.

Morning.

Leave Vincennes at	9 o'clock
Fontenay	2 kil.
Neuilly-sur-Marne	5 kil.
Chelles	6 kil.
Pomponne	7 kil.
Thorigny	2 kil.
Cornetin	2 kil.
Fort de Vaujours	10 kil.
Clichy-sous-Bois	4 kil.
Gagny	3 kil.
Rosny	4 kil.
Fontenay-sous-Bois	3 kil.
Vincennes	2 kil.

50 kil.

Afternoon.

Leave Vincennes at	1 o'clock
Joinville-le-Pont	6 kil. 500
Créteil	4 kil.
Villeneuve-Saint-Georges	8 kil.
Montgeron	3 kil.
Lieusaint	11 kil.
Melun	13 kil.
Savigny-le-Temple	7 kil.
Corbeil	9 kil.
Champrosay	9 kil.
Villeneuve-Saint-Georges	18 kil.
Vincennes	18 kil.

96 kil. 500

Whether this will compensate for the last *courses* remains to be seen, but I very much doubt whether the general public will take much, if any, interest in the proceedings.

At the A.C.F.

I LEARN that M. Bourdil will officially represent the Automobile Club of France during the 1,000 mile Trial, organised by the Automobile Club of Great Britain. It is M. Bourdil's intention to join the tour at Edinburgh, and travel with the cars right through to London. The membership of the A.C.F. continues to increase, and by the election of fourteen new members last week the grand total was brought up to 2,329. Among these new members I notice the name of Mr. Mark Mayhew, the others being MM. Arnold Deutz, Arthur de Boschan, Edmond Guillomot, O. de Rangabe, Edouard Lattes, Stephen Thorn, Pandia Petrocokino, Henry Cachard, Gustave Caltain, Edouard Caltain, Eugène de Freystadtler, David Bishop, and Frédéric Manaut. To my mind the most interesting place in the club now is the "garage," which has long since lost the empty appearance it presented the first few days subsequent to the opening. To-day one sees within its spacious halls a wonderful variety of cars, while the passage of automobiles to and fro marks the club unmistakably as an Automobile Club, an appearance it rather lacked formerly.

La Criterium de l'Electricité.

ONE frequently hears the complaint from the supporters of electric traction that their system is grievously slighted in the matter of competitions and races, and that practically all the encouragement and attention is bestowed upon the petrol cars. Well, there is a good deal of truth in the remark, but, on the other hand, constructors of electromobiles have partly to thank themselves for this condition of affairs, for when an event is organised for them they support it but very poorly. The "Criterium de l'Electricité" is a case in point. Promoted by "Le Velo," this event had for object the demonstration of the staying powers of electrically-propelled vehicles and its regulations were framed on the easiest of lines. What happens? Only three constructors respond to the invitation! Out of the many makers of electromobiles only three are courageous enough to put their productions to a public test! Make all the excuses possible, the exhibition, the orders on hand, etc., etc., and one cannot explain away the apathy displayed by the electric people towards this competition specially organised in their interests. But to deal with the contest itself. As the test was one of endurance only, with the sole proviso that the average speed maintained should be at least sixteen kilomètres (ten miles) per hour, a course of impossible length for electric cars was selected. This was Paris-Dijon, a distance of some 350 kilomètres, which is at present just a shade beyond the scope of an electromobile on one charge. Two optional times of departure were given to the three competitors, one at 8 a.m. and the other at 10 p.m., and it was at the former of these that M. Cuvelier, mounted on his little car, which only carries 480 kilos of accumulators, made a start on his voyage of discovery. The early portion of this car's career was con-

ducted against a strong head wind, but nevertheless a creditable performance was achieved, the total distance eventually covered being 140 kilomètres (87½ miles), over a fairly trying route. M. Krieger's car not putting in an appearance at the appointed time on the evening of the 26th inst., the B.G.S. vehicle started alone, having on board MM. Garcin, Bouquet, and Prade. Unfortunately, at Villeneuve-la-Guyard a short circuit was produced in the controller, and after a couple of hours' work the idea of proceeding further was abandoned and the occupants of the car had to rest content with the ninety-two kilomètres already covered. As for M. Krieger, who, as above stated, was behind time at the *contrôle de départ*, well, once started, he made excellent progress, and eventually completely outdistanced his rivals. The car which he drove was of the well-known "Duc" type, carrying the accumulators in front. These accumulators weighed 1,032 kilos, and the total weight of the vehicle was 1,980 kilos, while the passenger accounted for an additional 160 kilos. The record of the run made by this car was 152 kilomètres, the point of stoppage being some 8 kilomètres beyond Joigny, and this distance was covered at an average speed of 16 kilomètres 84 mètres per hour. No accident whatever occurred to mar the perfect harmony of the run, and, as well may be imagined, M. Krieger was delighted with his victory. He hopes that next year he will be able to place on the market a vehicle with a range of 250 kilomètres; at any rate, it will be a car possessing infinitely greater staying powers than those of this year's competitor, and if this anticipation is realised, we shall see within a few years the Paris-Dijon journey made on a single charge.

The Criterium Liégois Race.

THE Automobile Club Liégois has issued the programme of the Criterium race, which is to be run off on June 10th. The competition is open for (1) motor-cycles or cars weighing less than 400 kilogrammes, and not having two seats side by side; (2) two-seated *voiturettes* weighing less than 400 kilogrammes, (a) costing less than 3,500fr. and (b) between 3,500fr. and 5,500fr.; (3) cars weighing not less than 400 kilogrammes, (a) less than 10 h.p., (b) more than 10 h.p. The route is from Liège to Spa and back, a distance of 115 kilomètres, a compulsory stop of one hour to be made at Spa. The rules provide that the average speed must not be greater than 30 kilomètres per hour, while in the case of the cars and the *voiturettes*, they will be required to stop one minute on a hill and restart on a given signal.

BOURNEMOUTH MOTORS, LIMITED, is the title of a company which has been registered, with a capital of £4,500, to manufacture and deal with motor omnibuses, cars, wagons, cycles, and vehicles.

At the City Police-court, Lincoln, last week, Wm. Binks, cycle manufacturer, was summoned for driving a locomotive in High Street and Guildhall Street on the 19th ult. at a greater speed than was reasonable. P.C. Taylor gave evidence, and defendant was fined £2.

THE Brechin County Road Board have resolved to have the clauses of the Highways (Scotland) Act, 1896, bearing on the speed at which motor-vehicles should travel and providing for their being stopped when passing restive horses printed separately and posted on prominent places throughout the county. The Board has also decided to petition the Local Government Board in favour of a denoting mark or number being made compulsory on all light locomotives.

MR. FRANK F. WELLINGTON, 36, St. George's Square, Regent's Park Road, London, N.W., informs us that he has purchased the business of the Motor Development Corporation, Limited (Tube Department), of which he has hitherto acted as manager. The business will be carried on at the foregoing address under the style of Frank F. Wellington, and in conjunction with this he will also trade in the buying and selling of new and second-hand motors, motor-cars, motor-cycles, etc.

CORRESPONDENCE.

THE CARRIAGE OF PETROL ON RAILWAYS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have pleasure in informing you that I have received information that the railway companies are approaching the matter of the objectionable Clause 2 in the new consignment note and regulations for inflammable liquids, Class A, in such a manner that there is every reason to hope for an early alteration of these regulations on reasonable and possible lines.

I would wish to take this opportunity of mentioning how great has been the part of Mr. Charles Sangster, of the Cycle Components Company, in bringing this about. He has taken the greatest personal interest in the matter, and by his persistent energy has most materially assisted the work of the Motor Trades Association.—Yours faithfully,

G. H. SMITH, Hon. Sec.,
Motor Trades Association, Ltd.

64, Holborn Viaduct, London, May 2, 1900.

THE annual racing festival of the Catford Cycling Club will be held to-morrow, the 5th inst., at Catford Track. A motor-cycle race is included in the programme.

PRINCE D'ARENBERG, a well-known patron of the motor-car sport in France, has offered to the sporting committee of the French Automobile Club a sum of 1,000 francs (£40) as a prize for a race in which the competing vehicles are driven by motors using alcohol instead of petrol. The committee have accepted the offer.

A COMPANY has been registered under the title of Bennett and Carlisle, Limited, to acquire and carry on the business of motor and cycle agents and factors now carried on under the style of J. A. Bennett and Co. at Manchester. The nominal capital of the company is £2,000. The registered office is situate at 9, Ward's Buildings, Deansgate, Manchester.

THE Caledonian Motor-Car and Cycle Company, Limited, of Aberdeen, have despatched to Edinburgh a Caledonia motor public service car, specially built to the order of Mr. J. W. Gilchrist, Bonnington Road, Leith. Although the top speed of the car is only ten miles, the run to Edinburgh was accomplished in sixteen hours' running time.

AT the Hove Petty Session on Monday, Mr. Lewis, 31, St. Ann's Hill, Wandsworth, pleaded guilty to driving a motor-car upon the footpath by the side of the London Road at Patcham, on April 12.—P.C. Brown said defendant drove his car on the footpath for a distance of 90 yards. Defendant, in mitigation, produced a parcel of big flints, and said the road was strewn with them, and it would have done considerable damage to his car to have driven over the flints. The Chairman: That may be very disagreeable but its no defence. A fine of 1s. and 9s. costs was imposed.

THOMAS SENDALL STEVENS, of Earlsdon, Coventry, was summoned at Warwick, last week, for not stopping his motor-car when signalled by the owner of a restive horse. Mr. Madeley Burman, farmer, Wootton Grange, said defendant did not stop when witness held up his hand and also shouted to him. His horse backed some distance, and his wife was much alarmed.—Mr. Lloyd Evans corroborated this evidence. Defendant said he stopped as soon as Mr. Burman shouted, but he did not see his hand held up. The Mayor said the public must be protected, and fined defendant three guineas and costs.

TIRE punctures are always a factor to be reckoned with, however stout the tires may appear to be, and therefore owners of light motor-cars and cycles fitted with pneumatics should always be prepared for emergencies by carrying a repair outfit with them. The Dunlop Pneumatic Tire Company, Limited, have sent us a sample of the outfit they have lately put on the market for this purpose. It consists of a handy little metal box, 3in. by 4in., containing all the necessary articles for repairing punctured tires, including prepared patches, a small square of rubber, glass paper, French chalk, canvas, a tube of solution, and finally a useful little tire lever.

ROAD LOCOMOTION.



A MEETING of the Institution of Mechanical Engineers was held on Thursday last week in their new house at Storey's Gate, St. James's Park, W., when a paper on "Road Locomotion" was read by Professor H. S. Hele-Shaw, who after an introductory statement concerning the revival of road locomotion by motor-vehicles proceeded to deal with the mechanical problem of the behaviour of the wheel on the road, the question of steering and turning, and lastly with the subject of motive power, which was divided into internal combustion motors or oil engines, external combustion motors (steam), and electrical motors. He compared the advantages and disadvantages of these three kinds of motive power, and observed that though at present oil engines were used for light motor-vehicles and steam for heavy traffic, there were very ingenious steam motor-cars both in this country and abroad, while light oil engines had been applied in France and also in this country in connection with heavy traffic. Moreover, there were other kinds of motive power, such for instance as compressed air, which was being tried in America. Oil engines had, by a process of the survival of the fittest, been found so far best suited for light motors or pleasure vehicles. Electrical motors were clean, extremely convenient and simple, and altogether an ideal type of motor, but the limitations in the use of electricity were very serious. The whole problem of the use of electricity was determined by the life and capacity of the battery, and the merits of any accumulator should really be judged to a great extent by the condition of its batteries after six months' daily use in a motor-vehicle. Looking at the whole question, the Professor remarked that it might be safely said that the motor-vehicle had come to stay, and that its uses both in peace and war would rapidly develop. Though the motor-vehicle was at present still somewhat of a *rara avis* on our roads, it might not be going too far to think that the coming century would see a development of locomotion on roads comparable with the development of locomotion of the railway in the century now closing. The paper was illustrated with wall diagrams and twelve plates of figures.

Mr. Aspinall, the general manager of the Lancashire and Yorkshire Railway, in opening the discussion, said he had come to the conclusion, after exhaustive trial by his company in Liverpool and Manchester, that Thornycroft's vehicle was, at the present time, the best for all-round rough work. Although the results had been fairly satisfactory he was afraid that they could not say that motors were cheaper than horses in all respects. Until they had had more experience they could not finally decide the point. The Liverpool Self-propelled Traction Association had certainly made trials, but he feared that they were purely experimental. The association tried its best to prove that motors were cheaper than the antiquated railways, but he did not think that they had quite succeeded. It was perhaps rather unkind for the railway company to give the horseless trolley the first trial in Liverpool, but he assured the Liverpool Association that when they were in possession of more results he would then let them have them. He had just returned from a quiet part of France, where walking was made intolerable on the roads through the reckless driving of motor-cars. He hoped, therefore, that in all trials in England due respect would be paid to the law, else the new and great promising engineering industry would fall into the hands of the Frenchman. If the public were led to believe that the new vehicles were unsafe, great damage would be done to the industry.

After a few words from Mr. Thornycroft on the question of tires, and from Mr. J. Brown, of Belfast, on his "viagraph," it was decided to adjourn further discussion until June.

In moving a vote of thanks to the lecturer, Mr. Shrapnell Smith, the secretary of the Liverpool Self-Propelled Traffic Association, replied to Mr. Aspinall. The latter had said that little had been heard of late of the association, and had poked fun at them. He assured Mr. Aspinall that the association was still in existence, and would shortly be heard of again. Although the L. and Y. Railway trials had been with long weights and over short and intermittent distances, the results were useful and welcome to his association. Mr. Aspinall claimed to have introduced heavy, horseless traction into Liverpool in a practical way. He reminded him, therefore, that the Corporation of Liverpool and the Mersey Docks and Harbour Board had purchased such vehicles.

Professor Boyes seconded the motion, which was carried unanimously.

THE STORAGE OF PETROL.



At Bristol Police Court, on Tuesday, Mr. John Stevens, cycle agent, Church Road, St. George, was summoned for violating the conditions of a petroleum licence granted to him by keeping sixty gallons in excess of the quantity permitted by the licence. Mr. Roberts (from the Town Clerk's office) prosecuted, and explained that the defendant was granted a temporary petroleum licence to sell to the drivers of the motor-cars visiting Bristol, the quantity specified being forty gallons. Inspector Thompson found on the premises twenty five-gallon tanks—sixty gallons more than the licence authorised defendant to keep. It was a serious case, as petrol was very inflammable, and the premises were not suitable for the storage of such a quantity. Inspector Thompson said that on Saturday afternoon, the 21st ult., he visited premises situated behind defendant's house, in Church Road, St. George, where John Stevens had obtained a temporary petroleum licence authorising him to keep forty gallons. He found twenty tanks, each containing five gallons of petrol. He again visited the premises in the evening, in company with Inspector Durbin, and found the same quantity of petrol. Each

tank had a paper label attached to it. He called the defendant's attention to the excess, and he said he thought the licence permitted him to keep any quantity above that mentioned in the licence. Defendant said that he applied at St. George Police-station for a petroleum licence, and did not mention any quantity. He was told that he would be sent some application forms. A constable brought two forms to his house. One was a blank one, and he was told that he must fill it up like the other, on which was mentioned the quantity, forty gallons. He accordingly filled in the form, applying for a licence to keep forty gallons. He thought he could keep forty gallons without a licence, and that if he paid for a licence he could keep any quantity over. He was making no profit out of it; he simply sold it as an advertisement to get the motor-cars out into the district. The bench fined him five guineas and costs, taking into consideration the fact that the oil had been forfeited, and cautioned him to make himself better acquainted with the law.

RENAULT v. MOTOR-CAR COMPANY.



IN the Chancery Division, on the 25th ult., Mr. Justice Kekewich, on the application of Mr. Israel Davis, granted leave to serve notice of motion, with the writ, for Friday in this action, which is brought to restrain the defendants from doing certain acts of which the plaintiff complained.

THE BEESTON MOTOR COMPANY.



MR. JUSTICE COZENS-HARDY, sitting for Mr. Justice Wright, in the Chancery Division, on the 26th ult., had before him a petition presented by Mr. H. Osbaldeston Duncan for the compulsory winding up of the Beeston Motor Company. Mr. O. Leigh Clare appeared for the petitioner, and Mr. Martelli represented the company. Mr. Martelli stated that the petitioner was a creditor for a small amount. The answer to the petition was that the property of the company was in the hands of a Receiver for the debenture holders, and there would probably be no surplus for the creditors. The Receiver was actually negotiating for the sale of the property, and he would give the petitioner all information as to the proposed contract. Petitioner wanted to see that the property was realised to the best advantage. He asked that the petition might be ordered to stand over for a fortnight. Mr. Justice Cozens-Hardy assented.

FURIOUS DRIVING CASE.



BEFORE the Bournemouth Borough Bench, last week, Sidney Mitlett, of Wickham Road, Pokesdown, pleaded guilty to furiously driving a motor-car in the Square, Bournemouth. P.C. Haywood, who proved the case, said the defendant was going at a speed of twelve miles an hour. Defendant was fined 2s. 6d. and costs.

THE "Locomobile" Company of America, of New York, and 52, Sussex Place, South Kensington, W., have sent us a copy of their new catalogue, which gives particulars of the "Locomobile" steam car. The list is neatly printed and includes illustrations of several styles of these now well-known vehicles.

THE proposed service of motor-cars between Aberdeen and Torry, to which we referred in a previous issue, is now assuming definite shape. A meeting of those favourable to the scheme was held in Torry on Friday last week, when a committee was appointed to collect information as to police regulations, price of cars, etc., and to report to a further meeting.

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COMMENTS.



THE end of the great 1,000-mile Trial is in sight, and the cars are expected to arrive in London to-day before seven p.m. going from the Marble Arch to the Horse Guards Avenue, by way of Regent Street and Pall Mall. For the speed trial in Welbeck Park, which was arranged by the kindness of the Duke of Portland, fourteen cars entered, eight of which were in the amateur section. This took place yesterday, and proved of considerable interest. Altogether, the affair has been a great success, a triumph for automobilism, and a record in organisation.

Miss Bacon's Latest Adventure.

FATE has been unkind to Miss Bacon, and railway companies and stupid men have been cruel to her motor-bicycle. How she rode forth on the 1,000-Mile Trial has already been told; how she appeared when on the journey is depicted on another page; how her machine was disabled from continuing beyond Bristol is also known. But the latest incident in her career as a motor-bicyclist is perhaps the worst of all, for the other day the driver of a cart backed into the cycle, smashing it, and nearly serving the rider in a similar way. We are afraid she may be laid up for some time as the result of the accident. Seeing that Miss Bacon was getting "quite attached to the motor-bicycle and its little ways"—to use her own expression—she is naturally chagrined as well as hurt. But we are rather inclined to differ from her belief that luck has fled from the venturesome little lady ever since she saw a "black dead cat lying in a ditch!"

Accidents in France.

IN the March issue of the statistical table prepared monthly by *Le Velo* there is included for the first time a summary of the month's railway accidents, so the student of figures can now make direct comparisons between the four great means of locomotion in France. And of the four—the horse, the automobile, the bicycle, and the train—which leads the way in the matter of accidents? Why, of course, our dear old friend the noble steed, and that in no half-hearted manner. To his own book he was the direct cause of no less than 718 accidents during the month of March, while his mechanical rivals only accounted for 170 between them. On glancing through the list of fifty-two deaths occasioned by the horse one remarks at once the great variety of dangers that the owner of a horse runs. He may be bitten or kicked, he may be run over or thrown, his horse may fall on him or bolt with him, and yet, in spite of all, we—motor men included—love our old friend. All that his admirers who motor ask for is that his mechanical competitors receive equality of treatment and be not stigmatised as "nasty, dangerous things," while his misdeeds are carefully glossed over. After the horse the next on

Le Velo's list is the bicycle, the use of which has brought about seventy-five accidents during the month, and in five instances the results have been fatal. Then comes the automobile with fifty-two accidents, accounting for four deaths, the most notable of which was that of the unfortunate Herr Bauer at Nice. This number is considerably in excess of that recorded on previous occasions, and marks the initial stage of that condition of affairs which has since resulted in so rigid an enforcement of the police regulations governing the circulation of self-propelled vehicles. The last on the list is the train, and here one finds but forty-three accidents, although the percentage of fatalities has been considerably higher than in the case of the automobile or the bicycle. The train must be held responsible for thirteen deaths, the victims in each instance being killed instantaneously.

Automobilism and Nature.

IN the near future, says the *Yorkshire Herald*, in an eulogy of the motor-car, Englishmen and Englishwomen will know and love their country better than they have done in the past. The disciples of Ruskin, of Wordsworth, of Keats, and of Shelley, may sigh for the return of the days of the stage-coach, when communication between man and his fellows was difficult. But the world was made for all, and its delights are to-day being tasted by the million, instead of by the hundred. The cycle and the motor-car have arrived just in time to remind the Briton, who is a bird of passage, that he has been following a myth for years, and that the Land of Promise lies immediately under his nose and not over the seas. If the motor-car does nothing more than bind him more closely to his native land it will achieve much.

Newspaper Views.

THE 1,000-mile Trial has caused the general press to devote much more attention to the motor-car than usual, and while there are a few newspapers which are still inclined to treat the modern means of locomotion somewhat sceptically, yet the majority are now regarding them a little more reasonably and rationally. As a case in point we may refer to the *Doncaster Chronicle*, which states that "As yet, motor-cars are in their infancy, but it is a well-developed infancy, and the vehicles thus on view illustrate the highest type of horseless vehicle, the vehicle that is destined to be the popular car of the future. The public have not hitherto been deeply impressed by the specimens which have been occasionally seen, but this display of the finest cars yet constructed will stimulate interest in the development of automobiles, and tend to remove many prejudices that had, perhaps unwarrantably, been formed."

"A Foolish Orgy."

The motor-car rush or scramble of a thousand miles round the country strikes me, says a writer in *Society*, "as one of the most foolish orgies in the way of travelling that our island of eccentrics has yet witnessed. The promoters of the business seems to be inordinately anxious to prove that the motor-car

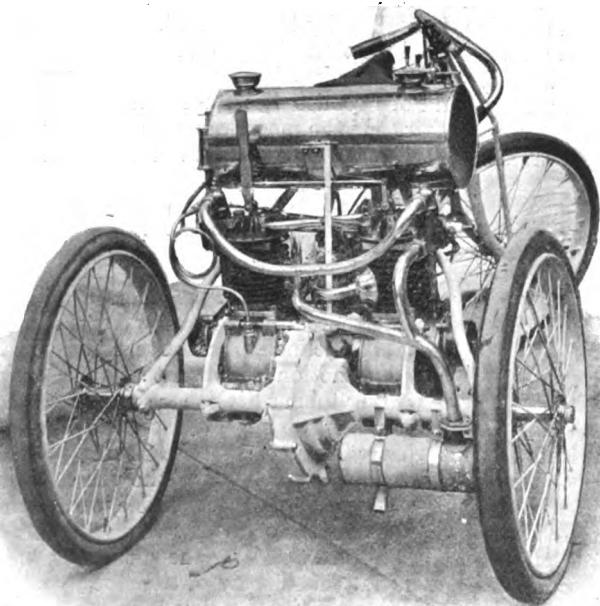
can do a journey without blowing up or coming to pieces. Well, seeing that motorism is the inevitable mode of travel, and, perhaps, of transport, in the not distant future, all this anxiety to show that the cars are not altogether gaseous frauds is a trifle absurd. We none of us need convincing of the merits of motorism, but our ancient conservatism, and perhaps our natural love of horseflesh, restrains us from committing ourselves to 'horseless traction.' We admit the principle, but, with your leave, we would defer acting upon it." We give this as an extreme instance of the journalistic way of making bricks without straw. The contributor to our contemporary wanted to say something about the 1,000-miles Trial, and, in absence of knowledge, imagined the strange notion set forth in the paragraph quoted. And of such is *Society*.

The Prejudice of Innovation.

RECOGNISING that the Trial is "not altogether an excursion for the sake of pleasure, but is intended more as an educating and proselytising mission," the *Country Gentleman* doubts whether it will hasten the development of the industry, as "the sentiment of the nation, on the whole, is still opposed to this innovation in methods of travelling." That, of course, only records an obvious truth. All innovations find opposition in the early stages of development, and that the motor-car has not escaped such a circumstance is matter for congratulation, since, when its value does become recognised, it will hold as strong a claim on the public as those methods with which it is now so familiar.

A 7-H.P. Racing Motor-Tricycle.

WE are now able to illustrate the racing tricycles used by Mr. C. Jarrott and Mr. F. F. Wellington at the race meeting at the Crystal Palace on Easter Monday when, it will be remembered the former succeeded in creating a new British record for the hour, covering no less than 38 miles 868 yards in that time. The machines are fitted with two $3\frac{1}{2}$ -h.p. motors of



the Aster type, and Longuemare carburettors. The motors, as will be seen, are placed inside the frame, giving, it is claimed, great advantage for speed. One of the machines was built by the Phebus Company, and the other by the Gladiator Company. Mr. Wellington, who is the sole agent for both machines in this country, tells us that on Good Friday they covered the mile in 1 min. 27 sec., and that as soon as the weather gets finer, with less wind, he expects that the above-mentioned records will quickly be broken.

Motor-Cars in the Russian Army.

ATTENTION has been already drawn in these columns to the active interest which is being shown in motor-cars by the military authorities of Germany, France, and Italy. To these countries, Russia must now be added, for the *Horseless Age* reports that the American Consul-General Holloway, at St. Petersburg, has written to the U.S. State Department, stating that the Russian Minister of War is desirous of purchasing a freight automobile, to be propelled by either steam or kerosene, and proposes that if any manufacturer will ship two such carriages, one for steam and the other for kerosene, to St. Petersburg, the War Department will pay the freight and duty on both, purchase the one better suited for its purpose, and return the other. The machines are to be in St. Petersburg by June next. Manufacturers are asked to send catalogues, giving weight, inside dimensions, price, rapidity of movement and other data to Colonel N. A. Blinoff, chief of staff, Ministry of War, St. Petersburg, Russia. Mr. Holloway suggests that the possibility for large orders to supply the Russian army, which is scattered over an area more than twice the size of the United States, with automobile wagons is worthy of attention.

A Reminiscence.

THE tour of the Automobile Club, in connection with which an exhibition was held in Newcastle on Saturday, calls to mind the fact that in the infancy of the motor-car movement no one, says the *Newcastle Journal*, took a deeper interest in it than the late Mr. John Philipson. Some years ago, as president of the Institute of Carriage Manufacturers, he delivered an address, which was mainly devoted to the coming of the automobile, and many of his predictions on that occasion have already been verified. He used to value very highly a collection of valuable old drawings of steam carriages, and his sons sent some of these to the exhibition to show that steam carriages were actually made more than half a century ago. Mr. Rowland Barnett also contributed a collection of drawings, illustrating the electrical side of the question.

Routes and Roads.

MR. T. A. EDGE has compiled and Messrs. Walter Scott, Ltd., have published the "Clincher" guide of the cycling routes of England and Wales which will be of value to motorists as well as to cyclists. This gives reliable information concerning the undulation and surface of the various roads, a code of letters being adopted to minimise the space occupied by such descriptions. The book, which is of convenient size, has a specially drawn map in which the roads are depicted in black and white. Each road is numbered to correspond with the route set forth in the book so that the rider can form his choice of route from any given point to another, and get out an itinerary of his suggested journey without difficulty.

Educating Horses.

DURING a recent short run of fifty miles in Ireland, the Dublin manager of the Cycle and Motor Company, Ltd., had to pull up at the roadside no fewer than ten times to allow spirited horses to go by. Such an experience has suggested to him the advisability of a thorough education of Irish horses, and he announces his willingness to send a motor-quadracycle to the address of any persons in the Irish capital who have restless horses, so that the animals may become accustomed to their mechanical rival. Hardly a week now passes without news of some such offer on the part of automobilists to educate horses.

THE *New York Journal* has purchased six electric vans for delivering papers. The *Journal* intends to add more motor-cars as needed, as the experiment so far has been a decided success.

The Automobile Club's 1,000-Mile Trial.

ON THE LONG PILGRIMAGE.

By OBSERVER.

EDINBURGH, Thursday, May 3rd.

The official record of the hill climbing on Birkhill yesterday has been issued as follows:—

		Miles per hour.	Number of persons on car.
A 17	Hon. C. S. Rolls's 12 h.p. Panhard	16.0	Two
3	3½ h.p. Ariel quadricycle	13.3	One
4	Ariel tricycle and Whippet trailer	12.6	Two (both had to dismount)



MRS. HARMSWORTH, LADY CECIL MONTAGU AND PARTY AT CALCOT PARK.

Photo by]

[Lord Kingsburgh.

12	Motor Manufacturing Company's tri-cycle	12.6	
A 28	Mr. E. M. Iliffe's Enfield quadricycle	12.0	One
A 10	Mr. E. Kennard's 8 h.p. Napier	11.5	Three
A 22	Mr. J. A. Holder's 12 h.p. Daimler	10.9	Four
26	8 h.p. Peugeot car	10.9	Two
39	Century tandem tricycle	10.9	Two (both had to dismount)
5	Locomobile steam car	10.9	Two
14	De Dion Voiturette	10.9	Two
A 11	Hon. J. S. Montagu's 12 h.p. Daimler	10.4	Two
A 29	Mr. M. Mayhew's 7 h.p. Peugeot	10.0	Two
31	M.C.C. Triumph	9.6	Two
23	Brown Whitney steam car	8.9	Three (one alighted for restarting)
A 27	Mr. J. K. Hargreaves' 12 h.p. Daimler	8.9	Three
A 3	Mr. T. B. Browne's 6 h.p. Panhard	8.6	Three
34	Decauville car	8.6	Two (one dismounted)
40	Wolseley voiturette	8.6	Two
A 31	Mr. Exe's 6 h.p. Parisian Daimler	8.2	Three
37	6 h.p. Daimler Parisian	8.0	Two
51	Star voiturette	8.0	Two
27	New Orleans car	7.7	Two (one alighted)
22	Lanchester car	7.7	Two
46	Richard car	7.5	Four (one alighted)
A 24	Mr. R. E. Phillips's Mors Duc	7.5	Two
16	Gladiator voiturette	7.5	Two (both alighted)
A 30	Mr. J. D. Siddeley's 6 h.p. Parisian Daimler	7.0	Two
35	6 h.p. Daimler	6.8	Three (one alighted)
A 16	Mr. A. J. Wilson's Ariel tricycle	6.8	Driver pushing
A 7	Mr. A. Harmsworth's 6 h.p. Parisian Daimler	6.6	Two (one alighted)
2	Benz Ideal (1900 pattern)	6.6	Two (one alighted)
36	6 h.p. Daimler	6.6	Three

8	Motor Manufacturing Company's 6 h.p. phaeton	6.5	Three
9	Motor Manufacturing Company's 6 h.p. Iveagh phaeton	6.3	Three (one alighted)
49	Marshall car	6.3	Two
1	Hewetson's Benz Ideal	6.0	Two (both alighted)
A 2	Mr. F. H. Butler's 6 h.p. Panhard	5.7	Three
47	Richard car	5.0	Three (all alighted)
A 21	Mr. E. Pitman's 6 h.p. Daimler	4.8	Two
A 23	Mr. C. Cordingley's 6½ h.p. Motor Manufacturing Company's phaeton	4.6	Two (both alighted)
A 26	Mr. C. K. Gregson's 6 h.p. Daimler	4.1	Three (one walking)
44	International victoria	4.1	Two

NEWCASTLE, Friday, May 4th.

It was not a very grand morning for our 122 miles run to the Tyne. The sky above Edinburgh was shedding teardrops as we left, and the roads were greasy and treacherous. As Arthur's Seat faded in the distance the weather cleared and the sun came out, revealing a beauty of landscape that must have delighted every passenger. Every town and village showed an interest in our progress. Portobello contributed its throng of fisher-folk and seaside residents; Musselburgh was awake to the interest of the occasion; and all the population of Tranent and Gladsmuir turned out in welcome. And right hearty the welcome was, everywhere. The elder people saluted pleasantly, even the stolid fisherman, taking the "cutty" pipe from his mouth to wave it in token of his goodwill. As for the children, they went fairly wild with joy, cheering with a shrill treble that was the true keynote of delight. It was a veritable triumphal procession. But nobody had broken bread that morning; the rushing through the sea-scented air was appetising; and a halt at Haddington gave an opportunity to a hundred hungry people to fortify themselves against the hours to come.



LORD KINGSBURGH AND COL. MAGRATH ON DAIMLER CAR.

As we entered the Haddington burgh control a strong breeze was blowing, slightly favouring the motorists, and the weather was fine, the roads being free from dust. Breakfast having been taken the journey was resumed. At Haddington the motor-cars had got some distance into rural districts, but on setting out for Dunbar the sea coast soon came into view once more. It was kept in sight until after passing Cockburnspath, where the road again diverged in the direction of Grant's House, Houndwood, and Ayton, till Burnmouth was reached, when the German Ocean was once more sighted until Berwick was reached. The road

gradually improved through Dunbar and Cockburnspath, where a hill with a nasty triple turn had to be negotiated, with plenty of grease at the corners. The countryside was now so sparsely populated that speedy travelling was both comfortable and safe, and good time was made to Berwick, 58 miles from the start.

Luncheon having been partaken of, a start was made for Newcastle, and the run was quite uneventful. Among the minor troubles was the snapping of a driving chain on Mr. Edmund's car, which rather delayed his progress. Most of the people were ready for tea in Morpeth, and after that there was a clear run into Newcastle, which most of the cars reached well within the scheduled time.

LEEDS, Monday Night.

After a rest we were off again in good time this morning. Certainly the outlook was not promising. There was a general dullness, and hardly were we in the street when the rain—a hard and biting rain—commenced. Not only were the elements above unkindly, but roads were bad, an uncomfortable thought in connection with the length of the run and the long stay to be made in York.

Still, there is nothing but to start, and to try, when the Automobile Club goes on tour and fifty-one automobiles set forth, to achieve the distinction of success. But the climatic conditions were not the only drawback. One of the burners of my car soon gave trouble, and we had to draw aside—waiting in a heavy downpour of rain till deliverance came. The stoppage gave us opportunity for observing the mishaps of other people. Between Newcastle and Durham the roads were heavy, very heavy. Mr. Siddeley discovered that when he experienced a side slip on the greasy tram lines and his car was turned completely round. Immediately to the rear was the Century tandem, which ran into the pavement and struck one of the wheels of the Daimler Parisian. The former got the worst of the encounter, its wheel being buckled.

Through Chester-le-Street we went, and on to Durham, accompanied by a very substantial downpour of rain, which made the roads thick and sticky with mud. There was no dust now; and the respective disadvantages of rain and dust compared may form a topic for discussion at some later date. Breakfast was indulged in at Durham, a city of proud eminence, with a lovely old cathedral, whose glories would have been appreciated had the weather been otherwise. As it was, the glorious pile was enveloped in a thick mist, and breakfast was the only thing that really interested us in Durham. The streets of the city are narrow and tortuous with many difficult rises, and were in a very greasy condition.

A fresh start being made, we came upon some very short and steep inclines. These came upon us with almost startling suddenness, causing us to drop from fourth to first speed straight away. On Ferry Hill, the Daimler of the Hon. J. Scott Montagu, which has done splendidly, required a little coaxing—it, too, regarding the state of the roads as abnormally heavy, even for its fine constitution and good running powers. Leaving Wycliffe the roads showed a slight improvement on towards Darlington, where it appeared that all the population had turned out to greet us. The only passage for the cars was in the centre of the single greasy lines of tramways, and that no accidents took place was a tribute to the skill of the drivers and the reliability of the cars, which should appeal to all who saw the way the vehicles were handled. In Darlington there are some awkward corners, that at Blackwellgate being probably the worst. In turning the corner near the Fleece Hotel, Mrs. Bazalgette met a horse and conveyance just ahead. She slowed, and did her best to clear, but failed, and jostled a lamp-post. Several standing by at once came to the rescue, and giving a turn to the head of the little car sent it on its way again.

The weather had up to Durham been somewhat of a "Scotch mist," but by the time Darlington was reached matters had improved; while on to Northallerton, where a halt was made for lunch, the going was excellent, and the sun glanced out for a second or so at pretty long intervals. In the Thirsk and Northallerton district the scenery was very enjoyable, and, indeed, the same may be said of the journey right into York.

There was little excitement on the way, and my car was pulling grandly until within three miles of Northallerton.

Then trouble with our burners began again, and within a mile it was necessary to get down eight times to attend to them. The driver of one of two cars that were close together, and each trying to get to the control first, failed to apply his brake on a greasy road and skidded, travelling up a bank. Fortunately no damage was done to man or machine.

Luncheon was taken at Northallerton, and that meal being over, the rain ceased, but unfortunately the weather continued dull and threatening, and there was too much mud on the road to be pleasant. Mr. E. J. Hutton, J.P., whose misfortunes with his four-cylindered Panhard car are well-known, was at Northallerton with his new Creanche electric car. After the halt there was more greasy running as far as Thirsk. For company for some miles we had the Lanchester car, No. 28. On the level we were easily faster, but up hill the Lanchester car was two or three miles ahead, and the consequence was we were passed and repassed nearly the whole of the way, as the road was hilly. The Wolseley car was frequently in our company during the next stages of the journey, but suffered from innumerable punctures, as have several other cars with pneumatic tires. Mr. Johnson, too, has had rather a bad experience, puncturing several times.

Driving through Thirsk was no careless matter, as the market square was about as closely packed with people as any passed through during the whole course of the tour, a fact due to the hiring fair in progress, and not wholly associated with the coming of the cars. We met some very antiquated-looking vehicles drawn by horses going to the hiring fair, where merry-go-rounds seemed the leading feature—so far as our rapid observation revealed. The road improved slightly through Easingwold and Skipton, and at length we arrived at York, where each vehicle was detained an hour and a half in the grounds of the Railway Hotel for the purposes of exhibition. The cars were released in the order of their arrival, and there were about twenty of them in the grounds at one time. Great crowds had gathered in the picturesque old city, and the advent of the cars created much commotion. There was quite a fashionable gathering at the exhibition, and the whole proceedings were of the nature of a picnic. Many of us would have preferred to have stayed in York, but the programme had to be obeyed.

When York was left behind dry roads were entered upon for the first time, though the surface quality was otherwise none too satisfactory, especially after Tadcaster had been passed. The Napier car had punctured badly outside Northallerton, and was overhauled by Mr. Holder's Daimler, but the latter had to change a burner outside York, and entered Leeds only just in front of its friendly rival.

SHEFFIELD, Wednesday Night.

All last night a hurricane was blowing at Leeds, and the enthusiastic motorists left their different hotels fully prepared for a dirty day. From a few minutes after five o'clock they journeyed forth from warm rooms and cosy quarters prepared to undergo fatigue and sacrifice themselves in storm and rain in order to convince the British public of the delights of automobilism. Some may have wavered; a few have quailed before the elements; but none confessed to such weakness. "Was there a man dismayed?" If there was, he certainly cloaked his feelings as well as his person. We were a motley assembly as in oilskins and leathern jackets we took our seats. Unlike the foolish virgins who had not seen to their lamps, we were prepared for anything, and if the burners did give trouble it was not the fault of the motorist.

Fortunate were those who had made themselves waterproof, and who were also impervious to wind, for we had a cool experience, and those on the car that was last at the control spending an hour while others were setting forth must have reflected on the disadvantages of rear positions.

The day's run has been one of only seventy-four miles, but seeing that we have also had two exhibitions, a succession of steep hills, and somewhat greasy roads, it has been harder work than some of the longer runs indulged in in the early days of the Trial. In fact, I suppose we have not had a mile of level road during the whole of the day. Forty-nine cars left the drill hall in Fenton Street, the early hour and the unfavourable weather prevailing causing the departure to take place under quieter con-

ditions than the arrival. Persons who were astir, however, had an opportunity of seeing the vehicles in a more attractive state than on their entry into the city from Newcastle. Passing through Harewood and Pannal we found the roads very muddy, while the wind was exceptionally biting. These two conditions, combined with rain, proved depressing.

But that was not the only trouble, for I abandoned my car about a mile and a half before reaching Otley. It happened thus. Our control card was signed 7.39 a.m. at Leeds, and at 10.15 we were still three miles from Harrogate. We had gone scarcely half a mile from the Leeds outward control when the



MISS BACON AND HER WERNER MOTOR-BICYCLE.

Photo by

[Lord Kingsburgh.]

burners gave trouble—an experience realised by other cars as well—although none seemed in such great difficulties. At frequent intervals we were in trouble, and after passing Pannal were met by several of the cars returning from Harrogate to Pannal, where they again got on the high road to Bradford. We turned with them, and so missed the holiday town and breakfast. Then the car picked up and went grandly, and we got ahead of several vehicles, including a Peugeot, when, alas, the burners again went wrong, and those that we had passed now passed us, smiling. Off came the bonnet of my car, and we discovered that there was a little spray of water putting the burners out. Closer examination revealed a loose stud, and it was clear that some little time would be required for repairs. I was glad to accept the offer of a seat on Mr. Hargreaves' second twin Daimler, driven by Mr. Meyer, and to continue the journey—looking forward to having the first meal of the day at our next stopping place, Bradford.

Up to this point the wind had been in our faces, and in some of the exposed situations driving the cars had been a difficult matter; from Harrogate to Bradford the wind was more helpful and the running decidedly better. With the improving weather one could think of surroundings and enjoy the pleasant scenery between Harrogate and Otley.

A great deal of interest was manifested in Shipley and Bradford in the visit of the cars. The Bradford "control" commenced at the Charlestown railway bridge at Shipley, and between this point and the "outward control" at Tong the speed was limited to eight miles per hour. Shipley Market Place was crowded with people, and the road into Bradford was lined with spectators. Here in the Town Hall Square the Chief Constable had given permission for a three-hours exhibition, and he had also made splendid arrangements for keeping the great crowd in check. Messrs. J. E. Tuke and C. Grahame White had made excellent local arrangements, and after leaving the town we were glad to find better roads.

Although the way out of Bradford is none too good a road, and proved a fairly stiff climb, none of the cars seemed to be distressed, and a good run during the ten miles which separate the woollen town from Wakefield was enjoyed. We got more jolting in the short run through Wakefield than anywhere else between Bradford and our destination—a fact which impressed us even more than the cathedral. Then on to Sandal Magna we went into Barnsley, where a hurried tea was partaken of. Then again the cars went on—every one of them doing well—through several villages at a good pace to Chapeltown Hill, six miles from Barnsley. This was a dangerous descent, but was taken without mishap, and a short run over a switchback course brought us to Sheffield—rather more than two hundred miles from town.

EN ROUTE.

EDINBURGH.

Last week I sent particulars of how the cars came into Edinburgh. During their stay they attracted considerable attention, and a large number of gentlemen from various parts of Scotland interested in automobilism came into the city to see the vehicles. Several privately owned cars were also present, and on the road between here and Carlisle, Mr. Drummond, of Stirling, Mr. Pullar, of the Bridge of Allan, and Mr. Love, of Kirkealdy, were to be seen on their cars. A rumour somehow got about as to the likelihood of prosecutions for furious driving against some of the owners of cars in the competition, but this was discredited by Superintendent Wright of the County Police. Interim-Chief Constable Chisholm had no complaint regarding the speed of the cars within the city. Only one driver had to be held up. In the opinion of a policeman he was going rather fast, but immediately upon the constable holding up his hand he slackened his pace.



SNAPSHOTTING THE 8 H.P. NAPIER CAR.—A SNAPPER SNAPSHOTTED.

Photo by

[Lord Kingsburgh.]

Fifty-two cars left the Waverley Market on Friday morning, and although the weather was somewhat unpropitious, being showery, with a strong wind blowing, a good many people had gathered at the Market entrance to see the travellers off. An hour or so before the cars started, the Market presented a somewhat animated and unusual scene. The car drivers and assistants were busy getting their machines ready, filling the oil-tanks and inflating the tires, while the passengers were all excitement getting their belongings properly packed into the vehicles and other

preliminaries attended to. There was no set order for the cars going away, each being allowed to start whenever ready immediately after seven o'clock, but thirty seconds had to elapse before the departure of each car. In a very short time the vehicles had all cleared off, and soon were out of sight on their way by Portobello and Musselburgh to Haddington.

Overnight the weather promised anything but an enjoyable trip to those who had arranged to travel to Newcastle. A strong, squally wind, with violent showers, set in from the west. It prevailed intermittently through the night, and when at about half-past six in the morning those who were bound for Newcastle presented themselves at the Waverley Market, they found that the skies were still gloomy, and that the rain was again beating down pitilessly. But a welcome change occurred ere the market was quitted. The journey was blessed with little sunshine. It was, on the other hand, afflicted with a fierce head wind, and, in spite of the hopes engendered by the early showers, by sadly too much dust. The outward "control" of the Edinburgh district was at Levenhall, some six or seven miles from the point of starting, and was under the charge of Mr. W. L. Sleigh, of the Scottish Automobile Club, Mr. J. Alexander, of the C.T.C., and Mr. W. Whitson. Fifty minutes was the time which had to be taken for the distance, those cars which arrived in less than that period after leaving Edinburgh having to wait until it had expired. Mr. S. F. Edge, on his Napier, was first free of the control at 7.50, the others following in close order until forty-seven participating cars and cycles had passed through, besides several who were accompanying the tourists for greater or lesser distances. Fortunately, at the further end of the control there had been much less rain than in the immediate vicinity of the city, and the roads from Levenhall were quite dry, though the high wind, raising as it did clouds of dust, somewhat tempered the blessing of the dry going.

BERWICK-ON-TWEED.

The arrival of the cars in Berwick created considerable interest, and their advent to the town was keenly awaited by a large number of persons. It was scarcely anticipated, however, that the vanguard of the motorists would reach Berwick at the early hour they did. The Hon. C. S. Rolls' car was the first arrival. A couple of minutes later two more arrived, and they belonged to private owners. They were Mr. J. A. Holder's 12-h.p. Daimler and Mr. C. E. Kennard's 8-h.p. Napier. As three-quarters of an hour was allowed at Berwick for luncheon plenty of opportunity was given the many interested spectators to examine the cars. After a short interval the motors began to arrive in more regular order, and continued to do so until after two o'clock. At the dinner hour there was a very large gathering of people in High Street. Although some inquired into the working parts of the motors, the majority were content to witness their arrival and departure, and many expressions of satisfaction were heard at the easy way in which they were turned or drawn up. The Head Constable (Mr. Nicholson) and several of his force ably kept the course where the crowd was thickest, and directed the motorists, while the work of timekeeping was most efficiently performed at the red flag control by Messrs. S. Oliphant and T. W. Boal; and at the white flag control by Messrs. W. M. Mather and W. Allan Caverhill. The inward control was near the cemetery gates on the North Road, and the outward control beyond the Tweed Saw Mills, a distance of one and a half miles. With the exception of a motor-tricycle and one car, all got safely away, the two exceptions having slight breakdowns, which necessitated their remaining for some time for repairs.

NEWCASTLE-ON-TYNE.

The official records concerning the run from Edinburgh to Newcastle (122 miles), which took place on Friday—the roads being good but the vehicles having a strong head wind to contend with—show that all the cars enumerated below completed the journey at a speed up to the legal limit of twelve miles an hour, viz:—

In the manufacturerers and agents' section:—

No. 2, Benz "Ideal."

No. 3, "Ariel" quadricycle.

- No. 4, "Ariel" tricycle, with Whippet trailer.
- No. 9, Motor Manufacturing Company's "Iveagh" phaeton.
- No. 12, Motor Manufacturing Company's tricycle.
- No. 15, De Dion voiturette.
- No. 16, Motor Power Company's "Gladiator" voiturette.
- No. 22, Lanchester Engine Company's 8-h.p. car.
- No. 26, Friswell's 8-h.p. Peugeot.
- No. 31, Motor-Car Company's 3½-h.p. "Triumph."
- No. 34, Motor-Car Company's 3½-h.p. Decauville.
- No. 35, The Daimler Company's 6-h.p. carriage.
- No. 39, "Century" Tandem Tricycle.
- No. 40, Wolseley Company's voiturette.
- No. 44, International Company's 3-h.p. victoria.
- Nos. 46 and 47, Automobile Manufacturing Company's 7-h.p.

Richard.

No. 51, Star Motor Company's voiturette.

And in the amateur section:—

- No. A 7, Mr. Alfred Harmsworth's 6-h.p. Parisian Daimler.
- No. A 10, Mr. Edward Kennard's 8-h.p. Napier.
- No. A 11, the Hon. John Scott Montagu's 12-h.p. Daimler.
- No. A 17, the Hon. C. S. Rolls' 12-h.p. Panhard.
- No. A 20, Mr. Herbert Ashby's "Empress" tricycle.
- No. A 21, Mr. Ernest Pitman's 6-h.p. Daimler.
- No. A 22, Mr. J. Holder's 12-h.p. Daimler.
- No. A 24, Mr. Robert Phillips' 4-h.p. Mors.
- No. A 27, Mr. John R. Hargreaves' 12-h.p. Daimler.
- No. A 29, Mr. Mark Mayhew's 7-h.p. Peugeot.
- No. A 30, Mr. J. D. Siddeley's 6-h.p. Parisian Daimler.
- No. A 31, Mr. W. Exe's 6-h.p. Parisian Daimler.

DARLINGTON.

The unusual sight of a string of motor-cars passing through Darlington caused quite a flutter and thrill of excitement in almost everybody's mind. The ordinary spectator had been led to believe that at 10.30 prompt, with a blowing of horns, the whole of the cars would perform a triumphal march through the town, and that the traffic would be suspended in certain streets for their benefit. Earlier than that hour the footpaths in Northgate, Prebend Row, and Blackwellgate were lined with people who had the pleasure of seeing a car in every fifteen minutes pass along. At about 11 a.m. a string of cars and tricycles came through mud-besmeared, and owing to the wretched weather presenting altogether a sad spectacle. None of the cars stopped at Darlington, but passed through smartly on their way to Northallerton, where luncheon was awaiting for them. By noon forty-five cars had passed through Darlington. The tricycles caused a lot of amusement by the manner in which they buzzed through the town at full speed, and yet threaded their way carefully amid the traffic in the centre of the town. The control for Darlington began at St. Paul's Church, and ended at Parkgate, George Road, and at that point they went straight ahead at will. Mr. J. W. Morley acted as timekeeper at Darlington, and the police attended to the traffic in a masterly manner.

YORK.

There was a great crowd to welcome the vehicles and their passengers, and considerable interest was taken in the exhibition. Two hours' halt was made while tea was taken, and judging from the fashionable assembly in the hotel grounds, many of the leading county families were represented.

LEEDS.

A real Yorkshire welcome was accorded the cars and their riders as they came into Leeds, the Hon. C. S. Rolls leading. Those who have followed the reports of the Trial have seen how he has occupied a good position right through the contest, and the Leeds people were naturally interested in the personality of the famous *chauffeur*. He got in a few minutes before time. The Ariel tricycle with Whippet detachable trailer was a quarter of an hour behind, and then came a Daimler 12-h.p. motor car and an 8-h.p. Napier, closely followed by the usual leading cars. For more than four hours after the first had made its appearance the cars kept arriving at short and long intervals, the last to turn up being a 7-h.p. Richard car. The fact that there was not a regular continuous stream of them robbed the scene of some interest, but it was apparently none the less attractive to the bystanders.

The great majority of the cars, it was stated, had accomplished the twelve-miles-an-hour average in the course of the day.

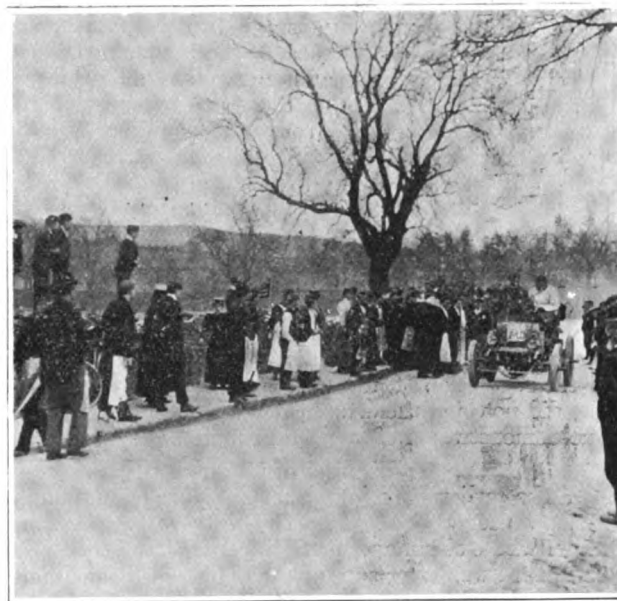
The official records concerning the run from Newcastle to Leeds show that the following vehicles completed the journey up to a speed of twelve miles an hour. We have not followed the division into amateur and manufacturers' sections in order that the cars could be arranged in the order of their running time:—

- A 17 Hon. C. S. Rolls's 12 h.p. Panhard
- 4 Ariel tricycle and Whippet trailer
- 31 M. C. C. Triumph

- A 29 Mr. M. Mayhew's 7 h.p. Peugeot
- A 11 Hon. J. Scott Montagu's 12 h.p. Daimler
- 3 Ariel quadricycle
- A 30 Mr. J. D. Siddeley's 5 h.p. Parisian Daimler
- 8 Motor Manufacturing Company's 6 h.p. phaeton
- A 24 Mr. R. E. Phillip's Mors Petit Duc
- 9 Motor Manufacturing Company's 6 h.p. Iveagh phaeton
- 16 Gladiator voiturette
- 34 Decauville car
- 15 De Dion voiturette
- 36 6 h.p. Daimler



THE HON. C. S. ROLLS ON HIS 12 H.P. PANHARD CAR.

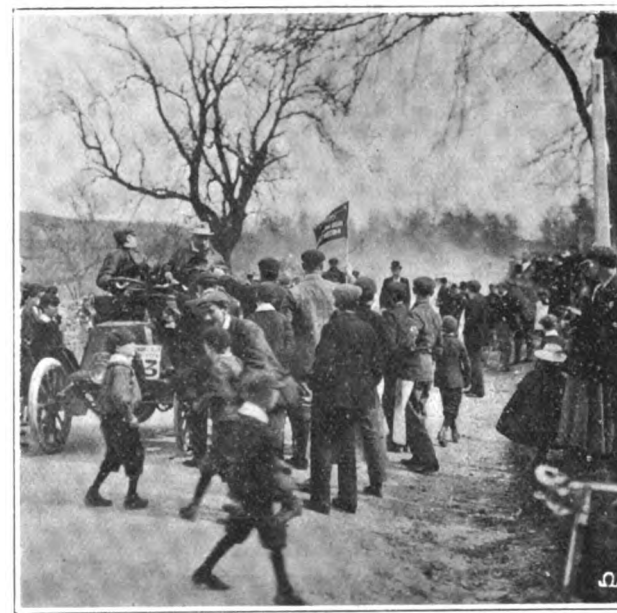


MR. S. F. EDGE ON 8 H.P. NAPIER CAR.



MR. FRANK H. BUTLER ON 6 H.P. PANHARD CAR.

Photos by



MR. T. B. BROWNE ON 6 H.P. PANHARD CAR.

[Mr. G. T. Hogg, Kendal.]

THE CARS ARRIVING AT KENDAL.

- A 22 Mr. J. A. Holder's 12 h.p. Daimler
- A 10 Mr. E. Kennard's 8 h.p. Napier
- A 4 Mr. M. Mayhew's 8 h.p. Panhard
- 26 Friswell's 8 h.p. Peugeot
- A 20 Mr. Ashby's Empress tricycle
- A 3 Mr. T. B. Browne's 6 h.p. Panhard
- 47 Richard car
- 35 6 h.p. Daimler

- 14 De Dion voiturette
- 22 Lanchester car
- A 21 Mr. E. Pitman's 6 h.p. Daimler
- A 7 Mr. A. Harmsworth's Parisian Daimler
- A 2 Mr. F. H. Butler's 6 h.p. Panhard
- 2 Benz Ideal, 1900 pattern
- A 23 Mr. C. Cordingley's 6½ h.p. M.M.C. phaeton
- A 26 Mr. C. K. Gregson's 6 h.p. Daimler

- 1 Hewetson's Benz Ideal
- 51 Star voiturette
- 39 Century tandem
- 40 Wolseley voiturette
- 37 6 h.p. Parisian Daimler
- 5 Locomobile steam car

Below is the list of the remaining cars which completed the journey. The average speed is given, and the order of arrangement is that of the running times of the cars:—

		Miles
A 12	Mr. Edmund's 6 h.p. Daimler	11½
27	New Orleans car	11
49	Marshall car	11½
A 28	Mr. E. M. Iliffe's Enfield quad	11
32	M.C.C. Triumph	11
41	International Victoria	11
38	Daimler char-a-banc	11
44	International Victoria	11
12	Motor Manufacturing Company's tricycle	10½
46	Richard car	10
A 31	Mr. Exe's Parisian Daimler	9½
24	Marshall car	9
A 25	Mrs. Bazalgette's Benz car	8½

BARNESLEY.

It had been understood in the town that the automobiles would reach Barnesley between 4 to 4.30 o'clock, and arrangements were made for them to stay a few minutes at the Kendray Market, where the people taking part would be welcomed by the Mayor (Alderman Wilkinson). Chief Constable Butler had arranged for the regulation of the traffic, but some of the cars stopped, some did not, and the arrangements unfortunately came to nothing, no demonstration of any kind being made.

SHEFFIELD.

Although the earlier cars into Sheffield did not encounter crowds of people the streets were well lined with spectators between five and six o'clock, and many lingered at the corner of Firth Park Road till well after seven o'clock, by which time more than forty cars had arrived; but the enthusiasm which had been anticipated was wanting. The following formed the Sheffield control timekeepers:—Messrs. W. C. Cope, T. Lonsdale, M. E. Cope, F. B. Cawood, T. Sinsdale, C. Pearson, Turton Chatterton, W. A. Lister, H. White, and G. H. Wilson. The timekeepers at the Drill Hall were Messrs. F. B. Cawood and C. Pearson. The order of their coming was as follows:—

- A 17 Hon. C. S. Roll's 12 h.p. Panhard
- 4 Ariel tricycle with Whippet trailer, 2½ h.p.
- A 10 Mr. E. Kennard's 8 h.p. Napier
- A 22 Mr. J. A. Holder's 12 h.p. Daimler
- A 20 Mr. H. Ashby's Empress motor cycle, 2½ h.p.
- A 4 Mr. M. Mayhew's 8 h.p. Panhard
- A 30 Mr. J. D. Siddeley's 6 h.p. Parisian Daimler
- A 19 Mr. J. R. Hargreave's 12 h.p. Daimler
- 34 Decauville car, 3½ h.p.
- 26 Peugeot, 8 h.p.
- 35 Daimler car, 6 h.p.
- A 11 Hon. John Scott Montagu's 12 h.p. Daimler
- 16 Gladiator voiturette, 3½ h.p.
- 3 Ariel quadricycle, 3½ h.p.
- 37 Daimler Parisian, 6 h.p.
- 15 De Dion voiturette, 3 h.p.
- 40 Wolseley voiturette, 3 h.p.
- 36 Daimler car, 6 h.p.
- A 29 Mr. Mark Mayhew's 7 h.p. Peugeot
- 47 Richard car, 7 h.p.
- A 3 Mr. T. B. Browne's 6 h.p. Panhard
- A 27 Mr. J. R. Hargreave's 12 h.p. Daimler
- A 21 Mr. E. Pitman's 6 h.p. Daimler
- A 31 Mr. W. Exe's Parisian Daimler, 6 h.p.
- 9 Motor Manufacturing Company's 6 h.p. Iveagh phaeton
- 1 Benz Ideal, Hewetson's 3 h.p.
- 51 Star voiturette, 3½ h.p.
- A 7 Mr. A. Harmsworth's 6 h.p. Parisian Daimler
- 14 De Dion voiturette, 3 h.p.
- A 28 Mr. E. M. Iliffe's 2½ h.p. Enfield quadricycle
- 2 Benz Ideal, 3 h.p.
- 31 M.C.C. Triumph, 3½ h.p.
- 12 Motor Manufacturing Company's 2½ h.p. tricycle
- A 2 Mr. F. H. Butler's 6 h.p. Panhard
- A 24 Mr. R. E. Phillips' 4 h.p. Mors Petit Duc
- 44 International victoria, 3 h.p.
- A 26 Mr. C. K. Gregson's 6 h.p. Daimler phaeton
- 8 Motor Manufacturing Company's 6 h.p. phaeton
- A 12 Mr. H. Edmund's 6 h.p. Daimler
- 46 Richard car, 7 h.p.

- 27 New Orleans car, 3 h.p.
- 33 Decauville, 3½ h.p.
- A 25 Mrs. Bazalgette's Benz Ideal, 3 h.p.
- 39 Century Tandem tricycle, 2½ h.p.
- 41 International victoria, 3 h.p.
- 32 M.C.C. Triumph, 3½ h.p.
- 38 Daimler public service vehicle, 9½ h.p.
- 28 New Orleans car, 3 h.p.

The Daimler luggage van arrived a few minutes after the first Decauville car, being succeeded a few minutes later by Mrs. Kennard on her De Dion voiturette. The Lanchester car arrived at 5.30 a.m. on Thursday, having had a long stoppage on the way. On Wednesday evening and all day on Thursday the cars were on exhibition, and yesterday morning they left for Nottingham, the marshals being the Executive Committee, consisting of Messrs. E. P. Reynolds, C. D. Leng, W. St. Q. Leng, H. M. Pashley, E. Frost, E. Hill, and J. T. Thompson (hon. sec.).

EXHIBITIONS.

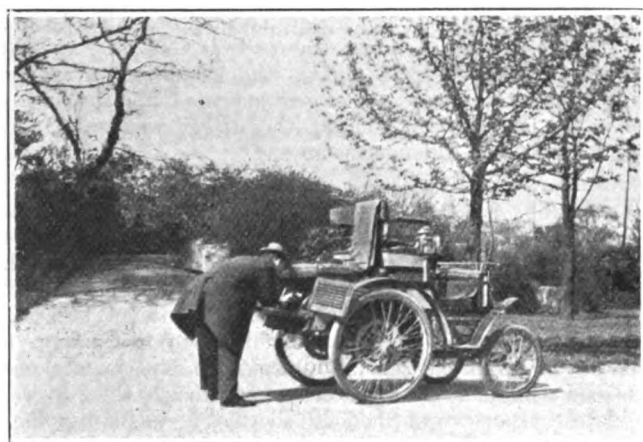
A General View.

SEVERAL important exhibitions have been held this week, and the appearance of the cars as they stood in the hotel grounds at York, or the market square at Bradford, must have impressed thousands of people. One versatile journalist has suggested that the inscription "These are they which came out of great tribulation" should have been placed over the halls at Edinburgh, Newcastle, Leeds, and Sheffield, in which the cars have been assembled together, and certainly the latter stages of the journey seem to have made the notion not inappropriate. The local war funds must have benefited to a very material extent, and even at Bradford, where the cars were on exhibition in the street for three hours, a street collection was made among the onlookers in aid of the Mayor's War Relief Fund. Over £100 was taken at Edinburgh, and the exhibition at Newcastle was equally successful from a financial point of view.

Edinburgh.

THE exhibition of motor-cars in the Waverley Market Hall, Edinburgh, was formally opened by Lord Kingsburgh in the presence of a goodly company of spectators, who before the opening time had an opportunity of inspecting the vehicles, and of expressing surprise at and appreciation of the variety and construction of the motors. The audience included a number of Edinburgh Town Councillors and others. Lord Provost Mitchell Thomson, at the outset, welcomed the motor-carists to Edinburgh, and predicted that in a few years they would see motor-cars running very frequently on country roads. He could not say that he liked them very much in cities, more especially when they ran too quickly; that was a thing that they, representing the people of Edinburgh, rather objected to. It said a great deal for the cars that they had reached the turning-point of their journey without any serious accident, and he complimented them, especially upon their hill-climbing records. With regard to the question of safety, he remarked that the driver of a motor-car had his machine under much greater control than the man driving horses. The Hon. J. Scott Montagu, M.P., and M. Bordin, a member of the Automobile Club of France, returned thanks for the Lord Provost's welcome. Lord Kingsburgh, in declaring the exhibition open, gave his opinion, as an unbiassed spectator, of the trial run. He had been himself surprised, he said, to see the extraordinary power the cars had of climbing hills, in some cases the gradients being something like one in eight, and in others, for short distances, one in seven. Some of them, he also mentioned, mounted Shap Fell and Dunmail Rise at something like seventeen miles an hour. Speed was a very difficult question to enter upon. One thing he asked them to consider was whether it was not true that the question of speed and safety did not depend so much upon a named speed for all roads as on the capacity of the vehicle to be easily steered and to be easily stopped. One of the vehicles going

twelve or fourteen miles an hour could be pulled up absolutely in its own length. That was an element of safety which they knew very well was not attainable with horses. Having spoken of the cordial welcome received from all classes on the route, particularly from the older generation, his Lordship said they had reason to congratulate themselves on escape from accident, and he could almost prophesy that in the return journey there would be no serious accident that could be attributed in any way to the motor-car. Automobilmism was not only a sport, but a means of locomotion very much wanted in the country. He was quite sure that as soon as County Council authorities knew the capabilities of motor-cars they would have an alteration in the road regulations. Treasurer Cranston proposed a vote of thanks to Lord Kingsburgh, who in turn moved a vote of thanks to the Lord Provost for his presence. In the course of the Thursday the show was visited by large numbers of people, and the greatest interest appeared to be manifested in the different exhibits. During the evening the attendance was fully 5,000. Attractive music was provided by the brass and pipe bands of the Gordon Highlanders, and Mr. E. J. Coles gave a display of expert driving.



INSPECTING THE MARSHALL CAR.

Newcastle.

THE motor-vehicles were on exhibition on Saturday in the Cambridge Hall, Newcastle. There was an influential gathering at the opening ceremony, over which Admiral Cleveland, director of Palmer's Shipbuilding Company, presided. The Mayor (Mr. Riley Lord), who attended to open the exhibition, was accompanied by the Mayoress (Mrs. Albert Lord), and amongst others present were the Hon. John Scott Montagu, M.P., Mr. Mark Mayhew, L.C.C., Colonel Palmer, Captain Chapman, Alderman Sutton, Alderman Sanderson, Alderman Winter, Councillors Thomas Cairns, Dr. Mason, John Beattie, R. Flowers, Wardhill, Ross, Kenshaw, Mr. J. R. Roberts, Mr. Richd. Welford; Mr. C. Johnson (secretary of the Automobile Club), Mr. William Philipson, and Mr. Rowland Barnett, hon. secretary of the local committee; Mr. Young, and many others. Letters of apology and regret for non-attendance were received from Earl Grey, Sir Benjamin Brown, Mr. Watson Askew-Robertson, and others. The Mayor, in opening the exhibition, said he was very glad to welcome the Automobile Club to this great engineering centre—probably the greatest engineering centre in the world. He reminded his audience that this was the birthplace of George Stephenson, and the locomotive, and added that railway engines were still built in Newcastle. It was the characteristic of Englishmen to peg away till they were successful, and he hoped the British manufacturers of motor cars would not be behind those of America and the Continent. The object of the Automobile Club, as he understood it, was to show what had been accomplished up to the present time and to encourage the use and develop the manufacture of these cars. He was glad to see that they laid down

stringent instructions to abide by the regulations of the local authorities over whose roads they might pass on their tour. In conclusion, he hoped the members would be interested in their visit to Newcastle. This, he remarked, was one of the oldest towns in England, but, old as it was, he assured them it did not feel in any way aged, for the spirit of enterprise and progress was just as keen as amongst its younger rivals. He had very great pleasure in declaring the exhibition open, and wishing it every success.

The Hon. John Scott-Montagu, M.P., on behalf of the Automobile Club, returned thanks for the cordiality of the reception accorded to it in Newcastle. Throughout the tour, he said, the Club had been welcomed with open arms everywhere, and there had been a remarkable cordiality displayed in the various villages through which they passed. In the neighbourhood of George Stephenson's birthplace, he felt sure a more than usually intelligent interest would be excited in the motor-vehicles. The object of the club was to demonstrate that the manufacture of these cars had reached a stage when they might be considered thoroughly safe, reliable, and trustworthy in the varying conditions of road, wind, and weather, and that object, he thought,



THE LOCOMOBILE CAR EN ROUTE.

was being achieved in the present tour. Mr. Mark Mayhew moved a vote of thanks to Admiral Cleveland for presiding. He said the success of the present tour heralded the dawn of a new day for the motor-car industry. Admiral Cleveland, in reply, said the thanks of the club were rather due to the two local hon. secretaries, Messrs. Philipson and Barnett, and to Mr. Johnson, the secretary of the Automobile Club. There could, he said, be no doubt that the result of this 1,000-mile Trial was proving a great triumph for the motor-car. He was particularly struck, on watching the entrance of the cars into the hall on Friday night, to notice the skilful way in which they were manoeuvred. The term "handy man" which had lately been applied to the blue-jackets was, he thought, one which the drivers of the cars had thoroughly earned. Afterwards the Mayor and Mayoress proceeded on a tour of inspection of the vehicles. The proceeds of the exhibition were devoted to the Reservists' Fund.

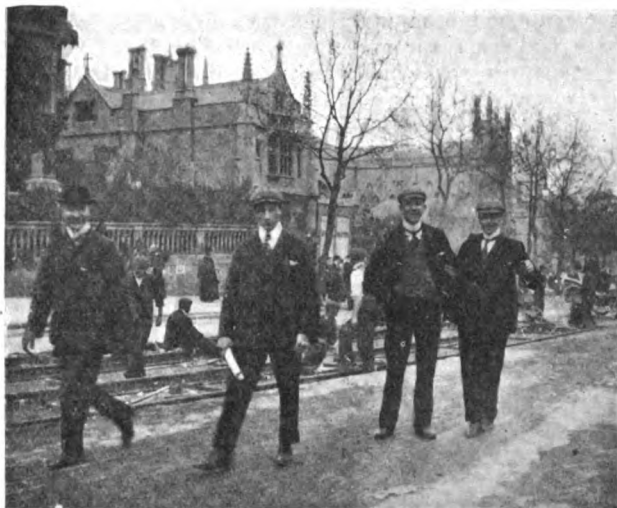
Leeds.

ON Tuesday there was a one-day exhibition at the Artillery Drill Hall, Fenton Street, Leeds, by permission of the officer commanding the 1st West Riding Volunteer Artillery. There was a large number of visitors to see the motor-cars taking part in the Automobile Club's trial tour. Some there were who understood the means of propulsion used in varying forms in connection with the cars, but for the most part the people who walked between the rows of vehicles were merely attracted by curiosity, and the art of the coachbuilder was more to them than the engines and the gearing. The scene was a busy one throughout the day, attendants being busily employed in making good defects that had shown themselves during the

journey from Newcastle, and in cleaning and preparing for the seventy-four miles run to Sheffield on Wednesday.

Sheffield.

As the cars arrived at Sheffield on Wednesday they were directed to the Norfolk Drill Hall, Redmund Road, where they were exhibited during the evening. On Thursday morning fifty-two cars were in the hall, four having arrived after midnight, the drivers spending the night in the drill hall. Mr. R. A. Hadfield, the Master Cutler, performed the



A WELL-KNOWN QUARTETTE.

opening ceremony, to which we shall refer next week, and subsequently he and the local committee gave a luncheon to the private owners of cars and to the members of the Automobile Club.

SOME EXPERIENCES.

Note.

THE loss of a note-book last week was responsible for the omission of some interesting incidents. It must also be remembered that early starts in the morning and late arrivals in the evening do not facilitate obtaining information, and, also, that the times given in connection with the hill-climbing contests, etc., are subject to correction in the final records of the Trial, which will be published under the official sanction of the Automobile Club.

The Roads.

THE roads in some places in Scotland were not nearly so good, owing chiefly to the heavy rains, as were met with in Cumberland. Indeed, until the cars arrived in Cumberland, Cheshire held the palm among the motorists for the best roads, but after traversing the main roads of Cumberland the general feeling was expressed that, though hilly, the roads in that county possessed a more even surface than those of any other county which had been passed through. The secret of this consists in the use of clay binding, which produces a result like cement concrete. The one bit of patchy road met with was a bit of district road, under the Cockermouth Council, between Castle Inn and Bothel.

Opinion of a Traveller.

ACCORDING to Lord Kingsburgh, who during a few minutes' halt at Peebles expressed to the representative of the *Edinburgh Evening Dispatch* his enjoyment of the journey, the run has been a most satisfactory one in every respect. In the first place, it has been valuable as a test of what the motor-car can

accomplish, in the second place it has brought the machine prominently before the notice of the public as was desired, and in the third place it has been a most pleasurable experience. His Lordship added that he had enjoyed the first stage of the journey exceedingly, and hoped that the second stage would be similarly delightful.

Convincing Climbs.

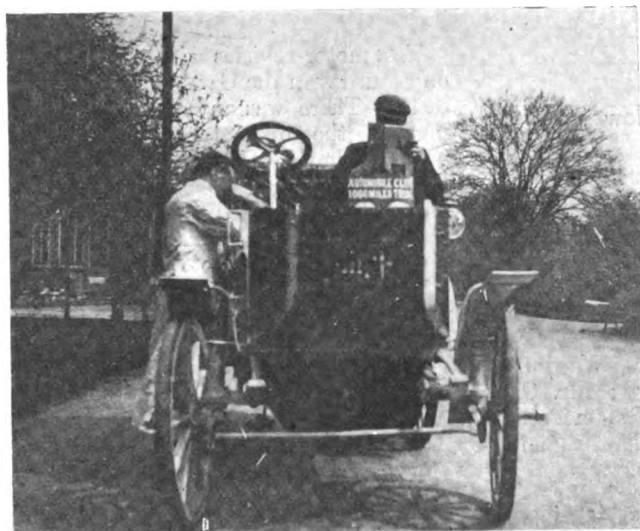
THE hill-climbing contests on Shap Fell, Dunmail Raise, and Birkhill seem to have fully convinced many of the leading provincial journalists of the value and power of the motor-car, and all seem to have come to the same conclusion as the correspondent of the *Manchester Weekly Times*, who wrote:—These hill-climbing tests are a wonderful testimony to the practical value of motor-cars. If cars can easily and rapidly negotiate country like Shap Fell and Dunmail Raise, there is nothing, in reason, that they cannot do.

A Narrow Escape.

AMONG the few occasions on which horses and ponies proved objectionable was one which occurred on the way from York to Leeds. A pony in a trap, in which were two ladies, suddenly swerved across the roadway, but Mr. C. Johnson stopped the motor-car in almost the twinkling of an eye by throwing the machinery out of gear and applying the foot brake. The ladies leaped from the car, the driver was quickly at the pony's head, and all danger at an end.

The Daimler Char-a-Banc.

ON Monday Mr. Sidney Straker turned up at Leeds on his char-à-banc, having gone direct from Edinburgh and Newcastle. Certainly if pluck and perseverance are elements of success, Mr. Straker should win distinction, for it must not be forgotten that his vehicle is an experimental one, and has come straight from the works to undergo this severe test. The latest report from Sheffield showed it was still going well. This vehicle was illustrated in our columns last week.



PASSING THE TIME AWAY.

British v. Foreign Cars.

THAT British manufacturers are assuming a good position in the automobile industry is being splendidly demonstrated, and a correspondent describing the exhibition at Leeds says:—"Roughly, about half the machines whose travel-stained appearance excited such curiosity in the Artillery Drill Hall are of English manufacture. Their present condition and performances en route conclusively prove that the English manu-

facturer is rapidly making up the somewhat considerable gap which last year existed between the best products of English and French firms. This fact is further emphasised by an analysis of the fifteen cars which have dropped out of the competition, 75 per cent. of these being of foreign manufacture."

**Patience,
Perseverance,
and Philosophy.**

THE man who goes motoring must possess an equable temperament, and be prepared to accept the inevitable without flinching. Such a tour as that upon which the leading automobilists are now engaged calls forth many qualities, and to the exercise of patience and perseverance the motorist must add the spirit of the philosopher. He must learn not to be exacting in trifles, and to look at general results rather than particular instances. Having got clear of Bristol—the city of spires and charitable institutions—many of the travellers encountered a troublous season owing to the mediocre character of the spirit that had been supplied. Some were annoyed and sought to exorcise the feeling of irritation by remarks of denunciatory force and fervour. We will not report their utterances verbatim. In view of the temporary distress they lost their equanimity; but, strangely enough, all reached their destination in good time. Those who had suppressed their indignation showed the philosophic spirit which motorists should seek to cultivate. On such tours the rough paths cannot be wholly avoided, and must be regarded as equally a part of the experience and trial as the smooth and pleasant places.

Concentration.

NOT only does automobilism induce to the philosophic attitude, but it encourages concentration of thought. As one correspondent wrote of the drivers as they rode into Darlington:—"They looked as if they meant business. Life was real and earnest to them. Manipulating a car looks to an outsider the next serious thing to taking an ironclad into action. You don't speak to the man at the wheel. There is a far-away look in the eyes of the driver, or the owner who is his own driver—on the



JUST ARRIVED.

principle of 'every man his own lawyer'—that speaks volumes for the ability of concentration possessed by the human mind."

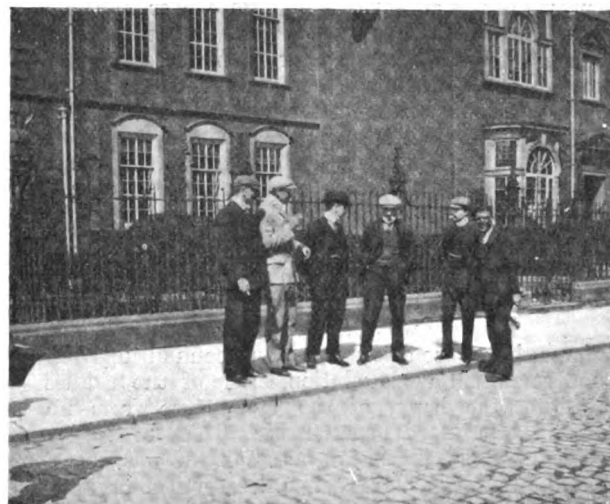
Luck.

BELIEVERS in luck have had many incidents to confirm their faith during the Trial. Some of the cars have dropped out of the competition—not because of the faults of the motor, but from other causes which can only be assigned to bad luck. Thus one car was put out of the running because of a broken

frame—for which the carriage builder and not the engineer must be regarded as responsible. Some of the other vehicles which have given up the Trial ought not to have entered, being of lighter design, admirably adapted for ordinary runs, but not quite fitted for such a trial of strength and endurance as the tour has proved itself to be.

**A
Splendid Feat.**

MR. GRAHAME WHITE, driving a Parisian Daimler, had an adventure on the run from Edinburgh to Newcastle. It appears that when seventeen miles north of Alnwick, on a quiet bit of road, he yielded to the request of one of his passengers to be allowed to try a hand at driving. The result



RELATING AN INCIDENT.

was that the said novice turned the car into the ditch, and the effect of this little contretemps was to break the bracket of the steering gear. There were still fifty-two miles of road to cover, but Mr. White was in no wise daunted, and conceived the idea—which he carried to a successful issue—of steering the car with his foot. Standing on the off step with his left foot, he kept his right on the hub of the off front wheel, and, by pressure only, he guided the car the whole way to Newcastle. What is still more wonderful, he averaged ten miles an hour for the fifty-two miles, and, as the road included several steep hills, two or three "controls," and a compulsory stop of a quarter of an hour for tea at Morpeth, he must have travelled at a good speed at several stages of the journey.

**The
Orient
Express.**

THE Automobile Association, Ltd., informs us that this car was unfortunately prevented from entering the hill-climbing competitions on account of the piston rod breaking at Manchester owing to a flaw in the material. After this had been replaced the driver in trying to avoid a cart went over the kerb into a ditch at the side of the road, and broke the car entirely.

**Accident
at Thirsk.**

ON Monday morning the motor-cars passed through Thirsk from Northallerton en route to York and Leeds. Excellent police arrangements had been made by Inspector Cook, who succeeded in keeping the road clear through the market square, it being no easy task, seeing that it was market day, and in addition the principal day of the May Day statutes. Save an accident to the Rev. Mr. Proud, vicar of Kilburn, there were no casualties. In the case referred to Mr. Proud was driving slowly along Inghramgate, when Mr. and Mrs. Chapman, from Hambleton, attempted to drive between Mr. Proud and one of the motor-cars, which was passing at the time, with the result

that a collision ensued, and both traps were overturned. The accident was no fault of the motor-car, and we merely refer to it here as the idea has got abroad that a motor-vehicle was the cause of the mishap.

Lord Kingsburgh.

THE presence of Lord Kingsburgh as a passenger in connection with the Automobile Club's Trial is a distinct gain to the movement, especially as regards Scotland. North of the Tweed his personal popularity is great, while the attention always given to his views has contributed not a little to the wide publicity given to the Trial in Scotland. Not only has he shown his personal interest in the subject of automobilism, but his strong advocacy at the Edinburgh Exhibition, and his quiet reproval of the authorities in high power in the Scottish capital who are opposed to motor-vehicles, was keenly enjoyed in a city where a public motor-car service is becoming more and more popular, and, let us hope, increasingly profitable. Certainly the Trial will do much to direct the attention of the canny Scots to mechanical traction on the roads.

Coles to Newcastle.

AFTER a fortnight's hard travel—for it is becoming increasingly clear that this trial is no mere holiday jaunt—the spirits of the automobilists are still maintained, and jocularly has prevailed despite the weariness of the flesh with which some of the wayfarers have been seized. Many conundrums have been asked, and some still await solution. One of the riddles which was solved on the banks of the Tyne came from no less a personage than the Lord Chief Justice Clerk of Scotland, who asked Mr. Hewetson why one of his Benz cars was like a popular proverb, and himself gave answer, "Because it is taking Coles to Newcastle."

A Query from Hodge's Widow.

As evidence of the curiosity being aroused in the rural mind by the Trial, a well-known patent agent at Coventry sends us a letter which he assures us he has received. It is as follows:

"SER,—Witch is the best motar car theirse bean sum parsin this wy and as soon as i eydon i just started pennin tuns of letters to the maykers and agints arskin ow much they pan art, cos it sims to me i mite git my roots and veggitables to markit cheeper that wy now my ole man's del morse the pitty an I dont want to go on makin a lorse on em with orses so dear orl along of the war offis.

"I stopt neeres tother dy it was a aughty car I spose as they was gents along of it their was a lot of fokes crowden rund it and one ole dame lern't a lot she did she arst wy it woodunt go an one of em sayd it was the benseen but tother sayd i can onley rite wot he sayd with pane and bayted breth. Dun he siz and sumthin alart puttin is boot on the heed got em both on for orl I cud see then he gives a turn to the hedge of a weel at the buck an orf they went sparp.—I am ser

"POLLY BOILEAU.

"Thay tells me as ow you no all alart em and i ope you will soon rite as i ope ile be able to ford one and that theirs pleanty maid as ime shore thay must be going like ot rolls."

"In Tow."

JUST outside the Newcastle control an interesting incident occurred. The cap of the axle of the De Dion voiturette driven by Mr. Egerton fell off broken. Mr. Moffatt Ford came along a few minutes later, and offered to take the De Dion in tow, an offer which Mr. Egerton accepted. With the help of a rope this was done successfully for some time, until the latter found the arrangement unsatisfactory, and throwing the rope away leant over, and with one hand grasped the back of Mr. Ford's car. The journey was thus pursued. Shortly after, as they were turning a corner, a horse drawing a railway lorry was startled, and turning sharply away, broke a lamp post, and nearly struck the adventurous automobilists. There was a great bother, the vanman declaring he did not like "snakes in the forest," and exhibiting a contempt for all who

drove without horses. Names and addresses were taken, and the crowd that quickly assembled were very much amused.

A Narrow "Squeak."

WHILE on the road from Newcastle to Durham Mr. Holder had an exciting experience, a horse backing suddenly across the road in front of his car. One of the passengers, relating the incident, says:—"If we had had tiller steering or solid tires we could not have avoided the onslaught of the cart, but the elasticity of pneumatics and the steadiness of wheel steering enabled us to charge the footpath boldly, although it was about nine inches higher than the road. The car shaved the hedgerow by a bare half-inch, and the backing cart just caught the corner of the rear off mudguard, but did no other damage. It was a narrow squeak, however."

Motor-Car v. Train.

WILL it be credited? The Hon. C. S. Rolls has been going at a high speed along a quiet country road. It is reported that between Otley and Guiseley his car had a neck-and-neck race with a North-Eastern express for three or four miles. The train then made a détour through a tunnel, whereas the road was straight, and when the train came through the car had forged ahead.

A Point to Remember.

THOSE who follow the order in which the cars have arrived at the leading towns—as given by "Observer," and also by our correspondents *en route*—should remember that in nearly every instance someone has been an hour behind the first starter, owing to the system of controls. Hence it does not follow that the car arriving last has lost so much time as might be supposed.

Illness of Mr. Cappellen.

ALL engaged in the Trial regret the sudden illness which has compelled Mr. Cappellen to return to town. He has been driving an International, which has travelled very well throughout the tour. When within six miles of the Leeds control he suddenly fell forward in a fainting fit. Fortunately he was only driving on the first speed at the time and although the machine went up a bank it did not turn over. Mr. Cappellen rallied sufficiently to take the machine into Leeds, but had to leave for London the next day. Mr. Billings is now driving the car.

Two of the Best.

MOST of the fifty cars now left in the competition are travelling well, and the 8-h.p. Napier is winning golden opinions. Although Mr. Mark Mayhew's Panhard went badly the first few days, it has lately picked up very well, and on Wednesday finished up not far behind Mr. Edge. Next week we hope to say something as to the cars which have done the best work in the Trial, and to deal fully with their performances.

Police Arrangements.

IN the large towns the police arrangements have been admirable—contrasting very conspicuously with the peculiar ideas of the Berkshire constabulary. At Manchester it was interesting to see the police urge the automobilists forward, and the action of the Bradford police was even more friendly. The head constable and mounted police kept the way clear, while constables lined the streets, and others held the flags. On leaving the town the vehicles were marshalled in capital style in a long line, and we would congratulate Bradford on the excellent tone adopted by its police authorities.

Ladies on Tour.

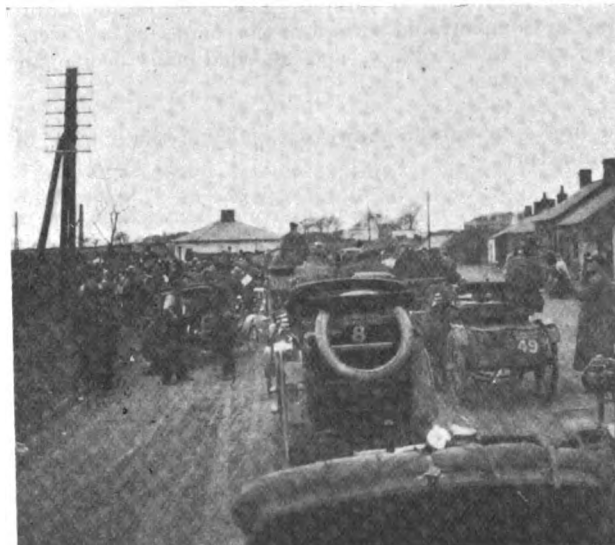
WHILE Mr. Edge has been driving Mr. Kennard's Napier, Mrs. Kennard has been driving her De Dion voiturette, and, apparently, enjoying the trip. She went up Shap Fell on the quad driven by Mr. J. W. Stocks, and descended at a great pace in front of Mr. Holder's twin Daimler. The three ladies mentioned—Mrs. Bazelgette, Mrs. Friswell, and Miss Butler—are still on tour, and apparently enjoying the experience.

In Defence of the Low-Bred.

THE horse is a confirmed conservative; like the cart he drags, his slow mind settles into ruts. In his view man was created to be drawn in a cart, and he asks nothing better than to bear man's mild yoke for ever. Fancy then his perturbation at meeting a procession of vehicles unmistakably horseless, moved "like the wind," by some mysterious hidden agency! Well may the patient journeying horse be the terror of the watchful motor driver. Poor beast, his powers of expression are limited, but as the car passes, his wild eye and beating hoofs sufficiently attest his alarm. Once, as we descended a hill, we met a splendid black-maned cart horse, lumbering along in dignified leisure. The car

knife polish, and ground valve in. Joy! for five miles; then woe, shoving, and regretting that he had never been satisfactorily taught how to swear. Anon she bumped anew, and he went gaily on for a few miles, when suddenly some petrol spurted up through the chimney, and then air came—puff, puff, puff! He stopped, opened the valve chamber, and found the split pin of the inlet valve in fragments and the valve spring dancing about. Putting in a new split pin, he resumed the trip, went the last few miles at top speed, and finished the day in peace with all the world, thinking that all his sorrows were at an end.

On the Wednesday he carefully lubricated and tested everything before starting from Carlisle. The machine's behaviour began with a series of dying-away evolutions, which Mr. Wilson ascribed to a combination of bad petrol, moist air, and weak sparking. Once, after she had stopped dead, he sat down on the roadside, occupied exactly two hours in taking the engine down and re-fitting, examining all contacts, putting new trembler and platinum screw, and so on. Then he had to shove the machine up Birkhill. After lunch the machine resumed, alternate flying free and dying away, with occasional jerky stops. Messrs. Sturmev and Swindley wanted to tow him, and then Mr. Cordingley came along, and seeing how impossible it was to move the trike (the wheels were almost locked), insisted on towing him. They got a rope, and the tricycle was towed for a



EN ROUTE FROM NEWCASTLE TO LEEDS.

[Photos by]

[Mr. Percy Richardson.]

whizzes under his nose; he rears on his great haunches pulling his diminutive guardian off his feet, and breaks away in sheer panic. It is interesting to contrast the unfeigned alarm of the simple cart horse with the gentlemanly reserve of the well-bred carriage horse. He is quite as much frightened, but far too refined to show a vulgar lack of self-control. Accordingly, he steps past with a shade of added hauteur. The alarm in his bright eye alone betrays him.

HALF-WAY ON A MOTOR-TRICYCLE.

MR. A. J. WILSON has had a wide experience of motor-tricycles. In fact, he has written a book about them; and doubtless, in the next edition, will be able to add an interesting chapter on his experiences during the 1,000-mile Trial. His ride on the Ariel motor-tricycle was not wholly a pleasant one. After carrying him splendidly to Manchester, the machine began to jib *en route* to Kendal. At Kendal he spent four hours in the morning wrestling with the motor. As the dovetailed ends of the piston rings were broken, he put new ones in and started for Carlisle. But the jibbing continued, although cautious riding was indulged in. Ultimately he sat down and took out exhaust valve, got some

mile or so; then at a sharp corner Mr. Wilson had to let the rope go; the machine instantly stopped dead, and he turned back and ran down hill to a little roadside hotel. There he sat down again, and proceeded in a vein of calm and philosophic contentment to take the whole concern to pieces. He resolved the affair into its primitive components, examining everything minutely. "Eureka!" The cylinder was scored by two deep parallel lines, about half an inch apart. Searching for the cause, he found it. The bolt which joins the piston to the top of the piston-rod should have a split pin through its thin ends, to prevent it turning round. There was no split pin! Some fragments of steel were all that remained of it. Consequently the bolt had been turning round; when it rested for a time in one position, all was well; but when it turned a quarter round, it edges scraped against the cylinder, causing a jamming action which stopped the up-and-down movement.

He had no spare split pin, so tried to obtain a suitable nail, failing which he selected a spare screw and laboriously filed it down to the correct size to jamb in the place of the split pin. He had also a new piston in his bag, and as the three new rings (put in only the previous day) were already broken, he determined to fit the new piston. But the new piston was without a split pin; hence he had to make a substitute by filing down a screw.

It took just three hours to complete this job, and he started off before dark, hoping to get past a certain dangerous hill in daylight. But whether it was now only the bad petrol and feeble sparking, or whether his improvised pin had worked out or not, is not known. Certain it is that three miles was the limit of his run, and then he did another mighty shove uphill, stopping to rest now and again—alone in the midst of lofty rolling hills that would be entrancingly admirable under ordinary circumstances. When he got to the "dangerous hill" he found that it was no great shakes; and the rapid descent warmed up the petrol, so that the machine bumped fairly well until he ran into Innerleithen.

The last we heard about the matter was that Mr. Wilson had decided to take the machine to Edinburgh by train, send it to Birmingham, and return to London as a passenger—by train or motor-car.

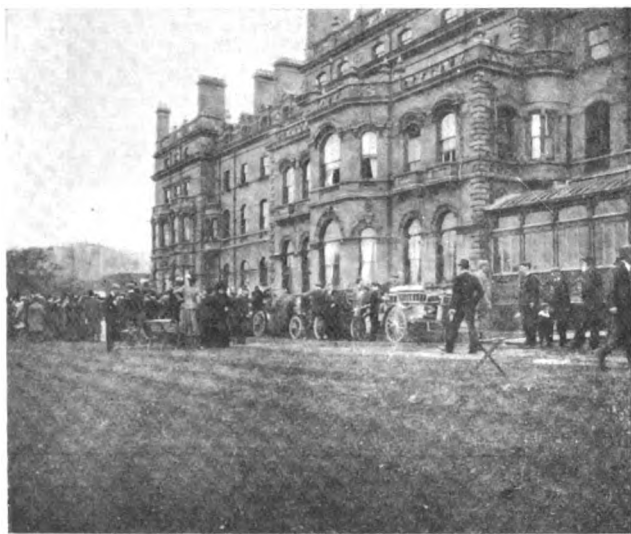
INCIDENTS.

THERE were quite a dozen private motor-cars at Dunmail Raise, in addition to those engaged in the Trial, the smartest being the steam car belonging to Mr. Buxton, of Sawrey, in Lakeland.

DURING the exhibition at Edinburgh the cars of the Edinburgh Motor-Car Company and several of the competing cars were driven round the Market Place, and afforded many people an opportunity for a spin.

OF the first four cars in Newcastle-on-Tyne three were of English manufacture.

A SMART repair has been reported from Alnwick, where a driver discovered that a valve had broken, and that a piece of it had fallen into the cylinder. He disconnected all the parts, took the cylinder apart, refitted it, and was moving again in less than twenty minutes.



THE CARS AT YORK.

ONLY nine vehicles succumbed in the first 500 miles of the Trial, and of these three were experimental cars.

TRIBUTE was paid by the Leeds journalists to the way in which the cars romped into the drill hall at Leeds. "Even a big Daimler car," said one, "built to carry eleven persons, dashed round the hall like an infuriated monster, but was brought up within an inch of the space allotted to it."

SIX motor-tricycles and two motor-cars from Sheffield went out on Wednesday as far as Barnsley to meet the vehicles engaged in the Trial.

SOME of the northern industrial establishments, like the Darlington Forge, allowed their men an hour off to see the vehicles.

As the cars passed through Morpeth a local policeman cautioned some of the drivers not to smoke when on the cars; which shows how careful policemen can be—sometimes.

According to the *Leeds Mercury* one of the cars arriving at Sheffield on Wednesday was the "Die Don Vatinvette," bearing a lady who had "ridden the whole of the 1,000 miles." Adapted as a draper's delivery vehicle that car might be further disguised as "The Don Satinette." Certainly we object to anything of the "vette" or "vet" in connection with automobiles.

MR. H. STURMEY, who has flitted from car to car, and Mr. H. J. Swindley, who has accompanied Mr. Lord on his Peugeot (which, by the way, has gone splendidly), have acted as time-keepers on the hill-climbing tests.

THE casualties of the week have been, so far as we can learn, few and small. The deaths of one hen and a little chicken are the only fatalities that can be attributed to the motor-cars.

MR. J. H. PEASE was one of the private motorists who saw the cars go into Darlington.

FIVE cars entered by the Motor Car Company have gone safely through the Trial, and all were at the exhibition at Sheffield—they having thus covered 855 miles.

SIR HOWARD and Lady Vincent, who returned to Grosvenor Square, London, last week, have engaged an Oppermann electric victoria for the season.

A TWO-MILE motor race for professionals was run off at Catford on Saturday. In the final heat Mr. F. F. Wellington (Phébus Aster tricycle) beat Messrs. E. James and W. J. Burnley (tandem) easily by 150 yards. Time, 3 mins. 5½ secs.

THE James H. Lancaster Company, of New York, has just brought out the first of its line of petrol cars. The new vehicles are said to embody a number of novel features in construction and design.

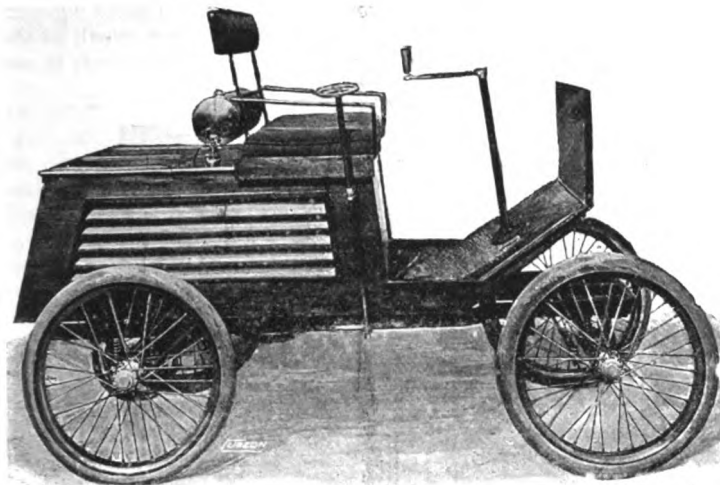
THE Automobile Company of Great Britain and Ireland, Limited, was registered on May 3rd by A. S. Ramskill, 40, Holborn Viaduct, E.C., with a capital of £100, to carry on the business of manufacturers of and dealers in all kinds of vehicles, whether propelled or drawn by steam, oil, electricity, or any other mechanical or animal power. Registered without articles of association.

AT a meeting of the Institution of Junior Engineers, to be held at the Westminster Palace Hotel, S.W., on Friday next, a paper entitled "A Short Review of the Motor-Car Industry" will be read by Mr. Basil H. Joy and Mr. Chas. H. Rush. The paper, originally announced for May 4th, has been, at the request of the authors, postponed by the council as above, in order that the results of the 1,000-mile Trial may be dealt with in the appendix to it. Mr. Bertram C. Joy, announced as the joint author of the paper, being prevented by illness from attending to it, his brother has kindly taken his place.

MESSRS. BROWN BROS., LTD., of Great Eastern Street, E.C., have sent us a copy of their new 1900 wholesale list of motor-vehicles, fittings, frames, accessories; etc. The list, which extends to about thirty pages, gives illustrations and particulars of the Brown-Whitney steam car, the Brown motor-tricycles and quadricycles, fore carriages and trailers, etc. Three pages are devoted to De Dion motors and parts, two to the parts of a 3½-h.p. Benz type motor, made by the Star Motor Co., while in the remainder particulars are given of a variety of accessories, such as carburettors, voltmeters, lubricators, horns, saddles, bags, tires, lamps, chains, chain-wheels, &c. The list should be in the hands of all connected with the motor industry.

THE "HOLBORN" HEAVY-OIL CAR.

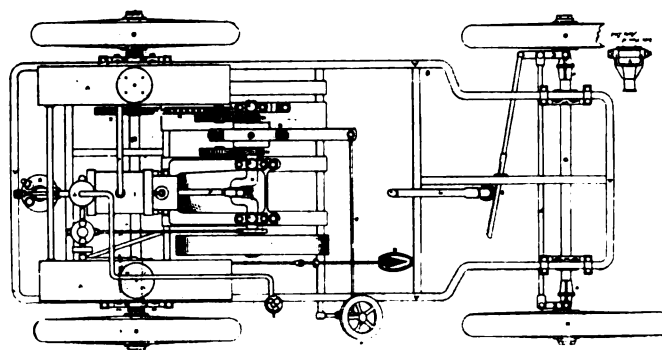
WE are now able to give two illustrations—a general view and plan—of the little two-seated car exhibited at the Agricultural Hall by the McLachlan Engine Company, of 14, Holborn Viaduct, London, E.C. The motive power is



THE HOLBORN HEAVY-OIL CAR.

supplied by a horizontal single-cylinder motor located towards the rear of the frame; it is capable of developing up to $3\frac{1}{2}$ h.p., and, although adapted for using ordinary paraffin oil as fuel, will, it is stated, work equally well with petroleum spirit. The cylinder is water-jacketed, while the ignition can be either electrical or by means of an incandescent tube. Two speeds, about four and fifteen miles per hour, are provided, the motor-shaft driving the counter-shaft by spur-gearing connected with a double-acting clutch, while a single chain connects the counter-shaft with the rear axle. The frame is built of steel channels, the body of the car, which completely encloses

the motor and gear, being of polished walnut. The road wheels are of the suspension type with pneumatic tires. Two brakes are provided—one acting on the fly-wheel of the motor, and one a band brake on the rear axle. The car is well suspended, the bearings being supported by horn cheeks and the frame and body on helical springs. Steering is controlled by a tiller, the speed

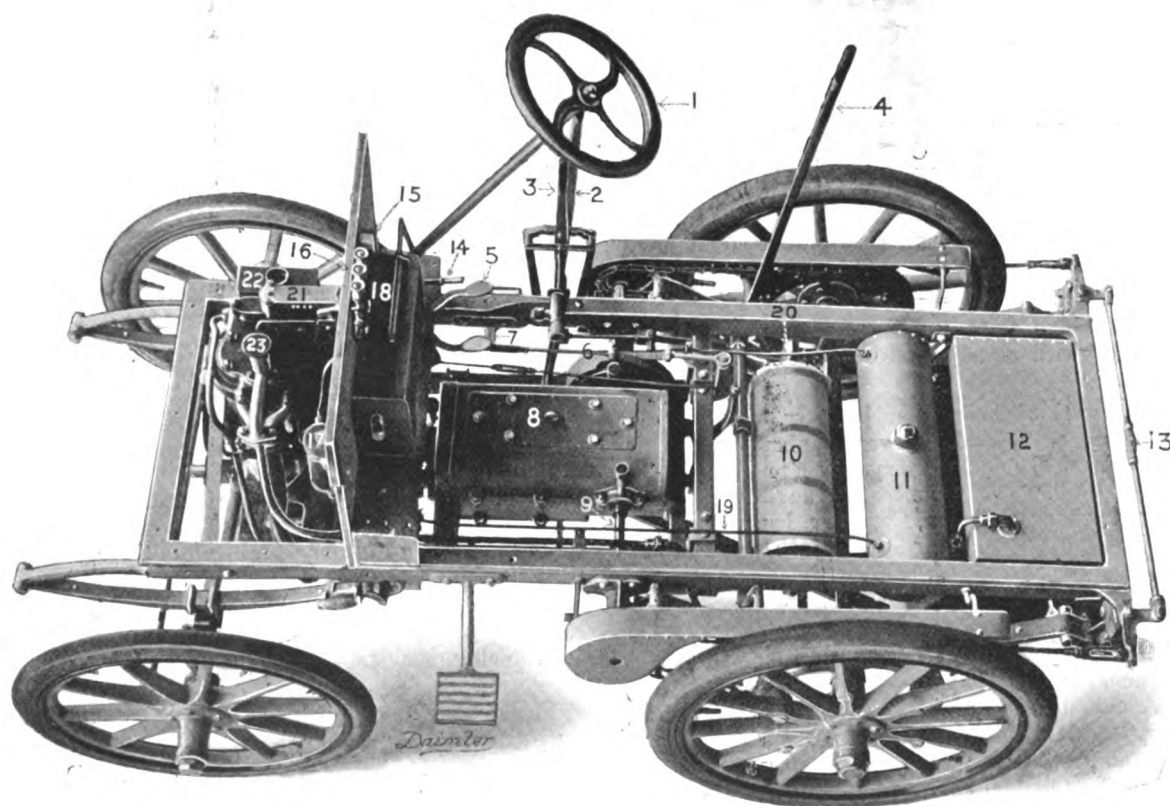


PLAN OF HOLBORN CAR.

varying wheel being at the side of the car. The weight complete is about 5 cwt.

THE Automobile Club of America has issued a pamphlet of fifty-six pages in the interest of good road agitation. It contains a list of officers of the club and the various addresses delivered before that body. The pamphlet is almost entirely devoted to the improvement of the highways of the State of New York.

THE following tale is told by a Yankee contemporary in connection with an account of a recent automobile trip in America. It appears that on the route a stiff hill was encountered which the car refused to climb on the slow forward speed. As the reverse motion was much slower, the carriage was turned about and backed up the hill without further trouble!



BIRD'S-EYE VIEW OF DAIMLER CAR WITH BODY REMOVED.

CORRESPONDENCE.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR.—In your issue of April 20th last, the Hon. L. Canning writes a long letter in which he has seen fit to make many unjust statements concerning my machine. I have no wish to enter on useless discussions with him as regards technical questions, questions which Mr. Canning treats in so remarkably superficial a manner, but there is one statement he makes, and one which I cannot pass over in silence—i.e., his insinuation that the Moto-cyclette should be looked upon as a dangerous machine. I formally challenge him to cite a single accident, due to the Moto-cyclette, having occurred to any of the thousands who ride the machine in France.

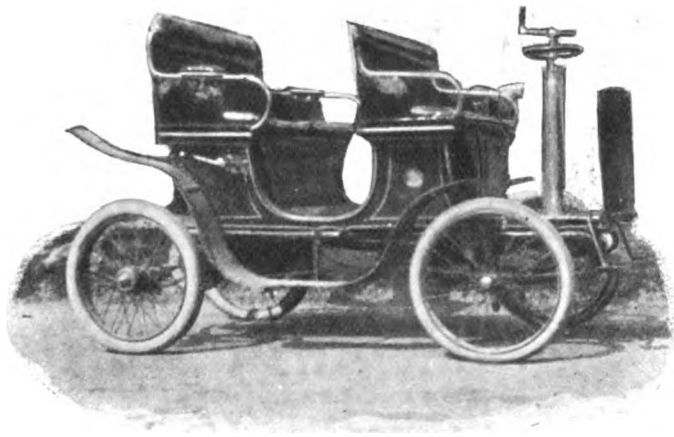
Yours faithfully,

M. WERNER.

40, Avenue de la Grande Armée, Paris.
May 7th, 1900.

A DE DION MOTOR PHAETON.

AS already mentioned in these pages, among the many cars shown by the Automobile Association, Limited, of Holland Park Avenue, W., at the recent exhibition at the Agricultural Hall, was a 3-h.p. De Dion voiturette fitted with a special four-seated phaeton type of body. We are now enabled



to give an illustration of the little car which so far as the motor and mechanism are concerned is identical with the voiturette. The two rows of seats—one of which can be fitted with a hood—are interchangeable, so that the hooded one may be at the front or rear, as desired. The steering and control levers are so mounted that the driver in all cases occupies the front seat.

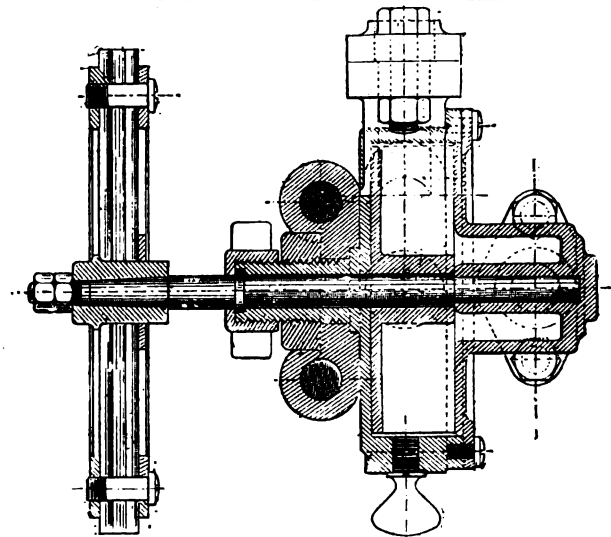
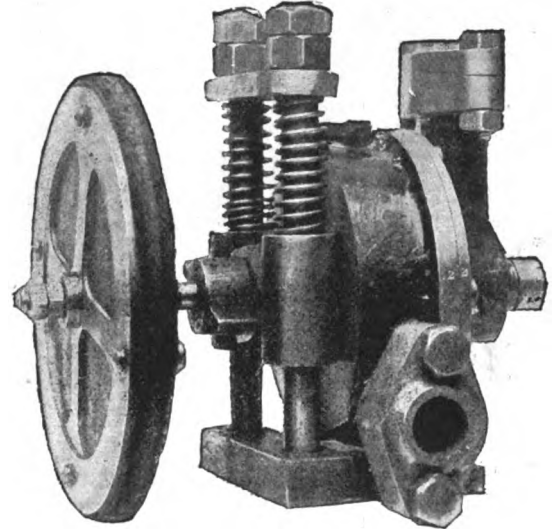
THE Motor Cycle Company has just been formed at Norfolk, Va., U.S.A., with an authorised capital of 150,000,000 dols. (£3,000,000)!

OWING to the growth of their motor business, the Progress Cycle Company, Ltd., of Foleshill, Coventry, has decided to separate this branch from the cycle factory, as there is no longer room for both at Foleshill. The premises of the late Coventry Wheel Company at Bishopgate Green, Coventry, have been purchased, as well as ground adjoining, where the Progress motor-vehicles will in future be constructed.

THE first motor-tricycle race in America was run off at Woodside Park, Philadelphia, on Saturday, April 21. The occasion was the meeting of Mr. C. C. Wridgway, of London, and Mr. Kenneth Skinner, of Boston, in a match race for £30 a side, the race to be of one hour's duration. A flying start was made, and Skinner slowly forged to the front until, at the end of ten miles, covered in fifteen minutes, he was a lap ahead. Here something went wrong with his machine and he was obliged to drop out. Wridgway continued alone, riding out the hour, covering within that time no less than 38½ miles.

THE ELDIN WATER-CIRCULATING PUMP.

A NEW water-circulating pump for use on motor-cars has lately been introduced by Messrs. Eldin and Lagier, of Place Bellecour, Lyons, France. Fig. 1 gives a general view, and Fig 2 a section of the pump from which it will be seen that it is not only mounted on springs, but that the shaft is sup-



FIGS. 1 AND 2.

ported on bearings at both sides. The flywheel is arranged to be driven by frictional contact with the flywheel of the engine. It is built up of two parts, enclosing a leather disc, so that when the latter becomes worn it can be quickly renewed. The pump is being made in two sizes.

THE Eclipse Automobile Company has been organised at Portland, Me., to manufacture and deal in automobiles and electric apparatus used in their manufacture. The capital is £30,000.

LA COMPAGNIE DE TRACTION PAR TROLLEY ET AUTOMOTEUR (Procédés Lombard-Gerin) is the title of a company which has just been formed in Paris, with a capital of £80,000, to exploit a system of overhead-conductor driven electric road vehicles.

A MOTOR-CAR race from Mannheim to Pforzheim and back is being organised by the Rheinische Automobile Club. The race, which is to be run off on May 13th, is divided into the following four categories:—(1) motor-cycles, (2) voiturettes, (3) touring cars, and (4) racing cars. The distance is about 165 kilometres.

MOTOR-CARS ON THE CONTINENT.

(From our Correspondent.)

A New Transportation Company.

THE number of transport services effected by self-propelled vehicles continues to increase, a sure sign that those already working are giving satisfaction both to their promoters and to the public making use of them. And the services are in several instances very far afield, in regions where repairs are not too easily effected, and renewals difficult to obtain. These lines afford additional proof that, provided care and attention be given to the vehicles, public service work can be profitably carried on. The latest company formed for transportation proposes to run a service of automobiles between Mahatsaro and Antananarivo in Madagascar, a distance of 250 kilometres, that is some 156 miles. This is no light undertaking.

In Austria.

FROM Vienna comes the news that on Tuesday, the 1st instant, there occurred at Nesselsdorff, in Moravia, a serious accident, the consequences of which are already being felt in the automobile world. It appears that a party of engineers were making a trial trip on a 9-horse power car. When in the course of their essay they arrived at the summit of a fairly steep hill in the environs of Nesselsdorff, the driver took his vehicle down this grade at a high rate of speed, and unable to negotiate the sharp corner at the foot, he overturned the car. Of the five occupants, one shattered his head against a kilometre post, and three others were seriously injured. As a result of this terrible affair the police have prohibited the hill-climbing race between Vienna and Kahlenberg, organised by the Automobile Club of Austria for Sunday next. It is also certain that the conditions of the Munich-Vienna course will be considerably modified, even if the event be not entirely suppressed. The original arrangements provided for the race being decided in three stages, the initial run being fixed to take place on Thursday, the 31st instant. Automobilmism is having rather a bad time of it on the Continent just at present, but the trouble will blow over if motor men are content to turn their backs to the storm, and not aggravate matters by any display of feeling.

An Accident on the Versailles Road.

ON the 26th ultimo Mme. de Hegermann-Lindencrone, wife of the Danish minister, accompanied by her daughter and a gentleman friend, were returning to Paris from Versailles, when, in descending the famous hill of Picardie, a tire of the automobile in which they were seated burst, and the car overturned. Mme. de Hegermann-Lindencrone was severely contused and the gentleman passenger had his arm broken, but at the moment of writing both are making satisfactory progress towards recovery. Fortunately a gentleman was passing the scene of the accident, who placed his carriage at the disposal of the unfortunate motorists, and consequently they were enabled to reach Paris most comfortably and with the least possible delay.

Electromobile Tests.

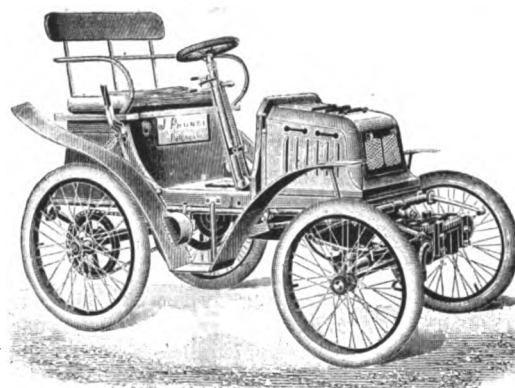
FOR the second time the B.G.S. electric car has failed to do itself justice, and again through no fault of the vehicle. As related last week in these columns a *caniveau* brought about disaster to the car when competing in the Critérium d'Electricité, and the 92 kilometres actually covered in no way represents the staying powers of the B.G.S. Now a collision with a carrier's cart has brought to an untimely end MM. Bouquet and Garcin's second attempt to show the public what their vehicle is capable of. It was on May 1st that the constructors made their second trial, the departure taking place at 2 o'clock from the Porte Dorée. Capital progress was made,

and at Montereau a lead of a quarter of an hour was held over M. Krieger's record made in the Critérium d'Electricité. The would-be recordists were highly elate, and self-congratulation was the order of the day, for everything pointed to the annihilation of M. Krieger's figures. Alas! however, for human hopes and aspirations, the unexpected arrived, and just before entering Villeneuve-la-Guyard a plunging horse caused a collision between the cart to which he was harnessed and the B.G.S. Result: front axle of the electromobile broken and further progress impossible.

The Atlas Voiturette.

THE accompanying illustration shows the "Atlas" two-seated voiturette, made by M. J. Prunel, of Puteaux, and which is being put on the market by M. E. J. Brierre, of 239, Boulevard Péreire, Paris. The car is propelled by means of a 3 h.p.

water-cooled De Dion motor, located under a "bonnet" in the fore part of the frame. Two forward speeds—10 and 30 kilometres per hour—and a reverse motion are provided, the power of the



motor being transmitted through a pedal-controlled friction clutch to a longitudinal shaft. The latter is geared by bevel pinions to the differential shaft, the usual sprocket wheels and chains conveying the power to the rear axle. Two brakes are available, the steering being controlled by an inclined hand-wheel, on the standard of which the various levers are grouped. The frame is spring-suspended on cycle type wheels and pneumatic tires. The car complete weighs a little over 5 cwt.

The Nice Decisions.

It will doubtless be recollected that the decisions of the Nice judges met with anything but universal approval; indeed, in many quarters they were considered to be arbitrary and distinctly unfair. One of their rulings which gave rise to considerable dissatisfaction was that by which they declined to classify Théry and Jules Dubois, two competitors in the voiturette category of the Nice-Marseilles-Nice course, and at the time it was generally considered that M. Ravenez, the chairman of the Décauville Company, in whose interests the two *chauffeurs* were racing, would institute legal proceedings against the organisers of the meeting for the purpose of obtaining the advertised rewards. Ultimately, however, M. Ravenez decided to place the matter before the Sports Committee of the Automobile Club of France, and last week his appeal and the reply of the Nice officials were under consideration, and with a result unfavourable to M. Ravenez. At the same meeting there was considered the ruling of the Nice stewards, whereby the Nice-Marseilles-Nice event was declared to be terminated at Aubagne, so far as the large cars were concerned, and the classification at that point taken as the final classification. The Sports Committee held that this decision was in contradiction to Article 31 of the racing rules of the "A.C.F.," which stipulates that an event can only be considered as terminated and a classification made when the entire advertised course has been covered. This is the only judgment that the committee could deliver, for it is obvious that if race promoters held the right to declare a race terminated at

any point *en route* by reason of weather conditions or other causes frequent disagreements would arise. The club's racing rules have been so carefully and minutely prepared to meet every possible contingency that they should be rigidly adhered to and not regarded as of an elastic nature. But the Sports Committee will assuredly see to that.

At Achères.

LAST week I chronicled in these columns the startling performance achieved on the Achères road by M. Caron, an amateur motor-cyclist, and I had anticipated being able to record in the present issue a still faster trial by the same motor-cyclist. But, alas! even the park of Achères is closed to the would-be record breaker unless, indeed, he makes a formal application for permission some days before the selected date, and is honoured with a favourable response. It was on Friday last that M. Caron, accompanied by MM. Gaudichard and Perrodil, the official timekeepers, journeyed out to Achères, and the conditions being entirely favourable to fast travelling, some altogether exceptional times were anticipated. Just as the *chauffeur* was putting the finishing touches to his machine, however, the head keeper of the park appeared on the scene, and stated that he had received formal orders to prohibit speed trials taking place. Immediate application was made to the authorities in Paris to permit the trial, but unavailingly, and now permission is only accorded where several days previous notice has been given. Poor *chauffeurs*! What a difference to the time, not so long ago, when you were supplicated to go record breaking at Achères; but such is the way of the world, and the good days will come again.

A Race at Tours.

ON Sunday last at Tours the local automobile club, risking all manner of terrible penalties, decided a fifty kilometre road race for voituresses and motor-cycles, and it will be interesting to see what punishment will be meted out to these defiers of their country's laws. The race itself was run under the happiest of conditions—meteorologically—and very fast times were made. The placed men were—Voituresses: 1, Foulon; 2, Bruneau. Motor-cycles: 1, Barret; 2, Clément. Later in the day a motor-cycle race was decided on the cycle track, and in all probability Barret would have again figured as the winner but for a series of punctures which occurred when he was leading the field by twenty laps. The actual winner was found in Hamel, Rosière being second, and the unfortunate Barret third.

Parc des Princes.

IN the absence of road races, now, alas! prohibited, at any rate in the vicinity of Paris, attention is directed towards the track, and on Sunday last a motor-cycle course was successfully introduced into the Parc des Princes programme of ordinary cycle events. Certainly no track races will ever compensate for the lost glories of the road, but there are numbers of motor enthusiasts who believe that half a loaf is better than no bread, and accordingly flock to see the champions careering round an enclosure like wild birds in a cage. Sunday's race was one of an hour's duration, and prizes of £20, £10, £6, and £4 were put up for competition. Of the eleven entries ten men lined up at the start, the absentee being Loste. Upon the signal being given Joyeux was quickest away, while Béconnais, on the other hand, got into his stride but slowly, owing to the nasty temper displayed by the new motor which he was riding. But this ebullition of feeling was only of short duration, for after a little masterly coaxing by the *roi des chauffeurs*, the obstreperous engine consented to bestir itself, and quickly carried its rider to the front at a pace which left the other competitors as if standing. Continuing his furious march, albeit in a cloud of smoke through over lubrication, Béconnais had secured a three-lap lead on the field shortly after covering thirty kilometres, but then the ebonite of his ignition cam broke, and he was passed by both Osmont and Vasseur while engaged upon the necessary repairs. From

that point Béconnais had a busy time in endeavouring to persuade the mount that he was riding, and it was not until some fifteen minutes from the time limit that the peevishness of the motor was again overcome. By way of varying matters the tricycles ridden respectively by Vasseur and Osmont also indulged in a few eccentricities, the performance of the former machine being particularly striking. The left wheel of this cycle suddenly decided to do a little racing on its own account, and accordingly abandoned the tricycle and careered off at forty miles an hour round the track, until its progress was arrested by a courageous policeman, who blandly explained, no doubt, that, holding no *permis de circulation*, its performance was a direct contravention of its country's laws. As for Osmont, his pneumatic having burst he considered it quicker to replace the entire wheel than the tire alone, and accordingly did so. Only, unfortunately, in the absence of a wheel of similar dimensions to the original, he was compelled to utilise one considerably larger, and his cycle presented a truly curious appearance as it raced round the track with the outer wheel some centimètres larger than the other two. All the other competitors had their troubles, and at the termination of the sixty minutes the order was:—

	Kilomètres.	Mètres.
1. Osmont.....	61	720
2. Fossier.....	60	666
3. Joyeux.....	57	333
4. Béconnais.....	55	335
5. Bathiat.....	52	333
6. Jallu.....	48	—

Abandoned: Rigal, Vasseur, Bertin, and Ariès. The machines ridden by all the competitors, with the exception of those mounted by Jallu and Ariès, were extremely powerful. Osmont, Vasseur, and Bertin each had a couple of motors, 80 by 80 mm., attached to their machines, while Bathiat employed an engine of two cylinders. Béconnais, Fossier, Joyeux, and Rigal used a single cylinder motor of 90 by 120 mm.

General Meeting of A.C.F.

THE annual general meeting of the members of the Automobile Club of France will be held on Tuesday, the 29th instant, at 4.30 p.m., in the salons of the club-house. The agenda is as follows:—
(1) President's address, (2) treasurer's report on the receipts and expenditure, 1899, (3) adoption of accounts, 1899, (4) budget 1900, (5) ratification of the election of new members of the committee. The club's Salle des Fêtes being still unfinished, it appears to me that the only place on the premises sufficiently large to accommodate anything like a representative gathering of members is the *garage*, where 1,000 persons could be comfortably seated.

THE Century Motor Vehicle Company has been formed at Syracuse, N.Y., with a capital of £6,000.

LA SOCIEDAD AUTOMOVIL DE BURGO DE OSMA is the title of a company which has just been formed to establish a service of motor-vehicles for the transport of both passengers and goods between Logrono, Soria and Osma, Spain.

THE AUTOMOBILE MANUFACTURING CO., LIMITED, has been registered with a capital of £100 in £1 shares, to acquire the business carried on by W. C. Bersey at 4, Hythe Road, Willesden, N.W., and the business of the Southern Motor-Car Company carried on at 59, Brixton Road, S.W., by Messrs. Townsend and Bizzey, and to carry on the business of electrical and general engineers, motor carriage manufacturers, etc.

WE learn that Messrs. Brown Bros., Limited, of Great Eastern Street, London, E.C., have lately acquired the patent rights of the Starley axle as applied to motor-cycles and cars. The parts covered by this patent must not be confounded with the original Starley patent referring to differential driving gear. The portion protected by this patent is that relating to the construction of the axle and the method used to adjust the bearings. All "Starley" axles, whether English or foreign, must in future bear a licence plate.

THE HUDLASS PETROLEUM SPIRIT MOTOR-CAR.

WHEN at Preston last week, in connection with the 1,000-mile Trial, we had an opportunity of inspecting the motor-car which has lately been introduced by Mr. F. W. Hudlass, of the Motor Works, Ivy Street, Southport, and of which an illustration is given herewith. The car, which has seating accommodation for five persons, is driven by a horizontal single-cylinder petroleum-spirit motor capable of developing up to 6 h.p., the diameter of the cylinder being 6 in., and the stroke 6 in. The engine, which weighs less than 2 cwt., and is well balanced, is provided with electric ignition and water jacket; the speed ranging from 200 to 800 revolutions per minute. The water circulation is maintained by a pump, a Clarkson-Capel radiating coil being introduced in the circuit. Three speeds are provided, ranging up to a maximum of twenty-five miles per hour; the transmission is transmitted by $2\frac{1}{2}$ -in. belts to the



countershaft, and from the latter to the rear road wheels by the usual sprocket wheels and chains. A separate handle is provided at the side of the steering stand for each of the three speeds. Steering is controlled by a lever; the frame is of channel steel, while the wheels are of wood shod with solid rubber tires. Two brakes are provided, the car complete weighing 15 cwt. The motor is stated to work equally well with common benzoline or stale petrol. On the day we met Mr. Hudlass he drove the car sixty-five miles, using $3\frac{1}{2}$ gallons of petrol which had been discarded as too stale by a motor cyclist, while the circulation water at the end of the run was only lukewarm. Mr. Hudlass assures us that the car will mount any ordinary hill at a speed of ten miles per hour.

OUR Midland correspondent informs us that the recently-formed Panhard-Levassor Company have purchased the Beeston Motor factory in Coventry.

A COMPANY has just been formed in Paris with a capital of £24,000, and with a title of La Société des Etablissements Marot et Gardon, to acquire and carry on the business of motor-cycle manufacturers of Messrs. Marot Gardon.

ACCORDING to a consular report motor-cars have already found their way into India. The North-Western Provinces Government has sanctioned the experimental running of motor-cars on the Sitapur Maholi road.

THE subject of automobile lines of communication has been creating a fair amount of interest in the Corunna district during the past year, and it is probable, says a Consular report, that two lines will be opened for traffic during the current year. These lines, if successful, will be an immense boon to the inhabitants of the districts, superseding the lumbering, old-fashioned, slow, and most incommensurable "diligencias."

MOTOR-CAR PROSECUTION AT LOWESTOFT.

CONSIDERABLE interest was manifested in a prosecution which took place at Lowestoft Police Court on Monday, as it was one outcome of the recent motor-car accident, by which several persons were injured, though fortunately, none seriously—Mr. William Robert Youngs, motor-car proprietor, Lowestoft, being summoned by the police for driving a motor-car to the common danger of the public in Ravine Road, at Lowestoft, on April 19. Mr. Harold Chamberlain appeared for the defendant, and pleaded not guilty. James Mann, Barrack Street, Norwich, said he saw the motor going down the Ravine, at, he should say, fifteen or twenty miles an hour. He was going up the Ravine on a bicycle, but jumped off to watch it pass. He saw it run into a mail cart. He considered the car was travelling at a very dangerous rate.

Mr. Chamberlain, in addressing the Bench, said that he should not attempt to justify Youngs in driving down such a place as the Ravine at ten or fifteen miles an hour. He contended that the car was not travelling more than six miles an hour. One was very liable to get an exaggerated idea of speed of vehicles which made a noise, such as motor-cars. The whole cause of the accident was that the cyclists, as he contended, crossed to their wrong side as the car approached, thus causing the defendant to put his steering-gear "hard-over" suddenly. Defendant was then sworn, and stated that he did not go down the Ravine at more than six miles an hour, and the car was perfectly under control. Both cyclists went their wrong side, and he steered suddenly to his wrong side to avoid them. If he had suddenly applied his brakes he would have crushed the children, and have thrown his passenger and himself off the car. Having touched the mail-cart, he steered to the other side of the road, and stopped the car on the bank, having by that move run upon a Mr. Boyes, whom he subsequently drove to his home. When he first saw the children, his road was perfectly clear. The Bench having retired for a short time, the Chairman said they were unanimously of opinion that the defendant was driving the car at a rapid rate, not only to the danger of himself and his passengers, but also to the danger of the public. The Bench wished him to say that they were of opinion that persons who drove motor-cars should be especially careful in going down such dangerous places as the Ravine, and as far as possible should avoid them. To mark their sense of the danger, and of the rapid rate at which he was driving, Youngs would be fined £3 15s., and £1 5s. costs, or fourteen days' imprisonment.

THE CHARGE AGAINST A DIRECTOR.

AT the Central Criminal Court before the Common Sergeant, the trial of Sydney Frederick Atkins, on bail, upon an indictment charging him with that, being a director of the Automobile Association (Limited), he did fraudulently apply to his own use certain sums of money belonging to the company, took place on the 3rd and 4th inst. There were counts in the indictment charging the accused with falsifying the books of the company. Mr. J. P. Grain and Mr. Peter Grain prosecuted; Mr. Charles Mathews defended. The company was formed about two years ago, the registered offices being in Prince's Road, Holland Park. Signed blank cheques were intrusted to the defendant to be filled up for the purposes of the business of the company in the absence of the other directors, and the allegation was that three cheques for £16 17s. 6d., £22 10s., and £44 17s. respectively had been cashed by the defendant on his own account, although the amounts were entered in the books of the company as payments for commission on the sale of motor-cars. The accused gave evidence, and stated that the money was all expended on the business of the company. Mr. C. Mathews, in addressing the jury, urged that the defendant's story was fully borne out by the documents and correspondence in the case. The jury announced that there was no prospect of their agreeing, and were discharged.

RENAULT v. THE MOTOR-CAR COMPANY, LIMITED.

In the Chancery Division on the 4th inst., Mr. Warrington, Q.C., said that it had been arranged that the motion in the above action, which was to restrain the defendants from passing off motor-cars of their manufacture as that of the plaintiffs, should stand over for a week.—Mr. Justice Kekewich: Very well.

FURIOUS DRIVING CASES.

AT the Bradford City Police-court last week, Mr. Graham White, of 41, Queen's Road, Manningham, was fined £1 and 8s. costs for furiously driving a motor-tricycle through a public thoroughfare. The offence was proved by Police-constable Marshall, who said defendant rode his machine along Market Street in 30secs. The distance was 300yds., which would foot up at the rate of twenty miles an hour. Defendant said he could not possibly have done that speed. He, however, admitted that he had perhaps exceeded the limit of eight miles an hour, but he was not travelling faster than ten miles an hour.

AT the Long Ashton Police Court last week, Mr. Richard Howard was summoned for furiously driving a motor-car at Clevedon on March 30th. Mr. E. J. Pillers (Bristol) represented the defendant, who was not present. P. C. Bickell deposed that on the day in question when in the

Elton Road he saw a motor-car with three gentlemen in it going at a rate of between sixteen and twenty miles an hour. He put up his hand and shouted "stop," but no notice was taken, and the same speed was maintained. Several complaints were received as to the speed the motor-car was driven. On April 2 witness saw defendant at his house at Westbury, and he admitted he was there and that he ran over a fowl. Arthur Ernest Thomas stated he was in the Old Church Road and saw a motor-car coming from the direction of the beach at the rate of twenty-five to thirty miles an hour. The car passed in a cloud of dust, and it was impossible to recognise anyone. The only thing he could compare it to was an express train passing through a station. Afterwards he met P.C. Bickell and made a complaint. William Gilson said he was in charge of a horse and cart in Elton Road when a motor-car flew round the corner and caused his horse to back into another horse and cart, breaking the shaft and a portion of the harness of the latter. It was going at the rate of sixteen or twenty miles an hour. The motor-car stopped, and he asked the gentleman who was going to pay for the damage. One of them said it was witness's fault, and they went on. Cross-examined—The motor-car pulled up within six yards. William Grey, who was in charge of the cart that was damaged, also said the car was going at the rate of between sixteen and twenty miles an hour. It pulled up or it would have gone into Gibson's horse. Mr. Pillers said his client was away from Bristol, but for the defence he wished to say that the car was under complete control and could be stopped in its own length. The car had been used in all parts of England, and there had been no other complaint. He would remind their worships also that there was no traffic at the time. The Bench came to the conclusion that the motor-car was going beyond twelve miles an hour and imposed a fine of £1 and costs.

At the Cambridge Divisional Police Court last week, Mr. Charles R. Mortimer, cycle manufacturer, of Corn Exchange Street, Cambridge, was summoned for driving a motor-cycle at a greater speed than twelve miles an hour at Trumpington, on April 22nd. Defendant pleaded not guilty. Mr. S. J. Miller appeared on his behalf. P.S. Warren said that on Sunday, in consequence of instructions from Superintendent Webb, he went to Trumpington, conferred with P. C. Salmon, and placed him in a position in the middle of the village, and gave him instructions to book the exact time every motor passed him. They compared their watches and put them exactly with each other. Witness then left him, and took up a position near the Shelford Road, 600 yards away from Salmon, measuring the distance with a tape. The defendant passed witness at 11.58 in the morning, going towards Cambridge, then travelling at over twenty miles an hour on a motor-car with a lady in front. Witness afterwards compared his book with Salmon's. In cross-examination, witness said four motors passed him altogether, and all were going at over twenty miles an hour. P.C. Salmon said the defendant passed him at barely 11.50, so that he must have done the 600 yards in under a minute. Witness and Warren compared watches afterwards, and they were exactly the same. The distance was a little over 600 yards. Cross-examined: Neither of the watches were stop watches. Mr. Miller submitted that it was no true test with ordinary watches. It might easily have been twelve o'clock when the defendant passed Salmon. The defendant gave evidence. He said he went by the Barton Road to Haslingfield, Harston, and back by Trumpington Road to Cambridge. His wife and two months' old child were with him. His wife asked him especially not to go quickly, as it would be bad for the child. He therefore went slowly. He should say it was quite impossible to go at twenty miles an hour with the motor he was driving. As far as he could judge of speed, he did not go at more than twelve miles an hour during any part of the drive. Witness saw Salmon in the middle of the village, speaking to someone under a tree. Witness nodded to him and he nodded back. Witness was a watchmaker by trade, and he gave it as his opinion that it was utterly impossible to time a 600 yards run with the watches produced by the two policemen. Mrs. Mortimer also said the car never went fast.

Defendant was fined £1 and 11s. 6d. costs. The chairman said the Bench had dealt leniently with the case, as it was one of the first.

At the Cambridge Divisional Police Court a few days ago Mr. Frederick Lawrence, cycle manufacturer, of Belmont Place, was summoned for driving a motor-cycle at a greater speed than twelve miles per hour, and pleaded not guilty. Mr. Miller defended. P.S. Warren said the defendant passed him twice, both times going at over twenty miles an hour. When witness saw him afterwards he admitted that he had been going at a high speed. P.C. Salmon also gave evidence. The defendant, in evidence, said he could not possibly have gone at twelve miles an hour, because the accumulators were giving out, and the engine kept on missing fire. A motor car always looked as if it was going faster than it was because it kicked up a lot of dust, the wheels being small and going round fast. At its best the machine he was riding on could not possibly go at more than sixteen miles an hour. Cuthbert William Banham, an electrical engineer of about ten years experience, said the accumulators were taken to him to be recharged. They were quite empty. While they were running down the motor could not have gone at more than ten miles an hour. Defendant was fined £1 and 11s. 6d. costs.

Wm. J. Crampton, electrical engineer, of Llandaff Chambers, Cambridge, was summoned for a similar offence at the same place and on the same date. Mr. Ellison appeared for the defendant, and expressed his regret for the offence, which, he said, was committed in ignorance. Defendant did not know he was breaking the law. He left himself in the hands of the Bench. Fined £1 and 8s. 6d. costs.

At Maidenhead, on Monday, Mr. D. M. Weigel, of Holland Park Avenue, London, was fined the maximum penalty of £10 and costs for having furiously driven a motor-cycle through Maidenhead streets on April 12. The Deputy Mayor (Mr. Wilton) was one of the witnesses, and he declared that the motor was travelling at the rate of twenty-five miles an hour. The toll-collector at Maidenhead Bridge said defendant threw out a halfpenny as he passed, when the proper toll was 6d.

MR. WALTER COLES was summoned at Hastings last week for not having a lighted lamp on a motor-car he was driving in Sedlescombe Road. Defendant said he had an accident, and it took him an hour to find a nut he lost. Fined 5s. and costs.

OUR Midland correspondent had a short run on an Allard "Rapid" car last week. The vehicle in question is of the light description to carry two persons; belt driven directly off the engine on to a countershaft, and from thence by means of a spur-gear on to a balance-gear axle. The engine is water-cooled, a pump and cooler being fitted, which enables the car to do a day's journey without recharging with water. The engine is of $3\frac{1}{2}$ h.p., the cylinder being $3\frac{1}{2}$ in. diameter by $3\frac{1}{2}$ in. stroke. The car is capable of climbing steep hills on the low gear, and can attain a speed of from eighteen to twenty miles an hour on the level on top speed.

A CLUB representing a federation of the various automobile clubs in Germany has been founded in Heidelberg. It is called the Alldeutscher Automobil-Club (All-German Automobile Club). There were present representatives of the Deutscher Automobil-Club, the Mitteleuropäischer Motorwagenverein, the Rheinischer Automobil-Club, the West-deutscher Automobil-Club, the Württembergischer Motorwagenverein, the Fränkischer Automobil-Club, and the Bayerischer Automobil-Club. It was agreed that all questions of general importance should be considered by a committee representing all the interests connected with the club. The Deutscher Automobile Club is to stand at the head of the new organisation, and have special charge of regulations for racing.

TO CORRESPONDENTS.



All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



WE learn that there is to be an automobile fête at the Crystal Palace this afternoon (Saturday), at which the public are to have an opportunity of taking drives in the vehicles which completed the 1,000-mile Trial. The drives will take place in the grounds of the Crystal Palace, and the money paid for tickets for seats will be devoted to Lady Georgina Curzon's Mafeking Relief Fund. Drives at 1s. per seat will commence at 3 o'clock and end at 4.30 p.m., while drives at 2s. 6d. per seat in the fast carriages belonging to the Hon. C. S. Rolls, Mr. Holder, Mr. Kennard, and others, will take place from 4.30 to 6.30 p.m.

The Liverpool Self-Propelled Traffic Association.

A CONFERENCE between the council of this association and the leading builders of motor-vehicles for heavy traffic was held at the Chamber of Commerce, Liverpool, on Monday. In the unavoidable absence of Mr. A. L. Jones, J.P., chairman of the council, the chair was taken by Mr. John A. Brodie, city engineer, senior vice-president, and there were also present Professor Hele-Shaw, F.R.S. (vice-president), Messrs. W. Becket Hill, Arthur Musker, Henry H. West, J. Walwyn White (hon. treasurer), and E. Shrapnell Smith (hon. secretary). The principal manufacturers attended. The object of the conference was to discuss the conditions for next year's trials, with particular reference to an arrangement by which the competing vehicles and additional ones of the most successful types shall be immediately available for road carrying operations between Liverpool and East Lancashire at the close of the competition. The conditions will be issued in the course of a few weeks. It was also decided to hold a meet and 50-mile run of members' private motor-carriages on Saturday, June 2.

Beastly Nuisances.

MR. JUSTICE BIGHAM is one of the latest judges, and in view of the support given to automobilism by the legal profession generally we need feel little concern at his antipathy to motor-vehicles. But it is a little surprising that he should have committed himself to a statement with reference to "gigantic motor carriages which cut up the roads and are a beastly nuisance." He had better confer with Sir Francis Jeune or Sir Richard Webster on the subject. The recent Trial has shown that motor-vehicles do far less damage to the roads than horse-drawn vehicles, and that there are thousands who would disagree as to the beastly nuisance.

Motor-Car Licences at Eastbourne.

THE following appeared in the minutes of the Eastbourne Watch Committee last week:—"The Committee again considered the application for renewal of motor-car licences, and it was resolved that the licences granted to Messrs. W. Jury and Sons (1), Sydney Easton (2), and H. E. Stredwick (2) be renewed,

provided that such cars shall not ply for hire on Sundays, or along the Parades (from the Redoubt to Holywell), Terminus Road, Paradise Drive, Duke's Drive, Meads Road (from the Town Hall to Fairfield Court), and Beachy Head Road; and that the speed of such cars when running within the Borough shall not exceed five miles per hour. It was further resolved that the Council be recommended to affix the Common Seal to such licences.

The Effect of Police Measures.

AMONG the numerous *chauffeurs* who made their appearance in the Paris courts last week, charged with furious driving, was a M. Page, one of the Décauville Company's mechanics, and the case was rendered of interest by reason of the information laid before the magistrate by M. Ravenez, who, as chairman of the Décauville Company, was civilly responsible for his employé. M. Ravenez dealt at length with the serious injury done to the trade by the stringent and aggressive measures recently adopted by the police, and emphasised his remarks by quoting from letters received from Germany, in which it was clearly demonstrated that over the frontier conductors intended to employ their best endeavours to secure the industry now so flourishing in France. He pointed out that whereas in 1898 the value of automobiles exported from France reached a value of but £16,000, in 1899 this had increased to £240,000, and that the Germans were not blind to the fact and intend to benefit as largely as possible by the recent turn of events in France. Should the persecution of automobilists continue, Germany would be enormously aided in her object, and M. Ravenez pointed out how in the case of his company, whose shops are close to the Porte Bineau, one of the favourite hunting grounds of the police, the clients were positively afraid to show themselves on their cars for fear of becoming the recipients of unjust and ridiculous summonses. M. Ravenez also appealed to the Commissioner of the Government to put a stop to the woeful lack of dignity now being displayed by the police, which reflects but little credit upon the force. The daily practice of some of these men is to lie in wait for passing cars, concealing themselves behind newspaper kiosques and omnibus stations, etc., and it is by no means edifying to see such proceedings. That M. Ravenez's pleading had its effect was evidenced by the more lenient tone adopted by the magistrates in dealing with the cases for the day, and in the majority of instances a fine merely was inflicted without the additional short term of imprisonment which of late has been so much in vogue.

The Improvement of our Roads.

A VERY useful paper on road construction was read at the Society of Arts last week by Mr. A. Moresby White, chairman of the Metropolitan District Association of the Cyclists' Touring Club. Although the subject was treated mainly from the cyclists' point of view, Mr. White gave elaborate and excellent rules for road construction, and urged that highway authorities should more generally utilise the ample powers conveyed by the Highway Act, 1864. The results of experiments with the tractometer were quoted to show the great saving in

labour of a good macadam surface. But Mr. White added that the ease of the traffic depends also in no small degree upon wheels, and thought it extraordinary that in these days of engineering triumphs we have not been supplied with a noiseless wheel. The author further suggested that a general standard of road repair should be established.

The Most Suitable Paving.

SOME interesting details regarding the paving of town roads are to be found in the report recently submitted to the City of London Corporation by Mr. D. J. Ross, the city engineer. This deals mainly with wood and asphalte and the comparative durability of these substances. Though the initial expense of such paving is heavy, the economy comes in not only in the length of time they last, but in the fact that important thoroughfares have not to be frequently closed to traffic for repairs. It may astonish many people to learn that the asphalte pavement on Holborn Viaduct, which is at present being renewed, for instance, has been down for seventeen years, in spite of 12,000 vehicles passing over it each day of twelve hours. In Lothbury the asphalte has not been renewed for twenty-three years, and in some of the minor streets for thirty years. The use of the hard Australian Jarrah wood does not appear to have been the success anticipated, though it has hardly yet had a fair trial.

The Carriage of Petrol on Railways.

A VERY important meeting was held at the Home Office on Friday last under the chairmanship of Captain J. H. Thomson, Her Majesty's Chief Inspector of Explosives, to go into the question of the carriage of petrol by railway companies, especially as bearing upon the point recently raised regarding the severe clause in the new consignment note of the railway companies. All the leading railway companies were represented, together with the manager of the Anglo-American Oil Company and Mr. Leonard, of Messrs. Carless, Capel, and Leonard, these gentlemen representing the petrol manufacturing industry; Major Holden, R.E., attended on behalf of the Automobile Club, while Mr. G. H. Smith, honorary secretary of the Motor Trades Association, represented that body. In the course of discussion it was allowed by the railway companies through their spokesman, that the objectionable clause of the consignment note was only intended by them to hold good in the event of their regulations as regards packing of the petrol not having been carried out. This of course makes the regulation a much less harsh and one-sided one. It was agreed that the manufacturers of petrol should submit samples of their packages to Captain Thomson, and that he should put them through a series of rough trials in the presence of the representatives of the railway companies, and if they came through the ordeal satisfactorily no doubt the railway companies would eventually agree to accept such packages, but it is understood that the result of the experiment shall not necessarily be binding on any party until their further consent is obtained. It was arranged that a specification of the approved vessels, whatever they may prove to be, should in future appear on the consignment note. It was understood from the railway companies that they desired to assist, so far as it was in their power, the motor trade. By this meeting the matter of the carriage of petrol had been advanced a distinct stage, and the Automobile Club, the Motor Trades Association, and the private individuals who have taken so much trouble in the matter, have evidently not laboured in vain.

A Magistrate's Opinion.

IN driving a little Pieper voiturette to the New Lyric Club the other day, Dr. Lehwess mistook the corner and drove to the off-side of the obelisk at the top of the Haymarket. He was pursued into the club by an irate policeman, who demanded his name and address. Being of a gentle nature he tried to soften Bobby's wrath with half-a-crown, which was scornfully

refused. A summons, of course, followed, and on Tuesday our *chouffeur* appeared before Mr. Denman at Marlborough Street Police Court. The "learned" magistrate, after hearing his explanation, growled out a bigoted "These things are bad enough even when on the right side of the road," and incontinently fined him 40s. and costs. Mr. Denman has doubtless caught Monsieur Lépine's malady.

Motor-Car Service for Aberdeen.

A NUMBER of gentlemen met in Aberdeen last week for the purpose of considering as to the establishment of a motor-car service in that city, and the result of their deliberations is the formation of a new company, to be called the Aberdeen District Motor-Car Service Company, Limited, with a capital of £5,000. About half of the required capital has been already subscribed, and the prospectus soliciting the remainder will be issued in the course of a few days. The directors of the company are Baillie Taggart (chairman), Shoremaster Robertson, Mr. A. J. Tulloch, and Mr. William Thomson, J.P. In addition to a service to Torry, the company propose to establish a service to the Bathing Station. The service to Torry would start from the foot of Market Street, and to the Bathing Station from the top of the street, while it is also intended to run cars to other districts of the town, where the directors consider there is a demand for a public conveyance. The company has concluded a contract with the Caledonian Motor-car and Cycle Company, Limited, for the immediate supply of four cars of the latest type, and it is expected that within a week or two the new service will be in operation. The cars, which will be built by the Daimler Motor Co., Ltd., will be of the wagonette type, with seating accommodation for nine persons, including the driver. With a similar object in view, the Aberdeen Motor-Car Company, Limited, has been formed, with a capital of £5,000. The formation of the company is the result of meetings and negotiations which recently took place following upon the defeat of the Town Council scheme to run a double line of tramways to Torry. The whole of the capital is, it is stated, assured. The company hope to start a service to Torry at once, but powers will be taken to extend operations to other localities where the directors consider a remunerative business may be carried on. Since the above was written, we are glad to learn that the last-named company, which had been formed for practically the same object, had agreed to withdraw, and the scheme will now be proceeded with to establish a service of cars to Torry, the Bathing Station, and other districts.

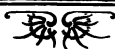
It is rumoured that the Automobile Club will hold their usual Whitsuntide tour. The destination is as yet uncertain, but the dates will, we believe, be from May 31st to June 5th.

MR. ALBERT C. BOSTWICK, chairman of the Runs, Tours, and Contests Committee of the Automobile Club of America, who is at present in Europe, is reported to have purchased M. René de Knyff's racing car for £2,400.

IN the Companies Winding-up Court last week, before Mr. Justice Wright, a petition was down for hearing for the winding up of the Beeston Motor Company, Limited. It was stated that negotiations were going on for a sale of the concern, and the petition was allowed to stand over for three weeks.

WE regret to learn of the death of Mr. William Erskine Bartlett, managing director of the North British Rubber Company, Limited, which took place at Bridge of Allan, on the 4th inst., at the age of seventy years. Mr. Bartlett, who was an American by birth, took over the management of the company at Edinburgh in 1868, and to his guidance and tact is the present position of the North British Rubber Company in a great measure due. More particularly was the deceased gentleman interested in that department of the business which related to the tires for cycles and vehicles known as the Clincher. After acting as manager for several years, Mr. Bartlett joined the directorate, and as managing director he supervised the rapidly increasing business of the company. He had been in failing health for the past few years.

The Automobile Club's 1,000-Mile Trial.



THE great 1,000-mile Trial is now an event of the past, the progress of the final stages of the tour being recorded in the following pages. The Trial, which represents some 50,000 miles of motor travel through crowded cities and dangerously hilly districts, was accomplished without accident to other users of the road being caused through want of control over, or bad driving of, an automobile. All the cars which went through the Trial travelled a minimum of 1,059½

miles, while some of them totalled 1,107½ miles. There were eleven actual running days since the competing vehicles left London on April 23, the balance being made up of Sundays and one-day exhibitions in the following towns:—Bristol, Birmingham, Manchester, Edinburgh, Newcastle, Leeds, and Sheffield. There were also temporary exhibitions on running days at Kendal, Carlisle, York, Lincoln, Nottingham, and Leicester. It should be added that on the off days a brief allowance only was made for cleaning and repairs, and that if a car required still more attention the time occupied was deducted from the next running day's journey. There were seven days out of the eleven on which a hundred miles or more was the distance travelled; the longest was the final journey of Saturday, and the shortest was the 61½ miles run from Kendal to Carlisle, which included a hill-climbing competition up Birkhill. The beneficial effects of the Trial are beyond measure. To the public it has revealed the fact that motor-cars are by no means toys, but are vehicles which can be relied upon to do their work efficiently; to the manufacturer it has revealed weak points which needed improvement and modification in a way that no isolated trips of 100 miles or so could possibly do. It has been said that many would-be purchasers of motor-cars have deferred making the plunge until the Trial was completed. Now that such a complete and trying test has been successfully negotiated by so large a number of motor-cars the step need no longer be delayed. It was at first

given what should prove an enormous impulse to the automobile movement.

ON THE LONG PILGRIMAGE.

By OBSERVER.

NOTTINGHAM, Friday night.

YESTERDAY was spent at Sheffield, and whatever may be thought of the town, or its hotels, there can be no two opinions as the hospitality of the Master Cutler and the inhabitants generally. The Automobile Club was right royally entertained, and pleasant are our memories of the great cutlery



THE BENZ IDEAL CAR (No. 2) DRIVEN BY MR. E. J. COLES.

town. The committee of gentlemen who became guarantors for the expenses of the visit of the vehicles to Sheffield showed a praiseworthy spirit; and Mr. J. T. Thompson, who filled the arduous post of hon. secretary so efficiently, worked very hard indeed for the success of the venture, sparing neither time nor money in the effort. Many other gentlemen also devoted much of their time to the affair, and it is only right to mention the names of Messrs. W. E. Cope, T. Lonsdale, Cooper Pearson, and F. B. Cauwood amongst those who volunteered for the tedious work in connection with the visit.

So far as the town itself was concerned, it was conceded by all that the tram lines must be the best laid in the whole kingdom—certainly far better laid than those of any other town through which we have passed. And seeing that we have travelled and slipped over many miles of lines we are well qualified to express an opinion. In many places the lines have been abominable—in fact, someone hazarded the opinion that they had been laid in the road and there left until the traffic had ground portions of them in just sufficiently to hold them in.

This morning the wind was cold and the "control" was long—six miles over tramlines. All the party were punctual, and those who had entered for the racing at Welbeck Abbey had to leave at 6.30 a.m. Even those least inclined to be early risers regretted the provision that kept them half-an-hour after the speedy ones had gone. A great deal of interest was taken in the departure of the vehicles, and all along the route to Woodhouse Mill Station a sympathetic crowd was seen. Near the control Mr. Frank Butler on his Panhard and Mrs. Kennard driving her De Dion voiturette went by. The succeeding portions of the road were of a switchback description, one steady incline culminating in a sharp rise that caused us to engage the assistance of a few onlookers in reaching the top. In the grey morning, and standing on the top of the hill, it was a



LORD KINGSBURGH AND COL. MAGRATH ON DAIMLER CAR No. 36.
Photo by] (Mr. Percy Richardson.

thought that the test was unnecessarily severe, but since it has been successfully carried through the Automobile Club and the motor industry generally can congratulate themselves on having

weird sight to see the town of Sheffield down in the hollow, with its tall chimney stacks belching forth volumes of smoke. During this part of the journey few cars were seen—in fact the only one that attracted attention was that of Mr. Holder, who was attending to the burners, and trying to remedy bad water circulation by the roadside.

We duly reached Worksop with the first of the Richard cars, and Mr. Mayhew's Peugeot, with Mr. A. Russell aboard and

then through a broad belt of oaks we went on at our own pace. Through the well-paved water splash some of the cars dashed with impetuous rush—and their riders had a shower bath. Others who had had experience—such as is given by the Kenilworth water splash—were wiser, and by driving slowly were able to go through drily. The roads through the park were in splendid condition, and towards the Normanton Lodge gates we met one of the stiffest hills of the whole tour. The arrangements for guiding drivers were excellent, and the permission of the Duke of Newcastle to put on full speed was taken advantage of by every car.

From the water splash at Clumber to Saxilby is a distance of fourteen miles—and very different is the scenery to that through the park. Instead of forest monarchs we saw nothing but a well-cultivated stretch of farm land, dotted with cottages and farm buildings, with here and there old square towers of churches and windmills saluting us lazily as we whizzed along. The Great North Road was crossed at Markham Moor Inn, and at East Markham we crossed the railway line before getting to the river Trent. There at Dunham toll bridge arrangements had been made that vehicles engaged in the Trial should pay no toll, the club having paid a certain sum to cover all tolls. Having convinced the somewhat sceptical gate-keeper that we were of the party, we went through—the Richard car, which had been travelling in fine style, coming up and going through with us. Dunham

presented a cheerful aspect with its groups of school children and labouring men waiting for the cars. Now we were on the last stretch to Lincoln, where, it was already evident, we should have a good reception. Many motor-vehicles had come out to meet us, and one funny little affair resembling a varnished box on wheels, and driven by an air-cooled motor, made us curious as to its capacity to travel. We had been going strong when suddenly, without a word

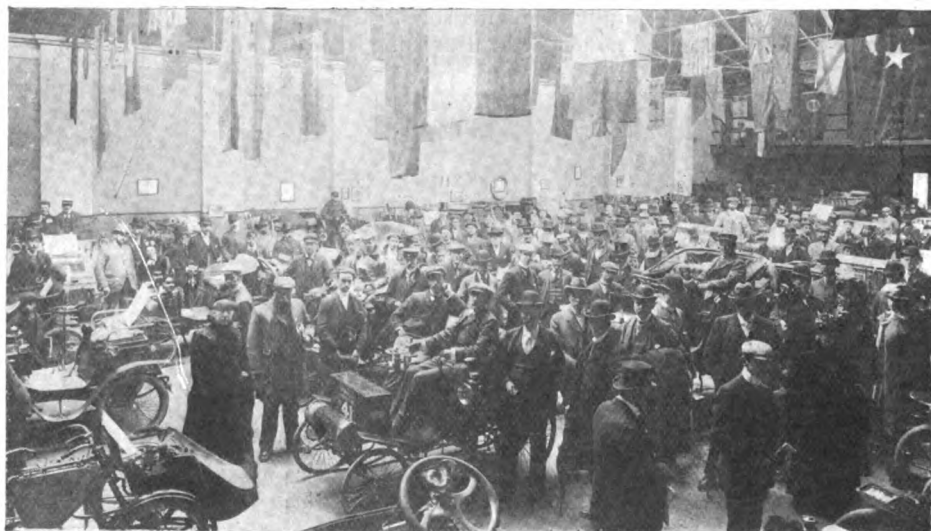


THE OPENING OF THE EXHIBITION AT EDINBURGH.

Photo by]

[Argent Archer, Kensington.

Haxton driving, behind. The streets of Worksop were well lined with spectators, an ambulance attracting considerable attention. At the outward control we were informed that three horses attached to a cart had run away at sight of a motor-car, and had thrown the driver, who was reported dead. That was ill news—the first of the kind heard during the Trial—and it was with something like relief that the true facts of the accident were ascertained at Lincoln. There we saw a member of the Automobile Club who had been to the hospital, whither the injured man had been taken. It appeared then that he had jumped from the cart and had received a nasty flesh wound. Fortunately it was not regarded as a serious one. As a rule there has been no difficulty in finding the breakfasting places in the towns—these being usually indicated by the police or by a break in the line of spectators—thus leading to the stable yard and hotel. But at Worksop there were no such indications, and we passed through the town to the outward control, thereby missing breakfast. Welbeck Abbey was immediately to the right, and strong was the temptation to go and see the speed trials, but we refrained. Following the instructions in the official programme, we turned to the left and made for Clumber Park. The weather had become bitterly cold, and all the sunshine had long disappeared. But the ride through Clumber Park was, perhaps, the most lovely part of the Trial; here the grass seemed more emerald than ever, and the newly-foliaged trees were simply delightful, elms full of leafage, lovely silver birches, chestnuts and maples thickly leaved and giving broad shadows, oaks and ash all growing to a beauty and height hardly to be rivalled anywhere. How Robin Hood and his merry men would have deplored the presence of so many motor-vehicles in the forest fastnesses! The motorists, however, were delighted with the country associated with so many of his famous exploits. The historic avenue of limes was traversed, and



THE EXHIBITION AT THE CAMBRIDGE DRILL HALL, NEWCASTLE-ON-TYNE.

Photo by]

[Argent Archer, Kensington.

of warning, our motor stopped dead. The Richard car, which had fallen slightly behind, passed and had got about a dozen yards ahead when it, too, stopped without notice. Nothing wrong could be found with our motor, and we started again after ascertaining that a plug on the Richard car had broken. Then we went straight into the

ancient cathedral city, where a large number of motor-vehicles were to be seen—principally of the Benz, Star, and Marshall types, the Daimler not being so well represented.

We were first into Lincoln and in good time, Mr. Siddeley's Parisian being second, followed by an Iveagh phaeton, the other cars following in quick succession. The first of the cars that had been engaged in the speed tests came in in a cold, drizzling rain.

At Lincoln the cars were on exhibition in St. Swithin's Square, the automobilists being entertained to luncheon by the mayor and the local committee at the Saracen's Head Hotel—an incident of the run that was greatly appreciated after the morning's trip. Then we started for Nottingham, the run being only broken by a halt at Newark for tea. Shortly after leaving Lincoln we noticed marks on the road which showed that some car, in taking a corner sharply, had slipped straight across the road and had managed to pull up at the edge of a ditch. The roads were rather dusty, but in good condition, and we were welcomed by long lines of people into Nottingham, a steep ascent from the Market Place leading to Starey's Repository in Parliament Street, where the cars were on exhibition in the evening. All seemed glad that the Trial was so

		Min.	Sec.
4	Ariel tricycle with Whippet trailer ...	2	2 1-5
A 22	Mr. J. A. Holder's 12 h.p. Daimler ...	2	17 1-5
A 11	Hon. J. S. Montagu's 12 h.p. Daimler ...	2	18
39	"Century" tandem tricycle, 2½ h.p. ...	2	29 2-5
16	Gladiator voiturette, 3½ h.p. ...	2	35
A 31	Mr. W. Exe's Parisian Daimler, 6 h.p. ...	2	36
40	Wolseley voiturette, 3 h.p. ...	2	37 1-5
14	De Dion voiturette, 3 h.p. ...	2	44
A 2	Mr. F. H. Butler's 6 h.p. Panhard ...	2	49 1-5
A 3	Mr. T. B. Browne's 6 h.p. Panhard ...	2	49 1-5
15	De Dion voiturette, 3 h.p. ...	3	5

HOW THE LAST CAR CAME TO TOWN.

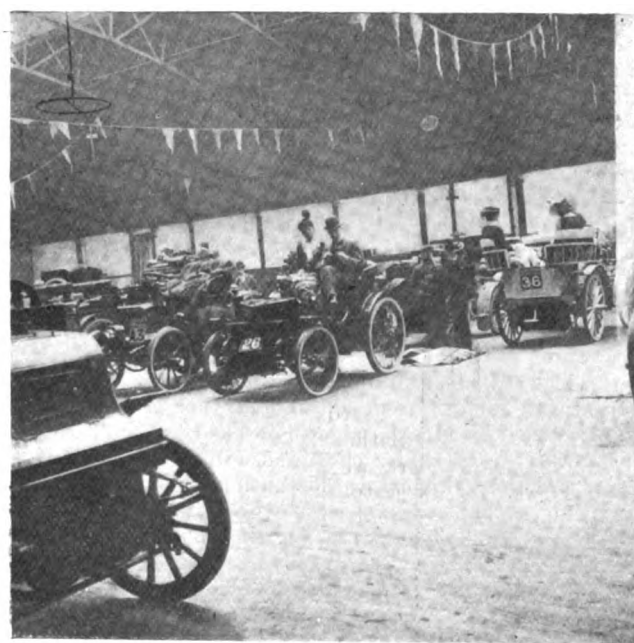
BY THE DESERTER.

WE live in an age of ever-hastening activity and unceasing rush. The motor-car is generally regarded as the embodiment in metal of this characteristic of the century—a monster that goes throbbing through quiet villages and snorting through busy streets with the impartiality of the plague, disturbing sylvan quietness and adding to urban noise. It has been known to go at a pace that no word of police



Photos by

THE EXHIBITION AT THE NORFOLK DRILL HALL, SHEFFIELD.



[Mr. Percy Richardson.]

nearly at an end, and we were pleased to see that Mr. Pedley, who had been left behind ill at Birmingham, had turned up at Nottingham feeling much better.

THE SPEED TRIALS AT WELBECK.

BY permission of the Duke of Portland an optional speed test was participated in by fourteen competitors at Welbeck Abbey on Friday, the 11th.

The measured mile was a very gentle gradient, with two turns close together and a long straight stretch. Time-keepers were stationed at either end, and each car was sent off on the up-grade at intervals of half a minute. They waited at the opposite end until all the competitors had finished their first mile, then each was started at half-minute intervals on the down-grade, and when the times of each competitor for the double journey had been obtained the mean was taken, giving the following results:—

		Min.	Sec.
A 17	Hon. C. S. Rolls's 12 h.p. Panhard ...	1	35 1-5
A 10	Mr. Edward Kennard's 8 h.p. Napier ...	2	1 3-5
A 4	Mr. M. Mayhew's 8 h.p. Panhard ...	2	1 3-5

authority could retard, and even in connection with the Great Trial, which was to test the vehicle and not record its speed, chronicles of a mile in four minutes have been told in private conversation. These things distress the easy-going man with a respect for law—and a wife and family. And when commissioned to go to Nottingham and faithfully describe the journey from that busy town, I felt ill at ease, for had I not been used to the familiar cabs and other creeping and crawling things? Mustering courage, and taking a railway ticket, I journeyed to the town from whence come lace curtains, determining to get there before the curs, and select a nice, quiet, steady, sober, and respectable motor-carriage on which to enter London in dignity and in a state of completeness. For those fast machines are monsters. Did not one shed a passenger, and another cause a sheep to flutter into muttiness? And are they not demoralising in making men believe that "things (*i.e.*, speeds) are not what they seem"?

Presently the cars arrived—in a style that would have been useful had they been going to a fire. But I was not concerned just then with futurity, and, as I have said, was on the look-out for a machine that was quiet on the road, easy in its internals, safe on its extremities, and not likely to exceed a jog-trot speed. I didn't object to jibbing—provided such antics did not take place

in market places and amidst assemblies of people. For there are ribald multitudes who seek to find amusement in the automobile that won't go at all, and wily policemen on the look-out for those that have learned the secret of accelerated motion. Three or four steady cars were pointed out—some had lost nuts, bolts, and minor accessories, and, although thus deformed, were useful. It is not always the spic and span that serves mankind. The old family cat, with eyes dim of sight and without a tooth, may yet scare the mice—though it cannot play the offensive among their ranks. And so with a motor-car. Parts may be out of truth and squint with irritating deviations from the straight, but the vehicle can get along with careful tending and gentle shoving uphill.

It was decided that I should go on a car that had done very well thus far. It had never been first; it had never been last. But it had been safe. Its number had never been taken by the police; its driver had never been warned within controls; it had never been taken up a lonely lane to be overhauled out of the sight of men. And yet it was sober and slow—just the car for one who is adverse to rapidly moving scenery, preferring to enjoy the beauty of Nature at a contemplative pace.

And yet don't imagine that there was no lack of enterprise either in the driver or the writer, for we got early to the control and started in the first dozen, going along Parliament Street and down the hill leading across the market in good style. One or two cars behind seemed rather close to our rear works, but none overtook us until we got near the Trent bridge, when the Hon. J. Scott Montagu's Daimler went ahead with Professor Vernon Boys and Mr. C. Cordingley aboard. A few minutes later the Richard car, No. 46, followed, and then we got to the outward control—leaving there eighteen minutes from the start.

The morning was not very bright, and as we got among the fields a nasty drizzling rain was making its influence felt in the greasy state of the road. That, however, did not interfere with the steady running of my car, and it certainly gave promise of what is known to automobilists as a good run. Meanwhile other vehicles were passing by. Mr. Egerton, on a De Dion voiturette, whizzed along in fine style; a few score yards along an International Victoria went ahead, and then a New Orleans car was succeeded by Mrs. Bazalgette on her Benz. There was a pleasing variety in the landscape and also in the cars that passed us. They certainly disturbed the continuity of the view, and were frequent enough to keep one's eyes to the road. Still, the ride was not without interest so far as the next few miles to Loughborough were concerned. No cars had lingered on the roadside, and all seemed anxious to go to the front—probably a reflection of the national idea just now. But why there should be such a rivalry I could not imagine, especially as I understood we were to show the authorities how much below the legal limit a motor-car can be safely driven. Even a huge Noah's-ark sort of car that was advertising the pen with which I write, after keeping doggedly by our side for some time, went ahead—it could stand it no longer. For, horrible to relate, the tire of our off front wheel had punctured, and we were hobbling along on three decent tires and one that was as flabby as an empty sandbag. After that all the small boys and other persons frequenting the road called attention to that punctured tire with a wearying reiteration that tried the patience of passenger and driver alike. They thought they were doing a kindly action in pointing to our misfortune, evidencing a sympathy that would win our appreciation; but their kindness became so monotonous and their sympathy became so tedious that one would have been glad of a pea-shooter for purposes of revenge. It is no joke to go along with so many sympathisers. They heeded not the quiet and sober dignity of our pace; the superior character of our car was unobserved. All they saw and all they seemed capable of understanding was our misfortune.

Still, we made headway—not so much up the hills as on the descent. But with the help of the Crypto gear we took the hills grandly. I got out to see how well the car advanced towards the heights, and coaxed it from the rear with both hands. The driver thought it would go without help, and I walked by its side with the contemplative attitude of the mute—once a feature of every funeral. Then from behind came the familiar "teuf, teuf," and I mounted the car again just

as we got to the top, and the New Orleans and Wolseley cars came along. Then we had quite a number of pace-makers—the Daimler public-service car, Mr. Mark Mayhew, Mr. R. E. Phillips on his "Petit Duc," and half a score of others. Somewhere in that district Mr. Swindley was seen on Mr. Lord's Peugeot, and he very considerably pointed to the wayward tire. In fact, scarcely a motorist did not express sympathy. We thank them all for their kind expressions; and can do so all the more heartily now that the trip is over. Nearer Loughborough M. Farman was descried on the roadside admiring a tire, and near Loughborough a 6 h.p. Iveagh phaeton was resting. I thought it was for the convenience of the journalists aboard, but afterwards discovered a pump had gone wrong. Happy No. 9—that was the end of its troubles; ours had scarcely begun. Just before getting to Leicester, M. Farman went along again, and with the baggage van, driven by Mr. Van Toll, before us, we went into Leicester in very satisfactory style—for us.

At Leicester I had a few minutes to inspect some of the cars that had recently passed us; but none of the earlier ones were to be seen, and a good time was spent in replacing the battered tire with a new one. It was merely a tack that had caused our difficulty.

Leaving Leicester we went capitally, passing over the tram lines with a nonchalance that had been impossible before. Right on through Oadby and Kibworth, we took the gradients with ease, and drew well away on the level. While we got ahead of none, none got ahead of us for a while, and then an International Victoria went by. A few miles further on Mr. R. E. Phillips was investigating his car, but caught up and passed us seven miles from Market Harborough.

In Market Harborough a new form of annoyance was commenced by the public, who would persist in asking if we were last. Once the query was varied, and "Are there any more?" was the form adopted, but the invariable question was, "Are you the last?" Captain Langrish was the only motorist we saw in the next few miles, until just after Maidwell Mr. Coles came to greet us, his car standing demurely enough in a blacksmith's shed. He seemed rejoiced—much in the manner of the sailors in "The Tempest," who thought each other drowned, and himself the only survivor. Mr. Coles had evidently fancied himself last, and was glad to give us a message for a friend at St. Albans—should we arrive first. A spindle had broken, but was quickly repaired, and his car was into Northampton a few minutes after our steady vehicle.

After the excellent run from Leicester to Market Harborough our car had been going rather slowly, but that did not distress me. Soon after leaving Mr. Coles we slowed down to a stationary position. A trail of water had led to the driver determining on an investigation of the car, when it was found a water joint had gone. Being at the rear of the straggling procession of vehicles—Mr. Rolls was in St. Albans by that time—the repair was made without observation. I became water carrier, surprising the good lady at the nearest farmhouse at the quantity of water required. She said the motor-car required more liquid than a horse. Only two motorists passed by—Mr. E. M. Iliffe on his motor-quadracycle, and a Decauville that gave notice of its coming and was speedy in its going. The water-joint skilfully repaired, we restarted. Evidently the rest had done us all good, and the engine seemed refreshed. We took the next hill in fine fashion on the top speed, and then, with encouraging smiles from the police and cheers from the children, we entered Northampton, nearly running over a bullock that crossed our path and alarming a dog that came too near.

When we got to Northampton few vestiges of a motor-car meet remained; and the Plough Inn was deserted. Mr. Banks was just about to depart on his Brown-Whitney steam car; the driver of the New Orleans was ruefully regarding a broken petrol pipe, a Decauville was being got ready for the start, and Mr. Moffatt Ford was preparing to take the M.C.C. Triumph on the last stage of this eventful journey. Thus we had the yard of the Plough Inn to ourselves—and determined to overhaul the car. On opening the back-door a crack in the bar on which the engine was supported revealed itself. "Good heavens!" said

the driver, in a tone that seemed serious indeed. Mr. Coles came along at that moment, and we saw how his repair had been effected. With the help of a local engineer the driver was able to make the necessary repair to our car; but when we got to the outward control no timekeepers could be seen. It was 5.30 p.m.

On through Horton, Stoke Goldington, and Newport Pagnell we went, a few cyclists hinting that the cars had gone by some hours before, and one or two of the facetious ones sadly wanting to know if there were any stray ones about. The evening grew cold, and our prospects of getting to St. Albans



PREPARING FOR THE RACE IN WELBECK PARK.

Photo by]

[Argent Archer, Kensington.

before the rest had got to the Crystal Palace were less. We maintained an even pace, such a steady-going rate as I had desired but had never before endured.

"O for a seat on a speedier car,
And a ride on one that would go!"

I don't mean that ours stopped—but it did not go like some are reported to have done. The twilight cast a dulness o'er the landscape, and at Woburn Sands—81 miles from Nottingham—I could stand it no longer. We were 40 miles from London, and I calculated the car would arrive there at midnight. There was, however, the risk of the delay, and, committing myself to the mercy of the railway company, I took train for Euston.

And thus I came to town. I have since learned the car reached London half an hour past midnight. Next time I go a-motoring give me a car that is speedy as well as sure.

HOMeward BOUND.

BY "PHANOMEN."

ALTHOUGH considerably interested in the progress of the 1,000-mile Trial, it is one thing to read of the same and another to actually take part in the tour, and when, during the course of last week, an invitation was extended to me to join the cars on the last day's run, there was no hesitation in my acceptance of the offer. Consequently, with great expectations, I journeyed down to the city of lace by the afternoon express on the Great Northern Railway on Friday last, and reached Nottingham just in time to see a number of cars finishing up their day's journey. So far, I was in anxious ignorance of the particular car which was to convey me back to town, so, after attending to the wants of the inner man, I quickly repaired to the Repository, where the evening exhibition of the competing vehicles was being held, to learn my fate. Many times on the way down by train I had cogitated whether I should be dropped on one of the fast cars, or a reliable steady-going car, guaranteed to do its average of twelve miles an hour and no more, or one of those lazier vehicles, whose daily records had been of a somewhat varied character.

Hardly had I entered the Repository when I was greeted

by Mr. Percy Richardson, of the Daimler Motor Company, Limited, and duly informed by him that he had reserved a seat for me in his wagonette, No. 36. "Phanomen," said I to myself, "your luck's in," for I have had many previous rides with Mr. Richardson, and know from experience that he always brings his passengers home safely and in good time. My anxiety thus relieved, I spent a pleasant hour in chatting with many of those who had gone through the Trial, and whom I had not seen since the start from Hyde Park Corner, nearly three weeks before. Having had strict instructions not to be late, and acting on a revised version of an old saw, "Early to bed, early to control," I retired to rest and dream of the events of the morrow.

Reaching the Repository at 6.15 a.m. on Saturday morning I found a very lively state of affairs already prevailing—several filling up with petrol, others with water, others lighting up their burners, and others vainly endeavouring to work their way out from the rear to get to the control early. By 6.30 nearly all the motors were in operation, and the noise of so many engines at work under one roof made the Repository more like a large engineering establishment rather than a stable for horses and vehicles. Our party, which consisted of Lord Kingsburgh, Colonel Magrath, and self, with Mr. Richardson at the wheel, were quickly on board, and running up to the control found already six or seven vehicles in front of us. Although seven o'clock was the official time of starting, in view of the long day's journey—over 120 miles—the signal was given as soon as the bulk of the cars were ready to start, we on No. 36 being timed out at 6.57 a.m. Notwithstanding the early hour a fair number of people turned out to see us depart. The Trent bridge crossed, we quickly arrived at the outward control, and then the open country was reached. There was rather a sharp nip in the air, and the gathering of the clouds overhead did not promise a very enjoyable trip so far as the elements were concerned. Expectations in this direction were not disappointed, for ere long the rain began to come down heavily, and made us glad that we



THE CARS LEAVING LINCOLN.

Photo by]

[Argent Archer, Kensington.

had brought with us a mackintosh in addition to a heavy overcoat. Pointing to a road over the hill-tops some miles distant, we were duly informed that we would shortly have to climb that. It proved to be Bunny Hill, one of the steepest in the district. Expecting, no doubt, to see a little fun, quite a number of local automobilists had journeyed to this point—there being five or six cars on the roadside—to see the way the competing vehicles mounted or were pushed up the stiff gradient. So far as we were concerned no pushing was necessary, although the three passengers were politely requested to dismount. The top of Bunny Hill reached, we all quickly made ourselves comfortable again, and were soon travelling at a fair pace. Near Costock,

No. 9 was seen at the roadside, the driver devoting his attention to the motor. In due course Loughborough was reached, and by this time the rain had temporarily ceased. The cars as they passed through the town met with a hearty reception, it being the hour when a good many workmen were wending their way to the several large engineering works in the neighbourhood. Mount Sorrel, which, from what we saw of it, is principally noted for the strange colour of the corduroy trousers worn by the men employed in the quarries close by, was next passed, and the miles to Leicester shown by the mile-stones steadily diminished. About five miles from the latter town Messrs. Egerton and Grierson were seen busy at work on the motor of their De Dion voiturette, No. 15, the trouble being, as we afterwards learned, with the exhaust box. A few miles from Leicester we were passed by several cars, including the Wolseley voiturette, Mr. Siddeley's Parisian Daimler, and Mr. Mayhew's Peugeot, and for the first time for many miles we had a sight of the running of a number of vehicles in front of us. In due time the inward control at Leicester was reached, where we gathered that a dozen cars had arrived before

miles from Market Harborough urging us to go quicker! A few miles further on we came upon Mr. Friswell, enjoying himself on his back under his 8-h.p. Peugeot, trouble with the pump being the cause of his stoppage. Near Kibworth, Mr. Critchley, on his khaki-coloured Parisian Daimler, gave us the go-by, as also did the Gladiator voiturette; both cars were going at a good pace, and the way the last-named vehicle tackled the hills was much commented on. On the outskirts of Market Harborough the male inmates of the workhouse had lined up to witness the passage of the cars, and as we went by there was a good deal of head-nodding at one another, the poor old fellows no doubt talking of the changes that have come over locomotion since they were boys.

This section of the route proved one of the most trying of the whole journey, for it was made up of a series of steep rises and falls, and, as the rain had now begun to be heavy, the roads were too greasy to permit of full advantage being taken of the down grades. For some time now we had been speeding on our way alone, not another car being in sight, either in the front or at



THE OUTWARD CONTROL AT LEICESTER.



THE OUTWARD CONTROL AT NORTHAMPTON.



A SNAPSHOT NEAR LEICESTER.



SNAPSHOTS OF THE CARS AT ST. ALBANS.

Photos by

(Mr. Per y Richardson.

us. Probably owing to the inclement weather there were relatively few people out to greet us. The order to travel through the town at a speed of four miles per hour was given at the Great Northern Railway Station, and at this speed we ran into the yard of the Bell Hotel, in Humberstone Gate, where the vehicles had to stay one hour for exhibition purposes.

Breakfast partaken of, a restart for Northampton was made in due course, the cars being held up at the outward control until the appointed time. Several of the Leicester Motor-car Company's Daimler covered wagonettes were observed at work in the public service as we passed out of the town into the suburbs. A mile or so further on we came across Mr. F. H. Butler's car with a punctured tire, which caused him an hour's delay, while not far away Mr. Mark Mayhew was devoting attention to his Panhard car on the roadside. Nothing very exciting occurred to us for some miles until we came upon a herd of cows, which the man in charge left to themselves. However, with but little difficulty we got through, and once more had a clear road, a policeman at a village about nine

the rear; but near Maidwell Mr. S. Farman, on the M.C.C. Triumph No. 32, came along at a good pace and passed us, as also did Mr. Stocks on the Ariel quad No. 3, and Mr. Jackson on the Century tandem tricycle No. 39. By the way, I noticed that this machine was fitted with a 3-h.p. water-cooled De Dion motor and radiator, not a 2½-h.p. motor as specified in the red book. Near Lamport a very steep descent was met; this we negotiated at a speed which brought the tears into one's eyes. Once more on the level and turning a bend in the road we found the gates at the level crossing at Lamport Station closed against us. This brought us to a stop—the first since leaving Leicester—while a slow coal train went by. At all the cross-roads we encountered groups of interested spectators, and from the number of smart turn-outs of dog-carts, etc., it was evident that the local gentry were taking advantage of the opportunity of seeing for themselves the progress that has been made in motor-cars. We were also pleased to see a couple of ladies on horseback ride behind us for a little distance, thus giving their horses a useful lesson in running quietly in company with automobiles. The red book,

which was a most complete encyclopædia, warned us to beware of the village of Brixworth with its sharp turns. What with these turns and the narrowness of the road at this point many a driver on Saturday was put on his mettle in the handling of his car. We got through safely, however, and were soon running along at a good bat—indeed, the nearer our car got to London the better did the motor seem to pull. In fact, as Lord Kingsburgh remarked, it must have known it was going home for a well-earned rest. A few miles further on we overtook the



CAR No. 36.—THE DAIMLER WAGONETTE ARRIVING AT THE ST. ALBANS OUTWARD CONTROL.
[E. Seamell, Crouch Hill.]

Gladiator voiturette, stopped on the road side, and then M. Jules Dubois on the Decauville No. 34 gave us a taste of his exhaust, and also a demonstration of his agility in jumping off and running along with his little car up the hills. Enjoying a delightful down-hill run we were soon at the Northampton control and on our way to the halting place for lunch. Right in the town we witnessed the nearest approach to a nasty accident on the whole journey. A number of little boys, not content with viewing the cars from the pavement, had placed themselves on the road. A horse attached to a brougham suddenly became restive, and to all the onlookers it appeared that there was no escape for two of the boys whose attention was all for the motor-cars in front of them. Fortunately the driver of the brougham managed to pull his horse a little to the side, but it was a miraculous escape. Running almost to the other end of the town, we found that most of the cars had turned into Messrs. Mulliner's carriage building establishment, so, following suit, we were quickly enjoying a well-earned lunch.

An hour later we started on our last stage of the journey, so far as time records were concerned, viz., to St. Albans, a distance of 44½ miles. We had not gone very far when we came across the Century tandem-tricycle hung up with a punctured tire. At Horton Mr. Friswell came along and left us, while at Stoke Goldington the Century once more passed at a good pace, the riders having effected a quick change of tires. Newport Pagnell was the next town to be passed, and here the sharp turn was safely negotiated, the police rendering assistance in directing the way and keeping the road clear. A mile or so further on the Hon. J. Scott Montagu's car, with Professor Vernon Boys and Mr. C. Cordingley aboard, came along and passed us, while near Waverden we left Mr. Friswell behind us, his pump again giving him trouble. Just before reaching Hockliffe we had to slow down for a flock of sheep which blocked our way. The animals did not apparently like the "teuf teuf" of the motor, for they stamped along in front of us at a tremendous pace, one making a somersault on the way. Dunstable had made itself quite gay with bunting to welcome the motor-cars, and the populace were

loud in their cheering as we passed along the High Street. A similar reception was accorded us as we ran through Markyate Street and Redbourn, and we quickly found ourselves at the inward control at St. Albans, the timekeepers informing us that we were the seventeenth in order of arrival. Quite a large crowd gathered at the ancient city, who had a good opportunity of inspecting the cars, the order having gone forth in the morning that the vehicles that had arrived up to that time would line up and start in procession at 5 p.m. for London, no passing to take place on the way. Finding the Pea Hen Hotel yard full up, we wended our way to the Queen's Hotel, and, following the example set by earlier arrivals, filled up the time at our disposal by having tea.

At the outward control at St. Albans a lively scene presented itself. The road being somewhat narrow a little difficulty was experienced in lining up the cars in the same order as that in which they arrived at the inward control. This over, however, a good deal of posing took place for the photographs, and punctually at 5 p.m. the procession, consisting of about thirty vehicles, and headed by the Hon. C. S. Rolls' Panhard, set out for London. Apparently the rain had not been so heavy as further north, the roads being dusty, and those unprovided with goggles had a very trying time. The procession had hardly started when it was brought to a stand, by a restive hay-motor, which did not like passing so many petrol motors at such close quarters as was necessitated by the narrowness of the road at that point. However, the horse was persuaded to behave itself, and we moved along once more. All along the route a large crowd of spectators was met, the number increasing the nearer we got to London, while from St. Albans onwards quite a number of automobilists came out on their cars to welcome us home. Near Elstree Mr. Holder's twin-Daimler was passed, apparently having tire troubles, while at the Welsh Harp the Gladiator voiturette dropped out of the procession. Cricklewood, Kilburn, Maida Vale—it is time the wood paving was repaired here—were soon all behind us, and looking something between a miller and a collier, owing to the dusty twenty miles run from St. Albans, we turned into Oxford Street at the Marble Arch. Along Regent Street, Pall Mall, Charing Cross, Northumberland Avenue we went, and in a few minutes found ourselves outside the Automobile Club's headquarters at 6.43 p.m., fourteen cars being lined up in front of us.



THE PROCESSION LEAVING ST. ALBANS.—THE HON. J. SCOTT MONTAGU'S DAIMLER CAR AND THE WOLSELEY VOITURETTE.
[E. Seamell, Crouch Hill.]

As I said at the beginning, I knew my luck was in when I learned I was to be in the care of Mr. Richardson. His Daimler car, No. 36, ran beautifully the whole distance of 124 miles, with not a single stop except at the appointed places, and the run, but for the heavy rain in the earlier part of the day and

the dust at the finish, was most enjoyable, and will long be remembered by the writer.

EN ROUTE.

LINCOLN.

The visit of the motorists to Lincoln was well timed, and, while the residents were particularly interested in the arrival, both they and the country visitors joined in lining the streets to see the grand departure. The arrival was piecemeal, so to speak, and the car which attracted the most interest, that of the Hon. C. S. Rolls, was one of the last to enter St. Swithin's Square, having been engaged in a time contest in the Dukeries, which it won handsomely. All the way through Lincoln the High Street was crowded, and in Bracebridge the juvenile element was particularly demonstrative. Along the pretty road to Newark knots of people were passed almost every hundred yards, and Newark was found waiting in the streets, practically in a body.

NOTTINGHAM.

The first motor-car arrived shortly after six o'clock, and the vehicles continued to enter by Trent Bridge in pretty rapid succession for the next hour and a half. During the evening the exhibition of the cars at Starey's Repository was well attended. The following is a complete list of the cars in the building at 9.30 p.m. on the 11th inst. :—

PRIVATE OWNERS' CLASS.

A 10	8 h.p.	Napier	Mr. E. Kennard
A 17	12 h.p.	Panhard	Hon. C. S. Rolls
A 2	6 h.p.	Panhard	Mr. F. H. Butler
A 22	12 h.p.	Daimler	Mr. J. A. Holder
A 4	8 h.p.	Panhard	Mr. Mark Mayhew
A 11	12 h.p.	Daimler	Hon. J. Scott Montague, M.P.
A 29	7 h.p.	Peugeot	Mr. Mark Mayhew
A 30	6 h.p.	Daimler Parisian	Mr. J. D. Siddeley
A 26	6 h.p.	Daimler phaeton	Mr. C. Gregson
A 20	2½ h.p.	Empress motor tricycle	Mr. Herbert Ashby
A 31	6 h.p.	Daimler Parisian	Mr. W. E. E.
A 7	6 h.p.	Daimler Parisian	Mr. Alfred Harmsworth
A 23	6½ h.p.	Phaeton	Mr. C. Cordingley
A 12	6 h.p.	Daimler	Mr. Henry Edmunds
A 25	3 h.p.	Benz Ideal	Mrs. Bazalgette
A 21	6 h.p.	Daimler	Mr. Ernest Pitman
A 28	2 h.p.	Enfield quadricycle	Mr. E. M. Iliffe
A 24	4 h.p.	Mors "Petit Duc"	Mr. Robert E. Phillips
A 3	6 h.p.	Panhard	Mr. T. B. Browne
A 13	6 h.p.	Daimler	Mr. E. Estcourt
A 27	12 h.p.	Daimler	Mr. J. R. Hargreaves

AGENTS' AND MANUFACTURERS' CLASS.

No. 4	2½ h.p.	Ariel tricycle, with trailer
26	8 h.p.	Peugeot
3	3½ h.p.	Ariel quadricycle
37	6 h.p.	Daimler Parisian
39	3 h.p.	Century Tandem tricycle
35	6 h.p.	Daimler
46	7 h.p.	Richard car
34	3½ h.p.	Decauville
1	3 h.p.	Benz Ideal
16	3½ h.p.	Gladiator voiturette,
40	3 h.p.	Wolseley voiturette
27	3 h.p.	New Orleans car
47	7 h.p.	Richard car
8	6 h.p.	Motor Manufacturing Company's Phaeton
31	3½ h.p.	M.C.C. Triumph
32	3½ h.p.	M.C.C. Triumph
2	3 h.p.	Benz Ideal
36	6 h.p.	Daimler
15	3 h.p.	De Dion voiturette
44	3 h.p.	International Victoria
49	5 h.p.	Marshall
51	3½ h.p.	Star voiturette
14	3 h.p.	De Dion voiturette
28	3 h.p.	New Orleans car
41	3 h.p.	International Victoria
33	3½ h.p.	Decauville
12	2½ h.p.	Motor Manufacturing Company's tricycle
24	5 h.p.	Marshall
38	9½ h.p.	Daimler public service vehicle
5	5½ h.p.	Locomobile steam carriage
22	8 h.p.	Lanchester carriage
29	2½ h.p.	Eureka

On Saturday morning, rain and rawness of the morning combined to give a feeling of depression at the start. There was

a fair number of spectators in Parliament Street, and many going to work stopped to look at the cars as they progressed along Market Street, Wheeler Gate, Albert Street, Lister Gate, Carrington Street, and Arkwright Street, to the Loughborough Road, making the first halt at the confines of West Bridgford. It was half-past seven before the last cars got away, and two belonging to Mr. Hargreaves did not start for London, going to Coventry instead.

LOUGHBOROUGH.

Much interest was shown in the passage through Loughborough. The first car to arrive was the 12 h.p. Panhard, driven by its owner, the Hon. C. S. Rolls. Two minutes later came Mr. Edward Kennard's 8 h.p. Napier, followed in another minute by a 12 h.p. Daimler, driven by Mr. J. S. Holder. From then the cars came through the town at intervals of one a minute or two till about 8.20, when forty-four had passed. Seven more came along after that time, the last being timed at about 9.30. The "inward control" for Loughborough was at the Great Central Railway Bridge on the Nottingham Road, from which point a speed limit of eight miles an hour was imposed through the town by way of Nottingham Road, Sparrow Hill, Pinfold Gate, and Leicester Road to the "outward control" at the Grammar School gates. There the signal was "right away" for Leicester. At the inward control Mr. A. H. Walker, and at the outward Mr. R. S. Clifford, junior, recorded the times of the passing of each car. A large number of people turned out along the route to watch the procession. For nearly half an hour we had experienced a heavy fall of rain and sleet, which had made the roads somewhat sticky, and the way the cars were handled came in for much commendation, regret being evinced that a stop was not made here to allow of a closer acquaintance being made with the vehicles. The police gave much assistance in regulating the traffic and directing the voyagers on their way.

NORTHAMPTON.

The arrangements for the reception of the vehicles at Northampton were made by Mr. A. F. Mulliner, of Bridge Street, who is a member of the Automobile Club, and is also largely interested in the building of motor-car bodies. The inward control to Northampton Mr. Mulliner arranged to take place at the open space at Kingsthorpe, where the mile-stone to the town stands, and at this control the inward time of each car was taken by Mr. H. W. Dover and Mr. W. B. Shepard. This being done, the cars proceeded at a comparatively slow speed along the Barrack Road, Sheep Street, the Drapery, and down Bridge Street. Several of the cars were cleverly turned into the capacious premises of Mr. A. F. Mulliner, and others were arranged to be placed in the Plough Inn yard. Mr. Mulliner gave a luncheon to a number of members and friends of the Automobile Club. Only a short time was allowed for lunch, as the cars were supposed to leave within an hour after being timed at Kingsthorpe. During the interval several in charge of the cars took advantage to make a thorough overhauling before proceeding on the remainder of their journey. Mr. J. Porteous and Mr. Spencer Downing, both of whom are well known in connection with sport and racing, lent valuable assistance in carrying out the necessary arrangements for the reception of the tourists. The first car to arrive was that of the Hon. C. S. Rolls, Mr. Edge being second. Then came Messrs. Cheel and Newton and Mr. T. A. Holder. Among the later arrivals was the Brown-Whitney steam car and a Marshall car, which required assistance from a local engineer before proceeding on its journey, leaving Northampton about 5.30 p.m. The cars left in the same order that they had entered the town, Messrs. G. H. Bennett and L. Sharman being at the outward control.

DUNSTABLE.

What with a brass band contest and the passage through the town of the motor-cars, Dunstable was quite gay on Saturday. The first passed through early in the afternoon, and for over two hours afterwards vehicles came along at irregular intervals, while a few stragglers were seen even later. There

was a great crowd, and the railway had brought many from neighbouring places to see the motor-vehicles.

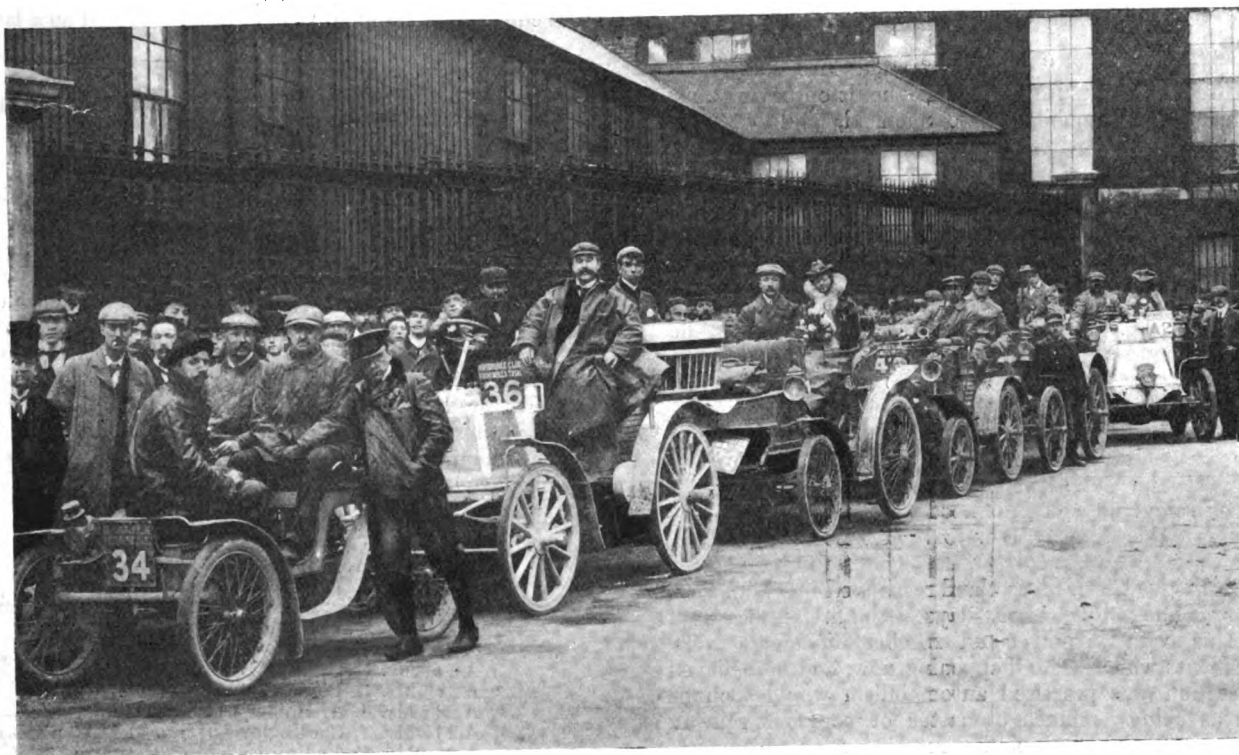
ST. ALBANS.

When it became known that the finish of the Trial, so far as time records were concerned, would take place in our town, and that the vehicles which had arrived up to 5 p.m. would then start in procession for London, a large crowd quickly gathered. The first car arrived early in the afternoon, followed quickly by over thirty others. The yard of the Pea Hen Hotel was rapidly filled up, some of the vehicles finding a temporary resting-place at the Queen's and others at the Bell Hotel. The procession was formed up near St. Stephen's Church in a somewhat narrow part of the road, and here about thirty vehicles set off in a group for London.

LONDON.

Report had it that the first car would not reach the Club before 7 p.m., but an hour in advance of that time several well-known members of the automobile world put in an appearance to welcome the 1,000-milers home after their long and trying journey. The cry "Here they come!" went up when, shortly after 6.30 p.m., the "toot, toot" of a horn was heard, and the

- 31 M.C.C. Triumph (Mr. S. Farman)
- 3 Ariel quadricycle (Mr. Stocks)
- A 11 Hon. J. Scott's 12 h.p. Daimler
- 40 Wolseley voiturette (Mr. Austin)
- A 20 Mr. Ashby's Empress motor tricycle
- 35 Daimler Parisian (Mr. Critchley)
- 34 Decauville voiturette (M. Dubois)
- 33 Daimler wagonette (Mr. Richardson)
- 26 8 h.p. Peugeot (Mr. Friswell)
- 47 Richard car
- A 3 Mr. T. B. Browne's 6 h.p. Panhard
- A 2 Mr. F. H. Butler's 6 h.p. Panhard
- 15 De Dion Voiturette
- A 21 Mr. E. Pitman's 6 h.p. Daimler
- 11 Motor Manufacturing Company's Princess car
- 27 New Orleans car
- A 31 Mr. Exe's Parisian Daimler
- 9 Motor Manufacturing Company's Iveagh phaeton
- 49 Marshall car (Mr. Mann)
- A 4 Mr. M. Mayhew's 8 h.p. Panhard
- 37 Daimler Parisian (Mr. Pedley)
- A 22 Mr. J. A. Holder's 12 h.p. Daimler
- 51 Star voiturette (Mr. Lisle)
- 1 Benz Ideal (Mr. Hewetson)
- A 25 Mrs. Bazalgette's Benz
- 8 Motor Manufacturing Company's 6 h.p. phaeton (Mr. Burgess)



A VIEW OF THE ARRIVAL AT THE AUTOMOBILE CLUB.

Photo by)

[Argent Archer, Kensington.]

procession, headed by the Hon. C. S. Rolls, on his 12 h.p. Panhard, came in sight. The shaking of hands, the passing of congratulations, and the presentation of handsome bouquets of flowers by Mr. F. R. Simms to the ladies of the party who had completed the 1,000 miles, occupied the next few minutes, after which some little time was spent in posing for the various photographers anxious to get a snapshot of the finish. This operation over, the vehicles and their occupants began quietly to disperse—some going to the Crystal Palace and some home, the latter preferring to leave the final journey until the morrow. The thirty-three cars which were lined up at the finish at the Horse Guards Avenue at 7 p.m. on Saturday are shown below in the order of arrival. During the evening a number of other cars came in, the total number which reached the Club on Saturday night, according to the official record, being forty-seven.

- A 17 Hon. C. S. Rolls's 12 h.p. Panhard
- A 10 Mr. Kennard's 8 h.p. Napier (Mr. S. F. Edge)
- 4 Ariel tricycle and Whippet trailer
- 46 Richard car
- A 29 Mr. Iliffe's Enfield quadricycle
- A 30 Mr. Siddoley's Parisian Daimler
- 39 Century tandem tricycle (Mr. Jackson)

THE EXHIBITION AT SHEFFIELD.

THE exhibition at Sheffield was held in the Artillery Drill Hall, a building admirably adapted for the purpose, on Thursday, the 10th inst.

The opening ceremony was presided over by Mr. E. P. Reynolds (chairman of the Sheffield committee), and among others present were the Master Cutler (Mr. R. A. Hadfield), the Earl of Wharnccliffe, the Lord Justice Clerk of Scotland, the Hon. John Scott Montagu, M.P., Sir William Leng, Mr. C. D. Leng, Mr. W. St. Q. Leng, Mr. R. Jack, Mr. G. E. Branson, Mr. T. S. Ellin, Mr. G. Howson, Mr. Harry Huntsman, Mr. and Mrs. Talbot, Mr. and Mrs. Duncan Gilmour, Mr. R. H. Dunbar, Mr. John Dery, Mr. J. F. Smith, Mr. J. T. Thompson (secretary), and a number of members of the local committee.

The Master Cutler, in declaring the exhibition open, said it was with great pleasure that they welcomed the representatives of the Automobile Club to Sheffield. The object of the tour was a very important one, as it was to familiarise people with the real object of automobilists, and to remove

prejudices. They might depend upon it that before long automobilism would be in a very advanced position; and he congratulated those who were bringing this development forward on doing a good work. He saw very few objections to automobilism, but one thing he hoped was that the motor industry would not suffer from over-capitalisation, but would be carried on on honest, sound business lines. Just as the introduction of gas, electricity, and railways was delayed by prejudice, so this new manufacture might be delayed, but the advantages of automobilism were so many that he thought all prejudices would be overcome. He referred to the splendid performances of Mr. Rolls' car, and said that, although it was French built, people in Sheffield would congratulate the manufacturers upon their success. They were setting an example which he was sure Britishers would before long try to beat, and that was the only kind of fight that we wanted between the two nations. He next spoke of the adaptability of automobilism to warfare, and also said he believed the manufacture of the vehicles would bring trade to Sheffield, which would always be ready to supply the material required.

The Hon. J. S. Montagu, M.P., on behalf of the Automobile Club, returned thanks for the welcome.

Subsequently the Master Cutler and members of the local committee entertained the members of the club to luncheon. The Master Cutler presided.

After the loyal toasts,

The chairman proposed "The Visitors and Success to Automobilism." He complimented Mr. E. P. Reynolds on having done much to introduce automobilism into Sheffield, and was glad that the car he rode was entirely of British construction, and that the body was produced by a Sheffield carriage maker. The Napier car was doing good work, and for practical work, such as hauling loads, the British cars were coming out a long way ahead of their rivals. As representing the industries of that great city, he was delighted to see so many of those who were helping to introduce what he believed would be an enormous industry in the future. The manufacture of automobiles, he expected, would progress in the same way as the manufacture of cycles had progressed during the last ten or twelve years. Acknowledging the presence at the table of some French automobilists, Mr. Hadfield paid compliments to the manufacturers of France on their splendid enterprise in taking up the automobile movement, but at the same time he expressed the hope that before long we in England would not need to go to our neighbours on the Continent either to learn how to build motor-cars or how to appreciate their advantages.

The Lord Justice Clerk of Scotland responded in a humorous speech. He remembered the early days of the first successes of railways in this country, and could recollect incidents very similar to incidents which were happening now, and he believed that if moderation was practised automobilism would soon be looked upon as being as much a matter of course as railway travelling. Nowhere did automobilism receive such a welcome as in the villages, from old people, who remembered the early days of railways, and, knowing how the predictions with regard to their dangers were falsified, had open minds on the subject of new means of travelling. He remarked that Sheffield was one of the places which petitioned in the early days against a railway which would come within ten miles. As to the cars which had fallen behind in the Trial, he divided them into three classes: those belonging to amateurs, who were dissatisfied with the speed attained; those which suffered from broken axles or wheels, through no fault of the art of automobilism, but because the coach builder and the engineer had not yet been got to work together; and those which had actually broken down through the motive machinery being in an unsatisfactory condition, which was not to the credit of automobilism. If they got through the trip without doing serious injury to any human being, it would be a great thing in favour of automobilism. Horses soon grew accustomed to the cars, and he believed that the future of the autocar was not limited to sport, but it would provide a highly economical mode of land transport, and also of military transport, such as the world had never seen.

The Earl of Wharnccliffe, who also responded, alluded to the usefulness of motor-cars to doctors, who were liable to be called

up hurriedly in the night. If the stories he had heard as to the speed of the riders on the previous day were true, he was afraid he would have the pleasure of meeting some of them at Barnsley next Wednesday, but he had no doubt the West Riding police had exercised an amiable discretion in the matter. The exhibition had given a good deal of pleasure and instruction to the visitors.

The Hon. J. Scott Montagu, M.P., proposed "The Press," to which Mr. R. H. Dunbar and Mr. J. Derry responded, the former saying that the Press wished the movement all the success it deserved, and that the members of the club were pioneers in what would be a remarkable accession to the pleasure, the comfort, the convenience, and the business facilities of a great nation.

Mr. Mark Mayhew, L.C.C., proposed "The Chairman and the Local Committee," to which the Master Cutler, Mr. E. P. Reynolds, and Mr. J. T. Thompson responded.

The attendance at the exhibition during the day was very satisfactory. If there is any balance of profit it will be handed over to the Lord Mayor's War Fund. During the afternoon many of the visitors, on the invitation of the Master Cutler, inspected the works of Hadfields, Limited. The Earl of Wharnccliffe enjoyed a ride through the city on one of the motor-cars. In addition to the forty-seven vehicles turned in at the Drill Hall on Wednesday afternoon, several others arrived at a later hour.

THE EXHIBITION AT THE CRYSTAL PALACE.

ALTHOUGH the Prince's Skating Club was first of all suggested as the *locale* for the exhibition of the competing cars on their return from the 1,000-Mile Trial, the Crystal Palace was eventually decided upon, and instructions were issued that the vehicles could be taken thither either on Saturday night or before 1 p.m. on Sunday last. About a dozen of the cars were driven there immediately after reaching the Club on Saturday, but the bulk did not arrive at the Palace until Sunday, forty-six cars being counted at the appointed time on that day. Several others put in an appearance later, the appended list showing the fifty cars which were in position in the cemented portion of the main building at 5 p.m. on Monday last.

- A 2 Mr. F. H. Butler's 6 h.p. Panhard
- A 3 Mr. T. B. Browne's 6 h.p. Panhard
- A 4 Mr. M. Mayhew's 8 h.p. Panhard
- A 10 Mr. E. Kennard's 8 h.p. Napier
- A 11 The Hon. J. Scott Montagu's 12 h.p. Daimler
- A 12 Mr. H. Edmunds' 6 h.p. Daimler
- A 17 The Hon. C. S. Rolls' 12 h.p. Panhard
- A 20 Mr. H. Ashby's Empress tricycle
- A 21 Mr. E. Pitman's 6 h.p. Daimler
- A 22 Mr. J. A. Holder's 12 h.p. Daimler
- A 23 Mr. C. Cordingley's 6½ h.p. M.M.C. phaeton
- A 24 Mr. R. E. Phillips's Mors Petit Duc
- A 25 Mrs. Bazalgette's Benz Ideal
- A 26 Mr. C. K. Gregson's 6 h.p. Daimler
- A 28 Mr. E. M. Hiffe's Enfield quadricycle
- A 29 Mr. M. Mayhew's 7 h.p. Peugeot
- A 30 Mr. J. D. Siddeley's Parisian Daimler
- A 31 Mr. W. Exe's Parisian Daimler
- 1 Hewetson's Benz Ideal
- 2 Benz Ideal, 1900 pattern
- 3 Ariel quadricycle
- 4 Ariel tricycle and Whippet trailer
- 5 Locomobile steam car
- 8 Motor Manufacturing Company's 6 h.p. phaeton
- 9 Motor Manufacturing Company's 6 h.p. Iveagh phaeton
- 12 Motor Manufacturing Company's 2½ h.p. tricycle
- 14 De Dion voiturette
- 15 De Dion voiturette
- 16 Gladiator voiturette
- 22 Lanchester car
- 23 Brown Whitney steam car
- 24 Marshall car
- 26 8 h.p. Peugeot
- 27 New Orleans car
- 28 New Orleans car
- 31 M.C.C. Triumph voiturette
- 32 M.C.C. Triumph voiturette
- 33 Decauville voiturette
- 34 Decauville voiturette

- 36 Daimler wagonette
- 37 Daimler Parisian
- 38 Daimler Public Service car
- 39 Century tandem tricycle
- 40 Wolseley voiturette
- 41 International victoria
- 44 International victoria
- 45 S.S. car
- 46 Richard car
- 47 Richard car
- 49 Marshall car
- 51 Star voiturette.

At the time we visited the exhibition the bulk of the cars had been cleaned and were once more in a spick and span condition, they looking none the worse, except in some cases for the worn appearance of the tires, for their long journey. The vehicles are displayed in two long rows, the privately-owned cars on one side and the manufacturers' cars on the other. Throughout the week the visitors to the Palace have shown considerable interest in the vehicles which have thus endured the severest tests to which they have yet been put in this country. To-night (Saturday) most of the cars will be removed from the Palace, and those of our readers who have not already seen the victors should take advantage of the few remaining hours to inspect a collection of vehicles which represent some of the best yet turned out by British automobile manufacturers.

A SOCIAL REUNION.

UNDER the genial chairmanship of Lord Kingsburgh, the Chief Justice Clerk of Scotland, a goodly number of those who had endured the 1,000-mile Trial met at dinner at the Trocadero Restaurant, London, on Monday evening. Most of those who had come through the ordeal with success were present, and the recounting of experiences gave a lively turn to the conversation.

The tables having been cleared the chairman announced that he had consented to occupy the chair on condition that no speeches were made. With characteristic humour he then proceeded to give the most delightful little address of the evening recalling a visit to America in 1875 and retailing anecdotes in the style of a practised *raconteur*. To set down in print the choice stories of the landing at New York, the hotel-keeper in the far West who had only met one private in the United States army, and of the Jew on board ship on the return voyage, would be to rob the quaint stories of their exquisite setting. Humour, in fact, marked most of the speeches, the brevity of which was generally commendable.

The Hon. C. S. Rolls introduced by the chairman as one who could make some observations on how to "go up hill slow," had a good reception on rising to give his impressions. Modestly disclaiming the credit of his foremost position, for which the possession of a good machine was, he said, greatly responsible, Mr. Rolls thought that the behaviour of the vehicles which had gone out for the first time was an important matter worth consideration. On the evening before the sealing of the vehicles he discovered that the fourth speed gear-wheel of his machine had never been hardened. Mr. T. B. Browne placed at his disposal one of his Panhard cars which was pulled to pieces and the gear replaced between 11.30 p.m. and 6.30 a.m. on the morning of the Trial. They ascertained during the process that the gearing originally designed to transmit 4 h.p. was the identical gear designed for his 12 h.p. machine. In his opinion the most striking vehicle on the tour was the Napier. It was the first vehicle turned out by that firm who had had no experience in that direction before. Without being ashamed to copy the good features of the French vehicles, most important improvements had been made by Mr. Napier which had resulted in it being possible to obtain for £500 a car of the kind they had seen in the Trial. Upon that they should congratulate themselves. If credit was given to the drivers of successful vehicles, even more credit should be given to those whose misfortune it had been to drive vehicles which were hardly ready for a test of that sort, and to the energy and determination to get through amounting to heroism on the part of those drivers was due the credit of having had

so many vehicles in at the finish. That was one of the most satisfactory features of the Trial. The fact that out of some sixty starters about fifty got through was bound to deeply impress the public mind. But the credit of that magnificent proportion was due mostly to the way in which the drivers had stuck to their vehicles—sometimes being two or three days behind the rest of the party, yet sticking to their machines, having at heart the determination to contribute their portion to the success of the Trial.

Professor Boys said he had had every advantage in having enjoyed the hospitality of those driving cars, having been 400 miles on the road. As one of the judges he had watched all that had been going on with the greatest interest. Some arithmetical fallacies had been discovered during the course of the trip, and an acquaintance shown with the doctrine of limits. If they divided the distance travelled by the time it took some imagined the rate was thirty miles an hour. But it was only twelve. (Laughter.) They thus arrived at a practical exemplification of the mathematical doctrine of limits. It was something new to mathematicians that the doctrine of limits was dependent on the need of the case. In addition to this new experience there was another factor—the geographical one—and the limit, which was found to be twelve in this country, was ten on the other side of



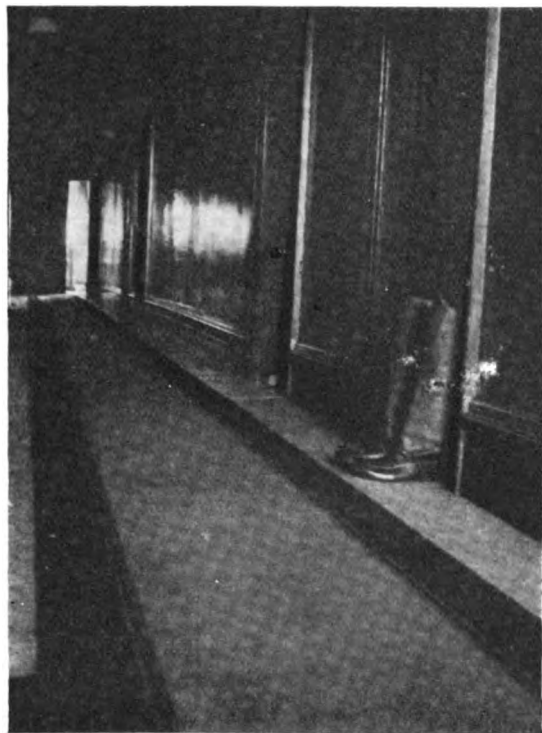
ANOTHER VIEW OF THE ARRIVAL AT THE AUTOMOBILE CLUB.

Photo by]

[Argent Archer, Kennington.

the Tweed. (Laughter.) An enormous amount of pleasure had been obtained from the Trial, and there had also been an enormous increase in the wealth of the country. He joined the run at Manchester, from whence they passed through thirty solid miles of people. It would be fair to reckon about two to one yard and eight or ten deep on each side of the road. But taking a lower estimate of one person to the yard on each side of the road all the way, or lower still, 1,500 people to the mile on each side they would find the Trial had been witnessed by 3,000,000 people. Some of them travelled some distance and paid 15s. or £1 for the pleasure of the sight of the automobiles. Supposing each person considered the sight of a car worth a penny, 3,000,000 people and fifty cars resulted in 165,000,000 sights of a car or a sum of £687,500. Everyone who ran a car must have spent £100. Fifty cars at £100 a car amounted to £5,000 on the debit side as compared with £687,500 on the credit side. There remained therefore a balance in the possession of the country of £682,500. (Laughter.) That was the value of the pleasure which the country had received and not paid for. It might possibly be advantageous to the country that something in the nature of road races should be considered. If for the pleasure of witnessing such miserable speeds as twelve miles an hour such crowds assembled what a revenue could be raised if the top speeds were used? The country might be persuaded that once in a way something in the nature of a road race might be worth having.

The Hon. J. Scott Montagu, M.P., asked to speak on the question of dress, said his own coat had proved very comfortable although it did not perhaps look very smart. As regards special features they remembered the boots of a certain editor and the



A FEATURE OF THE TRIAL.

approved fashion with which some of the drivers were got up. The great question was that of headgear. He had tried the ordinary cap and also the yachting cap and was inclined to believe that the headgear of the automobilist would have to be a sort of mask to go over the head like a fencing mask. The Trial had been a great success and he had found the railwaymen on the line he travelled and the members of the House of Commons equally interested in the results. With regard to future legislation he thought they should license the man and not the vehicle. This would be better than numbering the vehicles. Although automobilists were superior to all the disfigurement that arose from mud, etc., they should recollect that the public had not yet been fully educated in the matter.

Colonel Magrath related some experiences with his motor-car in Ireland, these being chiefly the association of the vehicle, by the natives of the West, with the nether world. He suggested that a party should be got up to go round Ireland.

Mr. S. F. Edge said one of the little engines engaged on the Trial had made 6,342,000 revolutions. Many people had an idea that when they came to a stop, motor-cars were in their normal condition. The Trial had done something to dispel that idea. Some of the travellers had seen parts of cars on the road and they turned up as complete cars, seemingly little different to when they started.

Mr. Staplee Firth said the only pleasure he had was to see the cars start. He did not propose to go into the neolithic age or into matters pre-Adamite. They had authentic records as to the antiquity of the horse for drawing purposes, travel by oxen, ass, elephant, zebra, camel, and other four-legged animals. These had been the only mode of transit supported by the genus *homo*, and he did not think the pace had altered much during the Christian era. He could not understand why men should want to go quicker along the roads than did their forefathers and he put it down to the fact that they were bad bold men. There had been eleven travelling days in the Trial, averaging 96 miles a day, and a coach changing horses every fifteen miles and going nine hours a day would have had to have had 288 horses to cover the distance. It was a great shame that 288 horses were thus to be

put out of employment. At the same time there was the fact, and it would prove a great awakening in the country.

Mr. E. Kennard thanked Mr. Edge for the splendid way he had controlled his Napier car during the Trial. They might have had some close shaves, but they had gone through safely. The order for the car had been in the hands of Mr. Napier for nine months, at the end of which period he produced a car of which he had every reason to be proud. His 8 h.p. had been a success and even greater things could be anticipated from the 16 h.p.

Mr. Egerton referred to the attitude adopted by various automobilists, varying from complete curves and the upright position to the horizontal attitude sometimes necessitated.

Mr. Mark Mayhew, L.C.C., said he was asked during the Trial to take a gentleman back to his country seat near Sheffield. It was soon evident that that gentleman wanted to try the machine to its utmost. First they ascended a little hill between one in six and one in eight. Then they left the high road to go up a lane in which were two cart ruts seven inches deep. This led to a colliery yard, further on they got to a factory yard, and that opened on to the river. His friend pointed out a ford. Down the steep bank they went and on to the river bed, and the water put out the burners. They got a few men from the colliery to pull the car on to the pavé, and having re-started the engine, climbed the bank backwards successfully.

Mr. C. Cordingley, invited by the chairman to deal with side-slips, said his few experiences had not been very happy ones. He got to Calcot Park very well, but soon after that his trouble began. He lost his tire and had to return part of the way in a style of dot and carry one. It took two hours to do seven miles, and he had had trouble ever since all the way. He had discovered that the exhaust pipe was too small. His burners had been blown out all the way round. He started in bad health and ended in bad health; having indulged in a form of physical exercise to which he was not accustomed. He should not care to again have to do what he had had to do.

Lord Kingsburgh said all engaged on the Trial owed a debt of gratitude to the secretary, Mr. Johnson. All the arrangements made for carrying out the run had been admirable. There had been no delays, and no chafing, and there had been perfect good humour and kindness all along. A great deal of that was to be attributed to the splendid organisation. It was very often in public affairs and in sport of any kind that people took revenge on one another for discomforts to which they were subjected by their officials. Nothing of that kind had occurred in connection with the Automobile Club's Trial. He was quite sure Mr. Johnson would be the last man in the world to desire that all those who had assisted him should not have their full meed of praise, but without a strong hub on the wheel, such as he had been, it would probably have gone to pieces. While they should congratulate him upon the success of the tour they should also congratulate him not only as an official but as a friend—extremely courteous. There never was the right man in the right place more than in the case of Mr. Johnson.

Mr. C. Johnson (secretary), who was greeted with musical honours, said he was extremely glad to have that opportunity of speaking because there were present some of the gentlemen who had assisted him in connection with the Trial. They had had to do the drudgery whilst he had had to tell them what to do and get all the credit. There were present four of the officials of the club on whom had fallen a vast amount of weary labour which none of them knew anything about. In a case of that sort it was several months' work. He had been able to speak of the provincial committees elsewhere, and would then speak of work done at the Club. There was the permanent official, Mr. Chant, who had had to do work under adverse circumstances; Mr. Joy, who had done invaluable work in connection with the June show, without whose assistance the official programme would not have been what it was; Mr. Tousey also went in, and would sit down at night and begin work, and keep on till four o'clock in the afternoon. The club steward, Mr. Burrows, had been all through the tour, and his constant amiability and willingness to help everywhere in every possible way was also recognised. So far

as he (Mr. Johnson) was concerned he was a paid official of the Club, and he simply did his duty. What he had appreciated most was the leniency with which people connected with the tour had taken very abrupt answers. He found that driving a vehicle all day and settling down to work at night was somewhat of a strain. The cordiality that had existed throughout the Trial was remarkable. There had been no friction between any one person and another, and that had been one of the secrets of the success of the Trial. It was very pleasurable to see the owners of competing vehicles helping each other. The attitude of the Press also called for remark. If they took the Press principally concerned with automobilism they might congratulate themselves that they had dealt with the thing fully and fairly. In the general Press certain papers had devoted a very considerable amount of space to the Trial. The papers which had hitherto confined themselves to accidents associated with automobilism were now recognising that motor-vehicles were worthy better notice. In conclusion he thanked them most heartily for the toast, and asked them particularly to remember the assistants who had been associated with him.

Mr. Worby Beaumont referred to the theories of Professor Boys and others with regard to action at a distance, and instanced the case of the sheep that stumbled and pitched its head on the other side of the kerb, converting it forthwith into mutton, as an example of action at a distance. In the days when horses were used to carry people to Birmingham, each horse required 140lbs. of oats per passenger. By train only 2½lbs. of coal per passenger were required, and the saving of

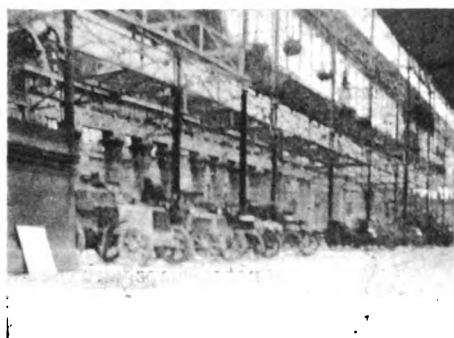
SOME EXPERIENCES.

Recognition of Mr. C. Johnson.

MONDAY'S pleasant function at the Trocadero was fitly brought to a conclusion with a speech by Mr. Claud Johnson, whose rising caused the company to break the orderliness enjoined by the chairman, and to burst forth into song, "For he's a jolly good fellow." That has been recognised all along the route. Never has there been a hitch; the flags have never sent the travellers in the wrong direction; the programme was exact in every detail; the minor arrangements omitted nothing, and altogether the achievement was something notable in the way of organisation. And to this capacity for work Mr. Johnson adds a considerateness for those who have been associated with him that showed itself in his modest reply to the toast of his health. He gratefully recognised the devotion of assistants, and the enthusiasm of local committees, and made graceful tribute to the valuable help he had received from them.

Proposed Testimonial.

QUITE spontaneously the appreciation of Mr. Johnson by those engaged on the Trial is to be shown in another way, and we are glad to be able to announce that this is to take the form of a present. The subscriptions are limited to £1, and should be sent to the Hon. C. S. Rolls, South Lodge, Rutland



Photos by



THE CARS AT THE CRYSTAL PALACE.



[Mr. Percy Richardson.

time by the train carrying 500 people from London to Birmingham was 1.4 years of the life of a man. He referred to the valley near Dunstable which had been filled up with material taken out of the adjacent hill, and advised automobilists and others to advocate similar improvements of the roads elsewhere.

Mr. Roger Wallace, president of the club, in proposing the health of the chairman, said the Lord Justice Clerk had done much by his presence and by his addresses to help automobilism.

The Lord Justice Clerk, in responding, said he hoped the judges would give a careful report on certain cars which had not succeeded in completing the run, for he was confident that in most of these the causes of apparent failure were not causes connected with the motor parts of the vehicles, and often with axles and springs, etc., which might happen with any carriage. None could really be attributed to the principle on which the automobile was worked, but to minor details. During the Trial it had been shown that there had been plenty of gentlemen of resource engaged. He had seen a pump which was a curiosity, and might form the beginning of a museum, to be kept at the club, of works performed under difficulties. He suggested that automobiles might usefully be used in connection with railway services. Energy combined with reasonable care as regards capitalisation was required in the production of automobiles, or more harm than good would be done.

THE municipal authorities of Atlantic City, N.J., U.S.A., have fixed a tax of 25 dols. (£5) on motor-carriages.

Gate, S.W., who is acting as hon. secretary. Services so genially and admirably rendered deserve recognition, and the promptness with which the idea of a testimonial has been taken up is in itself, a tribute which should give enhanced value to the intended gift.

The Roads and the Weather.

AUTOMOBILISTS will be glad to read that the *Field* recognises the very satisfactory results obtained by the Automobile Club's Trial. Reviewing the roads encountered and the climatic conditions met with, our contemporary adds:—"During the first fortnight the weather was uniformly favourable, no rain to speak of being encountered; but in the second week a change occurred, and the Monday brought some unpleasant experiences for the travellers, when heavy rains and wet roads were encountered; nor did the interval of Tuesday, which was devoted to exhibition purposes, bring any improvement in the weather, for on Wednesday the conditions were distinctly worse. Although this experience has been most unpleasant for all concerned, it is satisfactory that the competing vehicles should have been subjected to the severe test which rain, strong winds, heavy mud, and slippery roads impose. These conditions have prevailed, too, over some very hilly parts of the course, which have further added to the severity of the trial."

Last Week's Conditions.

IN the journey from Edinburgh there was a strong south-west wind, which made itself severely felt as soon as Dunbar was reached and the coast line followed down to Newcastle. Fortunately, however, the roads were good. On the journey to Leeds the mud was very heavy, and on the 9th inst., when the run was resumed to Sheffield, the weather was even more unpropitious than that experienced on Monday, for on the northerly stretch to Harrogate the travellers had to face not only a heavy rain, but a strong and cold wind. The roads throughout were heavy and holding, though after turning south the wind was favourable. Many of the cars had their powers tested to the utmost in surmounting some of the stiff ascents encountered. On Friday the weather was cold, and plenty of rain on the concluding day laid the dust, until St. Albans had been passed, and made the roads greasy.

The Pluck of the Drivers.

AT Monday's dinner the Hon. C. S. Rolls paid a well-deserved tribute to the pluck and determination shown by the drivers, whose careful attention contributed much to the success of the Trial. To drive a successful car was comparatively an easy matter; but to endure the annoyance of breakages, the inconveniences of punctures, and the comments of the crowd on the belated ones was a trial to many. On the way to Sheffield the driver of one of the Eureka's was on the road from 3 a.m. to half-past one on the following day—a trial of physical strength, no less than a strain on the system as a whole. Nothing, too, could exceed the pluck and determination displayed by the driver of Simms' motor-wheel. All who had an opportunity of seeing how perseveringly he kept on despite the most discouraging circumstances expressed their admiration of his endeavours, which, at times, were almost heroic, displaying a high courage and steady nerve. Mr. Buck, who rode the Motor Manufacturing Company's tricycle, also deserves mention in this connection.

Mrs. Kennard.

MRS. KENNARD, the eminent novelist, from whose pen we publish an appreciation of the smaller cars engaged in the recent contest, was, we regret to learn, the victim of her De Dion voiturette having a bad side slip in Lincoln. It threw both the lady and her man into the road. Her home being at Market Harborough, Mrs. Kennard did not proceed further than Northampton on the 1,000-mile Trial.

A Serious Business.

EVERYONE engaged on the Trial took the matter seriously, and when not on the cars all seemed to think of little else. There was no waiting at the roadside for others, no refreshing the inner man when on the trip, and nothing but a steady devotion to business throughout the whole of the three weeks—strong evidence of the importance with which the Trial was regarded by automobilists.

Doctors and Motor-Cars.

AN interesting sidelight is thrown upon the use of motor-cars in emergencies by the way in which country doctors are joining the movement, and either displacing the familiar gig or trap of the country practitioner by a natty motor-car, or else adding a car to their existing stud of horsed carriages. According to the *Daily News* correspondent on the Trial, the provincial medical man finds advantages in the fact that he can start on the instant, as no motor-car requires harnessing, and he can, and generally does, start alone, taking the sportsman's pleasure in driving himself. Thus it is that motor-car firms find doctors, perhaps, the most numerous among their customers.

The Locomobile.

ALL the cars entered for the Trial were, with the exception of three, driven by petroleum spirit. Of the trio only one—the Locomobile—got to the Crystal Palace on Saturday. The others, with many of the petrol cars, which failed to cover the distance, were mostly of an experimental type—a fact that should not be forgotten in estimating results. The success of the Locomobile driven by Mr. H. N. Searles was all the more satisfactory as the particular vehicle engaged in the Trial was not the one which it was originally intended to run. Mr. Searles expected to have had a new vehicle with all the latest improvements, but it did not arrive in time, and that actually in the run was an ordinary car of the runabout type. Its performance in the Trial has drawn much attention to the subject of steam-propelled vehicles, and already many inquiries are afloat with regard to the Locomobile.

Luck.

AS we observed last week, luck seems to have entered very largely into the Trial. We thought we had established a record in having two ignition tubes go within about two hours, but a Peugeot easily makes a record, having had four burst in one day.

Mr. Cordingley's Car.

REFERENCE having been made in the press to the early mishap to Mr. Charles Cordingley's car, the following item of news may be of interest. After the tires had gone wrong on the first day of the trip Mr. Cordingley had a new set of wheels, and not being prepared to adopt pneumatic tires he watched the performances of those on the char-à-banc engaged in the Trial. These had flat tires, vulcanised on to vulcanite by an English firm—in a similar style to that of German firms. The experience of the char-à-banc, however, has decided him to abandon all idea of flat tires in the future.

The Brown-Whitney Steam Car.

ALTHOUGH not perhaps with the success achieved by several of the participants in the Trial, the Brown-Whitney steam car completed the whole journey, arriving in London late on Saturday night. In the course of a chat at the Crystal Palace with Mr. Banks, who had driven the car all through, he said that the Trial had proved of great value as showing the points which needed attention to render the car a reliable vehicle. Messrs. Brown Bros. are by no means discouraged; on the other hand, they have still every confidence in the car; and by taking full advantage of the valuable practical experience gained during the past three weeks should produce a steam vehicle fulfilling every requirement.

The Ariel Tricycle and Whippet Trailer.

THE Ariel tricycle and whippet trailer No. 4 behaved splendidly throughout the Trial and proved a most speedy combination. In the flying mile race in Welbeck Park, a time of 2min. 2.5sec. was recorded, while Nottingham was reached only 30sec. behind the Hon. C. S. Rolls' Panhard. In fact, it has been in the first flight throughout, and on the last day's journey a good run was made, the machine, as shown elsewhere, being third to reach London, following immediately after Mr. Rolls's car and Mr. Kennard's Napier.

The Lanchester Cars.

MISFORTUNE seems to have followed the two Lanchester cars entered for the Trial. Owing to a flaw in a casting one of the vehicles was quickly placed *hors de combat*, while on the last day the second one (No. 22) had a troublous time in consequence of a broken bush connected with the cam. Some time was spent in making a temporary repair, but this giving

way it was decided to make a permanent repair at Leicester. This occupied some considerable time, but eventually the car was got in order, and, although not reaching London until ten minutes after Saturday midnight, the return journey was made in good style, a non-stop run being made from Northampton.

The Marshall Cars.

Two Marshall cars participated in the Trial, Nos. 24 and 49. The first one had the misfortune the week before the Exhibition at the Agricultural Hall to be run into and badly damaged by a railway lorry. Although put in order as far as possible in the time available, the car was still far from being in perfect order; yet Mr. Mann persisted in starting it in the tour, and in spite of numerous incidents on the way, due, it is said, to the somewhat twisted state of the frame, the vehicle got back to London soon after midnight on Saturday. The second Marshall car—No. 49—a new and untried vehicle straight from the works, was much more successful, notwithstanding some trouble early in the Trial. On the first day's journey from London to Bristol the pump in connection with the water circulation got out of order. As it was not possible to replace it Mr. Mann decided to remove it and run along without a pump, although the circulation was really only arranged to work with the aid of such a device. Under the circumstances it is noteworthy that the motor ran so well, and like many others it must have known on Saturday that the last day of the Trial had come, for it behaved splendidly, the car reaching St. Albans in ample time to join in the procession to London.

Protection Against the Weather.

THE great variations in the temperature experienced during the Trial proved to be another sort of trial to many of the participants, and the necessity of special provision in the way of clothing was made clear. Quite a number of those who made the long journey, including ourselves, had in use Burberry's "Automo Slip-on" Gabardine Combination, and from practical experience we can strongly recommend this as being a most desirable adjunct to the outfit necessary for a motor-car tour. Even when worn over an overcoat we found it exceedingly comfortable and free fitting, and as a protection against sharp winds it was simply invulnerable. Fortunately we had no extended opportunity of testing the water-proof qualities of the Combination, but in this connection those who have adopted it have nothing but praise to offer.

The Wolseley Voiturette.

ONE of the vehicles in the voiturette class which has stood out prominently during the Trial was the Wolseley, No. 40, driven by Mr. Austin. Except for trouble with the tires, which attended the car almost daily throughout the trip, Mr. Austin turned up smiling every day. On the run from Nottingham to London the vehicle soon gave us the go by, and although we saw it for a few miles on the hilly part of the journey and again repairing a punctured tire, it eventually got away and arrived in ample time to join the procession from St. Albans, being eleventh at that place.

Casualties.

Invention says:—"The total casualties of the motor-car long-distance Trial were a dead dog and a broken-legged horse. It was distinctly the fault of the animal in each case. The horse injudiciously whipped round at right angles in front of a car, and the dog foolishly believed that a bite out of a tire would do it good." Later returns include a hen and a sheep, the death of the latter occurring on the last day of the Trial, an illustration of the "action at a distance" to which Mr. Worby Beaumont referred at Monday's dinner.

THE SMALL FRY OF THE TRIAL.

THE great 1,000-mile Automobile Trial is a thing of the past, but it will live until death in the memory of those who took part in it. From first to last, the tour was a triumphant success, in which the fleet of motors, with but few exceptions, covered themselves with glory. To run over 1,000 miles, however, means motoring in deadly earnest, and hand in hand with great enjoyment went much strenuous endeavour and arduous strain. For it was not all play. The motor-carists had to take the rough with the smooth, and derive consolation often from the fact that they had surmounted difficulties. But is not this the highest kind of enjoyment? Who would give a thank you for success, where all is fair-sailing and monotonous? The variety of motoring constitutes its principal charm. We were only small fry, shrouded in the generous dust of flying Panhard, swift Napier and stately Daimler. They, we knew, looked down upon us; but we did not look down upon ourselves. And as day after day passed, and still we held together in close communion, we felt we were entitled to our self-respect. For did not we scale the rugged heights of dreaded Shap Fell, climb like so many flies over the yet deeper gradients of Dunmail Raise, and struggle through the mountain passes of Birk Hill, in spite of rain overhead and execrable surface under wheel? We came to be a band of brothers, we of the De Dion voiturettes, the Gladiator, the Wolseley, Triumphs, etc., etc. We sympathised with one another's misfortunes; we admired each other's feats of valour. The same spirit animated us all. We were determined, with a grim and steadfast determination, to reach the final goal in spite of every obstacle. And when the evening came and we got into port, and recognised our brave comrades, how pleased we were! How hearty the greetings and warm the hand-shakings. With almost passionate admiration we hailed that pair of heroes—the Eureka man and he of the Simm's motor-wheel. They worked throughout like Trojans and deserve the Victoria Cross for valour in the field. Brave Jules Dubois, too, conductor of the Décauville, how nimbly he ran when his motor slowed down at some steep eminence; how ably he assisted it on all occasions; what wondrous agility he displayed! Ah! ye proud, high-powered cars, laugh at the poor little struggling small-fry as you will—the honours of the expedition lie with them. You were consistently reliable, we had our troubles—not a few. Punctures, pumps, sparking plugs, ignition, carburettor, all contributed to swell the list, and at some period or other we were afflicted. And yet with all your speed and power you could not shake us off. We clung tenaciously to your vanishing forms, and informed you of our presence at the various controls. We fairly astonished the Benz division and some of the older Daimlers. We were an army of midgets if you like, but an army not to be despised even by the Leviathans who smiled whilst they marvelled at our performance. It was predicted at the start that we should succumb. Not we. We had no idea of giving in. We toiled, we struggled, we laboured, we strove, and success spelt in large capitals around our efforts. We proved that the voiturette of to-day is not a mere plaything, but a vehicle capable of surmounting steep gradients, of carrying its passengers in safety over good roads and bad, and of doing 120 miles in the day. A De Dion can be bought for £195, a Gladiator costs £165 or thereabouts, a New Orleans, £140, a Wolseley, £225, a Triumph, £230. Intending purchasers may safely invest in any of these. There is no need to dally for improvements. Improvements, of course there will be in process of time, but Father Time has a soft, slow way of stealing the years, which deprives laggards of untold enjoyment. Be bold, gentle public! Throw aside your caution and procrastination, and take what the present offers. Buy a small car, learn to drive it, then exchange for one of higher power, you will never regret your temerity. Troubles you may have, especially at first, until you understand your motor, but given a certain amount of will and intelligence, and you will defy them all. They will melt away as a mirage in the desert. A new world will be opened out to you; an amusement for your youth, an occupation for your middle age, a refuge for your declining years; so, dear public, hurry up, take the plunge, be happy, be courageous, join the band of small fry, who have gained an honourable place in the recent contest, and open inviting arms to you to enter their ranks.

MARY E. KENNARD.

MOTOR-CARS ON THE CONTINENT.

Motor-cycles at Vienna.

On Sunday last, at Vienna, the Automobile Club of Austria scored a big success with their capital programme of motor-cycle races, a numerous and enthusiastic attendance gathering together to witness the various courses. The first event was a hill-climbing contest over the stretch of road separating Nuwaldegg from Exelberg, a distance of 4 kilometres 200 mètres, and categories were provided for professional and amateur riders. In the former class the well-known French *chauffeur*, Gasté, scored a brilliant success, while in the latter M. Stead came in an easy first. The scene of operations was then changed to the Prater cycle track, where a 10,000-mètres race was set down for decision. An excellent struggle was witnessed between Gasté and Diétrich, the former eventually proving the winner by a lap and a quarter. His time for the distance was 10m. 18½s. Gasté then turned out for an attack upon the hour record, and succeeded in setting up new figures for Austria, although his performance was a long way behind the best of those made in France. In the sixty minutes he covered 59 kilometres 886 mètres, and was accorded a great ovation at the finish of his ride.

The German Automobile Club.

SATURDAY was a red-letter day in the history of the German Automobile Club, for it was then that the magnificent clubhouse in the Sonnerstrasse, Berlin, was formerly inaugurated by the Duke of Ratibor, in the presence of a numerous and distinguished company. These included the Prince of Thurn and Taxis, Count Clemens von Schoenbrun, General Becker, General von Hoesleuffer, Herr A. Klose, Herr C. von Kuhlmann, Count Talleyrand-Périgord, and many other well known personalities. When, at nine o'clock, the Duke of Ratibor entered, the florally decorated club rooms presented a really brilliant appearance, and the President's popularity was made manifest by the hearty welcome accorded to him by the members. The club has a great future before it, and bids fair to rival in magnitude that club of all automobile clubs, the A.C.F.

Sale of De Knyff's Car.

IF recent rumours are to be believed M. René de Knyff has disposed of his wonderful racer for the sum of 60,000 francs, that is, £2,400 sterling, so either he looks upon racing as dead in France or his new car is nearing completion. It is said that the purchaser of the winner at Spa, Pau, and Nice, not to mention "Le Tour de France," is an American, Mr. Albert Bostwick by name, and a member of the Automobile Club of America. The price—£2,400—is pretty tall, but it does not equal the sums generally supposed to have been paid by the purchasers of the cars owned by M. Albert Lemaître and M. Charron. The former is stated to have received £2,760 for his last year's Nice winner, and M. Charron £120 less for his car, but it is very difficult to ascertain the correctness of these statements. If, however, the figures are accurate then De Knyff's car was disposed of cheaply, for it had accomplished infinitely better performances than either of the other two. For Mr. Bostwick's own sake it is to be sincerely hoped that he will not really test the top speed of his new acquisition until thoroughly familiarised with its slower speeds, for at fifty miles per hour a car requires some driving.

An Electric Car's Record Run.

AT last the B.G.S. electromobile has broken the spell of bad luck which of late has dogged its footsteps, or, rather, wheels, and has succeeded in achieving a truly remarkable performance. In the Critérium d'Electricité, a profound *caniveau* taken at rather too fast a speed caused a short circuit, and when a fresh trial was made some few days later a collision with a carrier's cart placed the self-propelled vehicle *hors*

de combat. But on Saturday last these troubles were completely forgotten in the triumph of a record performance, and a veritable record; 262 kilomètres, or 164 miles, covered at an average speed of 16 kilomètres (10 miles) per hour, on a single charge, is something to be proud of; and this was done on no selected level route, but over the Paris-Dijon road, which is for the first 200 kilomètres out of Paris of an average hilly nature, and then becomes a veritable route of mountains, extremely trying for a car which has already traversed a couple of hundred kilomètres. The grade of these hills of the Bourgogne are frequently 11 and 12 per cent., pretty stiff work for an electric vehicle, especially after a long run. And this is what M.M. Garcin and Prade found on Saturday last after arriving at Tonnerre, 200 kilomètres from Paris, with a comfortable lead of 82min. on their schedule time. The next 18 kilomètres took them an hour and a half to cover, the voltage falling from 88 to 84. Even then the hills were far from finished with, for on leaving Ancy-le-Franc excessively steep grades were encountered at Nuits-sur-Ravieres, Fuloy, and finally at Sombernon, where the voyagers were compelled to relinquish their task. Here, exactly 262 kilomètres from Paris and 64 from Dijon, this memorable journey was terminated, and M. Krieger's previous record beaten by no less than 110 kilomètres. The car itself is one weighing 2,300 kilos, the two batteries accounting for 1,260 kilos of the total weight. M. Prade, of *Le Vélo*, who, as above related, accompanied the car throughout the trial, gives the following interesting particulars concerning it. The two batteries consist of forty-four grouped elements, each element weighing 14 kilos, and containing 9 kilos 600 grammes of plate. The batteries' total capacity is 325 ampère-hours, that is to say, 33 ampère-hours per kilo of the vehicle's weight. At the normal speed of 22 kilomètres per hour on the level, the motor takes 36 ampères at 90 volts. This makes 65 watt-hours per kilométrique ton at 22 kilomètres per hour. The car has eleven combinations, five speeds, two reverse speeds, two electric brakes, and possess a system of recuperation, by means of which, during this record run, an average of 40 ampères was made in the descents. The greatest consumption was 100 ampères at the first speed in ascending the hills of Lézuines and Ancy.

Critérium des Moto-cycles.

In spite of all gloomy forebodings the prefectural authorisation has, following the custom of former years, been duly accorded to *Le Vélo* for the three motor-cycle and voiturette races, which are annually contested over the well-known Etampes-Chartres route under the direction of that paper. Certainly the fifty kilomètres of road separating the two towns is singularly free from those little hamlets and agglomerations which occur at such frequent intervals on the majority of French routes, but nevertheless serious fears were entertained that it was the firm intention of the authorities to make a clean sweep of all automobile races irrespective of the route or the conditions under which the contests would be decided. Judge, then, of the surprise and pleasure when it was ascertained that the organisers of the three races, known as *Les trois Critériums du Vélo*, had been successful in their application for the necessary authorisation. I can assure you that the avenue de la Grande Armée presented a more joyous appearance when the good news became known than it has done since the commencement of the month. "Three more races at any rate," was the cry, and *chauffeurs* fairly beamed with satisfaction. The permission accorded to *Le Vélo* emphasises the absolute necessity of reducing speed to a walking pace when passing through the villages and hamlets bordering the route; it lays stress upon the importance of each competing vehicle being distinctly numbered and insists upon the organisers of the races assuring themselves that each competitor holds the required certificate of competency. The three days selected by the promoters were May 10th, 17th, and 31st, so a couple of the events have already been decided. But it is of the first race that I now desire to give you particulars, the course reserved for motor-cycles. This event brought together an entry of twenty-one, of whom fifteen presented themselves at the starting post, the notable absentees being

Teste, last year's winner, and Bardin, who won the race in 1898. Previous to the start, which was timed for one o'clock, the formalities of weighing were duly gone through, and as it may be of interest to know just what these racing machines scale I will quote the weights:—Béconnais, one cylinder, 144 kilos.; Rigal, one cylinder, 134 kilos.; Marcellin, two cylinders, 159 kilos.; Osmont, two motors, 192 kilos.; Tart, one cylinder, 142 kilos.; Baras, two cylinders, 169 kilos.; Vasseur, two motors, 182 kilos.; Romain, one cylinder, 139 kilos.; Renaux, one cylinder, 248 kilos.; Joyeux, one cylinder, 137 kilos.; Delisle, one cylinder, 130 kilos.; Loste, two cylinders, 156 kilos.; Battaiellie, one cylinder, 128 kilos.; Bectin, two motors, 197 kilos.; Didier-Nauts, one cylinder, 124 kilos. It will be at once noted that the machine ridden by Renaux only just comes within the official limit of 250 kilos.; indeed, until he removed his tool bag the cycle was over-weight. I say "cycle," but the machine is a veritable voiture, propelled by one single cylinder horizontal engine, which may be run while the vehicle is at rest, just as in the case of a carriage. In order to avoid any possibility of mishap the fifteen competitors were despatched one by one at minute intervals, and the start was effected without accident, and with the sole incident that Béconnais, who was the first to leave, lost a minute of valuable time at the level crossing of Paray owing to the shunting operations of a goods train. This delay enabled Marcellin to practically come up with the leader, but at Ablis, 28 kilomètres from the start, Béconnais had drawn away again and held a lead of 90sec. At Gué de Longroi the order was, Béconnais, Marcellin, Osmont, Tart and Baras, and with the exception of Baras taking the place of Tart, the same order was maintained at Chartres, which town marked the half distance. The respective times made by the fifteen competitors for the first fifty kilomètres (31½ miles) were as follows:—1, Béconnais, 38min. 24sec.; 2, Baras, 38min. 29sec.; 3, Marcellin, 38min. 42sec.; 4, Osmont, 39min. 26sec.; 5, Tart, 39min. 52sec.; 6, Joyeux, 41min. 4sec.; 7, Delisle, 41min. 22sec.; 8, Didier-Nauts, 42min. 22sec.; 9, Bertin, 43min. 28sec.; 10, Vasseur, 44min. 21sec.; 11, Rigal, 45min. 8sec.; 12, Renaux, 46min. 28sec.; 13, Romain, 52min.; 14, Battaielle, 52min. 27sec.; 15, Loste, 54min. 57sec. Béconnais's time was 16min. 26sec. faster than that of Teste, who last year was leading at Chartres. The turn safely negotiated by the competitors, they set out upon the return journey with all haste, and Marcellin by a spell of exceptionally fast travelling succeeded in passing both Baras and Béconnais. At Ablis he held a two minute lead from the latter, and this advantage he slightly increased during the remaining 28 kilomètres into Etampes. Béconnais finished second, but as he started before Baras the official classification placed him but third. The only competitor who did not complete the course was Osmont, and he had the misfortune to break one of his pistons when lying third, and only 4 kilomètres from the finish. Distinctly bad luck! No fewer than eleven of the *chauffeurs* beat Teste's time in last year's race; the average speed of all fourteen competitors being 60 kilomètres per hour, while that of the actual winner was no less than 71 kilomètres per hour. Thanks to perfect organisation and the fact that the competitors were all highly skilful and experienced riders not a single mishap or unpleasant incident occurred to mar the harmony of the race, a fact which should have some weight with the authorities when dealing with the question of automobile racing. If the number of competitors were limited and the entries of riders known to be perfectly competent only were accepted, the courses would lose much of that element of danger now existent. I grant that such a plan would be difficult to carry into effect and would give rise to unpleasantness on the part of those motor-cyclists who might be excluded from competing on the ground of incompetency, but nevertheless the scheme is perfectly feasible. I append the official classification of the fourth Critérium de Motocycles, and to enable comparison I add the times achieved on former occasions.

CLASSIFICATION.

	H.	MIN.	SEC.
1. Marcellin	1	24	58½
2. Baras	1	25	8½

	H.	MIN.	SEC.
3. Béconnais	1	27	25½
4. Tart	1	28	38½
5. Delisle	1	31	54½
6. Bertin	1	34	5
7. Vasseur	1	35	29
8. Renaux	1	41	22
9. Romain	1	49	22½
10. Rigal	1	50	27½
11. Joyeux	1	51	59½
12. Didier-Nauts	2	5	8½
13. Loste	2	8	57
14. Battaiellie	2	9	41½

PREVIOUS RACES.

	H.	MIN.	SEC.
1897. Viet	3	9	5½
1898. Bardin	2	21	47½
1899. Teste	1	56	32½

THE German Automobile Club has just taken possession of new premises in the Sonner-Strasse, Berlin.

IN connection with the liquidation of the Motor-Carriage Depots, Limited, a meeting is to be held in Edinburgh on the 11th prox. to receive an account of the winding up.

AT Ashbourne Rural Council last week a resolution was carried to the effect "That in the opinion of this Council it is desirable that a tax should be levied on cycles, motor-cars, and motor-cycles."

IN connection with the race meeting of the Surrey Bicycle Club at the Crystal Palace on Saturday last, a five miles motor-tricycle race (professionals) was run off, Mr. F. F. Wellington beating Mr. C. Machin by thirty yards. Time, 8min. 6 2-5sec.

THE Baltimore and Ohio Railroad Company is introducing electric cabs in Washington in connection with its train services. The vehicles, which run to and from the railway station, are adapted for carrying two small trunks at the rear, small travelling luggage being carried on top.

THE Dow Portable Electric Assistant Company, of New York, have lately introduced a very compact battery outfit for petrol motors. The battery measures 8½in. by 8½in. by 5½in., and is intended for motor-carriage use. Another form is designed for automobile tricycles, quadricycles, etc. On the top of the battery a resistance switch is fixed, this being one of the important features of this outfit. The battery will register eight or nine volts and eight to ten ampères, while by means of the resistance attachment this output can be regulated to the desired amount and the energy of the batteries correspondingly economised.

WE have received from Messrs. A. J. Wilson, Limited, a copy of the new motor and carriage tires price list just issued by the Dunlop Company. This is a very comprehensive work, and one which should be in the hands of all motor-vehicle and carriage builders. An interesting feature of the list is a series of illustrations showing the vehicles for which the various tires are suitable. The tires range from those suitable for cars weighing up to 12 cwt. down to motor-cycles, the latter being made with plane or non-slippling outer covers. Particulars are also given of the work turned out by the company's carriage and motor-wheel department.

MESSRS. T. COULTHARD AND Co., LIMITED, has been registered with a capital of £75,000, to adopt and carry into effect an agreement expressed to be made by between T. Coulthard, J. H. Toulmin, and T. Coulthard, jun., of the one part and this company of the other part for the acquisition of the business now and hitherto carried on by them at Preston, Lancashire, to develop and extend the same, and, generally, to carry on in all or any of their respective branches the businesses of spindle and ring makers, motor-vehicle makers, tin and copper smiths, manufacturers of and dealers in all kinds of textile machinery, etc. The first directors (of whom there shall be not less than two nor more than seven) are Messrs. J. Coulthard, J. H. Toulmin, and T. Coulthard, jun. Qualification, £1,000. The registered office is at Cooper Road Works, Preston.

CORRESPONDENCE.

MOTOR-CAR v. EXPRESS TRAIN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am en route to London by motor-car, and on arrival yesterday at Bradford I left it for a few hours to visit friends, and came on here by rail.

I noticed in the official itinerary of the Midland Railway Company a train marked "Express to Sheffield" at 7.10. This train I caught and arrived here at 10.55, thus taking three and three-quarter hours. Had I come by motor-car, notwithstanding that the road from Barnsley to Sheffield is the worst main road in England, I would have accomplished the journey in two and a half hours.

Yours truly,

Wharnccliffe Hotel, Sheffield,
May 10th, 1900.

JAMES GLASS.

A TRIP ON A BENZ DOG-CART.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think that your readers may perhaps be interested in the following brief account of a run which I had last Saturday afternoon on one of the new Benz 9 h.p. double-cylinder dog-carts. I had previously run down to Woburn, in Bedfordshire, on Messrs. Hewetson's van, my journey having for its object the witnessing of the cars engaged in the 1,000-mile Trial on their last day's run from Woburn to St. Albans. Arriving at Woburn about 5 p.m., I found Messrs. Hewetson's secretary, Mr. Campbell, who had journeyed with a friend from London on the dog-cart. After waiting to see the remainder of the cars go through we refreshed the inner man, and eventually left Woburn at 7 p.m. With four passengers up the car ran the first six miles—tell it not to the police—in just 15 min., the fastest mile being covered in 2 min. 20 sec. The engine was running very sweetly and with so little vibration that on some of the down grades one had to look at the levers to make sure the engine was in gear and that the car was not running by its own weight. The luxurious upholstering and perfect balance of the body materially helped the delusion. St. Albans, twenty-two miles, was reached at 8.10 p.m., and having dropped Mr. Campbell and his friend and lighted up, the car, with myself and the driver who had brought us along in such splendid style, continued the journey to London, *via* Barnet and Finchley. Owing to having to proceed cautiously when running in the traffic our average was somewhat lowered for the whole run, but I may say that we ran from St. Albans to Barnet, nine miles, in 26 mins., which is pretty good. We got to Dean Street, Soho, at 9.28 after a most enjoyable trip. I should add that the car ran with absolute smoothness when mounting hills on the second speed, though, of course, no very serious climbing was necessary.

As this letter may seem very eulogistic, I should like to say that I am in no way connected with Messrs. Hewetsons, nor have I any financial interest in that company. When one finds such a good thing as this he ought, in common fairness to his fellow-men, to publish the news when and where he can.

Yours truly,

The Moorings, Sevenoaks, Kent.
May 15, 1900.

W. F. HICKS.

THE BEESTON MOTOR COMPANY.

A MEETING of shareholders of the Beeston Motor Company, Limited, was held at Coventry, on Monday, Dr. C. W. Hiffe presiding. The Chairman, in moving a resolution that the company, by reason of its liabilities, be voluntarily wound up, and appointing Mr. B. S. Dunn, C.A., of 10, Coleman Street, E.C., liquidator, said the directors much regretted the circumstances which had necessitated the present gathering. It was all the more painful, because the company had commenced to be a dividend-earning business, and because large sums of money had been spent in exploiting and perfecting the new industry, which appeared to have a great future. Some time ago the Company was obliged to obtain an overdraft at the bank, and for that to give first mortgage debentures, and at last a receiver was put in. That and the pressure of other creditors led to the present

state of affairs. He held that the directors could not be blamed for neglect of the business, but contended that the evil fortune which had attended the trade was alone responsible.—Mr. Rowland Hill seconded.—Mr. Midwinter (Birmingham) said there was some proposed action by a committee of shareholders formed by Mr. Victor Lawson against the original promoters of the Beeston Company, and he was informed they were to have shares given them of 10s. in the £ in another company to stay their action. He wondered if anything could be done by the shareholders.—Mr. Ward (solicitor, London, representing the debenture holders) said that need not interfere with the winding up, and Colonel Harris (London) said all shareholders should be served alike.—Mr. Hewitt asked what had become of the 3s. in the £ the shareholders were called upon to pay in 1897, and the Chairman replied that the money went into the business for working purposes.

The motion was carried, and a committee, consisting of Colonel Cox, Mr. Midwinter, and Mr. Fieldhouse (Birmingham), appointed to see if anything could be obtained from Mr. Harry J. Lawson for shareholders not represented on Mr. Victor Lawson's committee.

RENAULT v. THE MOTOR-CAR COMPANY.

IN the Chancery Division on the 11th inst. Mr. Justice Kekewich assented to a motion in this action, which asks for an injunction to restrain the defendant company from alleged passing off of motor-cars as of the plaintiff's manufacture standing over, his Lordship remarking that probably this was one of those cases which, if prosecuted, would have to be set down for hearing in the general list.

MR. H. H. BARING, of High Beech, has, we understand, lately purchased a 12 h.p. Panhard car.

"W. Q. M." asks for the name of the maker of an oil motor suitable for propelling a plough which would require three horses in the usual way.

THE London Autocar Company, Limited, of Grays Inn Road, W.C., are, we understand, arranging to carry a stock of De Dion 3 h.p. water-cooled motors, and all the necessary parts required for building voitures of the De Dion type.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

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COMMENTS.



NO patriotic procession is complete without its motor-car, and the behaviour of such vehicles in face of crowds should suggest their general adoption in place of horses on such occasions in the future. On Mafeking day the Queen and Royal Family witnessed a torchlight demonstration at Windsor. The procession was preceded by Mr. Alfred Barber, the Mayor, and Dr. Bruce-Porter in the latter's Daimler car, and having paraded the town, passed into the quadrangle of the Castle. The Mayor and Dr. Bruce-Porter entered the precincts of the Castle in the motor-car, this being the first appearance there of such a vehicle. Certainly no former Mayor of the Royal Borough has appeared before the Queen mounted on a motor-car. The rear of the procession was brought up by Mr. V. Mathias on a Benz car, with trailer attached. The cars proved popular with the people, and these two vehicles have thus had Royal distinction. Doubtless the interest of the Sovereign in the event was increased by the fact that the Prince of Wales may soon appear at Windsor in like manner, for we understand his motor-phaeton is now in the hands of the carriage builders and will soon be ready for delivery.

Patriotic Processions.

OF patriotic processions in London suburbs there have been almost a score this week, and on Wednesday night—north, south, east, and west—motor-vehicles attracted considerable attention. At Peckham the long procession was led by Mr. Tuite on his Heinle and Wegelin motor-tricycle, fitted with a trailer. Upon this an ambulance and a cannon had been ingeniously fitted, and the novel combination was enthusiastically received by the populace. At East Ham the motor-car of Mr. Louis Sinclair, M.P., was said to be in the procession; at Finchley, on Thursday, five or six motor-cars and three or four motor-tricycles were prominent features of the demonstration; and at Battersea a Daimler car represented the latest method of locomotion.

Preparing the Report on the Trial.

WE take the following items regarding the 1,000-mile Trial from the current issue of the "Automobile Club Notes":—The following judges—Professor Hudson Beare, Mr. W. Worby Beaumont, Professor Capper, Mr. Bryan Donkin, Professor Hele-Shaw, Major Holden, Professor Redwood, Sir David Salomons, Professor Unwin, and Mr. A. F. Yarrow, visited the Crystal Palace, many of them on more than one occasion, last week, and made a detailed examination of the Trial vehicles. The records of each vehicle are now being correctly checked, with the view to their submission to the judges. No time will be lost in the preparation of the necessary particulars to enable the judges to arrive at decisions as to awards; but seeing the large number of records taken

in connection with the performances of each vehicle the labour of preparing these particulars is heavy, and must occupy considerable time. A protest has been lodged against Mr. Kennard's 8-horse "Napier" being included in the private owners' section, on the ground that it was driven by its manufacturer. A protest has also been lodged against the Motor Manufacturing Company's tricycle (No. 12), on the ground that the tricycle which finished the Trial is not the machine which started on the Trial. Both these matters will be placed before the club committee.

A Belated Report.

FOR some weeks to come we may expect to have reports of incidents connected with the recent Trial. Here is one that has only just come to our notice: An accident occurred at Buxton, in which Mr. R. H. Wood, a local journalist, was riding an aluminium road racer along West Street, when two dogs, a collie and a retriever, which were fighting in the road, ran into the cycle, causing it to swerve, and a second later a motor-car smashed into it. The rider of the bicycle was thrown into the road and was badly bruised on the right hip, shoulder and arm, and his right hand injured, but he managed to roll out of the way of the car. The cycle, however, was jerked round and run over by the vehicle, which weighed nearly a ton. For fifteen minutes it was jammed under the car, and great difficulty was experienced in pulling it out. Everybody expected it would be a complete wreck, but, on the contrary, it came out of the ordeal better than was expected.

The Police.

WHATEVER may be the past and future attitude of the police towards automobilism, the various county and borough forces all along the route of the recent 1,000-mile Trial, with two exceptions, spared no pains whatever to ensure the success of the undertaking. They posted themselves at the tops of steep hills and at difficult bends; they restrained the eagerness of the village and urban populations; in fact, they assisted to the utmost of their ability in every possible manner.

Early Rising.

THE necessity of rising at the early hour of five a.m., except on exhibition days and Sundays, during the three weeks of the Trial, was quite a new experience for many of those who took part in the long pilgrimage. Yet so great was the enthusiasm shown that all were astir betimes. Even on the off days early rising was the order of the day, for the cars had to be got out and cleaned before eight a.m., ready for the exhibitions. On running days the custom was for the "boots" to call the motorists at 5.30 a.m., breakfast to be taken a quarter of an hour later, and the hall where the cars were stabled to be reached at 6.30. In most instances the halls were well away from anywhere, and cabs had frequently to be chartered. At Manchester two tram-cars were engaged, the fare charged being 2s. per head.

The Only Accident.

THE run on the last day but one of the Trial was marred by the only accident to a human being which occurred throughout the tour, and even in that case the fault was not that of the automobilists. Not far from Worksop the Ariel tricycle and trailer was overtaking a big wagon, which, though empty, had a team of three horses. About fifty yards away Mr. Cheel, who drove the tricycle, sounded his horn, and immediately the horses ran away with the wagon, and pulled the wagoner down. He fell under the wheels, and Mr. Cheel immediately rode off for a doctor, and fetched him to the spot on the trailer, the passenger having meanwhile administered brandy to the wagoner. The doctor found on examination that no bones were broken, but ordered the injured man's removal to a hospital.

The Star Car.

A GOOD car in the voiturette class whose performance is well worthy of attention is No. 51, entered by the Star Motor Company, of Wolverhampton. On the level the vehicle attained a very good speed, while its performances on the hill-climbing contests came as a surprise to many. In the Taddington Hill climb a speed of 9.15 miles per hour was accredited to the car, while the steep Birkhill, in Scotland, was mounted at 8 miles per hour. The 1,000-mile run was only marred by the breaking of the front axle on the journey from Manchester to Kendal; but Mr. Lisle, not to be dismayed, immediately wired to Wolverhampton for a new axle, and by a smart piece of work the car was ready to start on the journey to Carlisle the following morning. The run to London on the final day was made in good style, the car reaching St. Albans in ample time to join in the procession to town.

The Education of the Engineer.

WHILE the recent Trial was useful in accustoming horses to the sight of the automobile and in educating the public to a proper appreciation of its value, it will also prove of great service to those in the trade. The experiences gained as to the behaviour of vehicles, and the convenience or otherwise of detail arrangements, will prove of great value to all concerned with the design and construction of cars; and not a few improvements may be introduced as the result of the Trial.

Mr. Balfour and Motor-Cars.

MR. A. J. BALFOUR has disclaimed all knowledge of current newspapers, or we should have supposed, by his speech on the workmen's housing question in the House of Commons the other night, that he was a student of this *Journal*. For in our issue of January 5th we published an article, "A Quarter of a Century Hence," which might have furnished the text of the speech of the Leader of the House, who suggested that in the future motor-vehicles, which could take men direct from their homes to their work, would play a large part in solving the problem of the congestion in large towns. A quotation from our article, which was supposed to have been written in 1925, in view of Mr. Balfour's endorsement of the idea, is timely at the present moment:—"Recognising the utility of the automobile as an adjunct to their lines the railway companies have now a splendid service of automobiles to bring daily passengers to the stations. More than that, with the aid of local authorities, those who live in particular districts are being brought to the City by motor-vehicles, hundreds of which are employed, each having its score or so of people living in one district, say, Wimbledon, to their various offices on Cornhill or elsewhere."

Cycle Racing at the Crystal Palace.

MR. F. W. BAILY sends us particulars of the arrangements that have been made for racing at the Crystal Palace track on Whit Monday. The programme will, as usual, consist of two different meetings, the first being the motor meeting, at which the principal item will be another contest for the

Brassard Cup, wherein, it is hoped, the following riders will participate:—S. F. Edge, C. Jarrott, R. Moffat Ford, F. F. Wellington, and C. Machin. Besides these, it is almost certain that the French rider, Rigal, will come over specially to ride in this race, and it may be mentioned that he talks of bringing over with him a machine equal to sixty miles in the hour. This should certainly prove to be the most exciting contest that has taken place for the Brassard, and shows that the fame of the contests for this cup has spread to the Continent. The other motor events will be a ten-mile race for path machines, and a five-mile race for roadster machines (both handicaps), and attempts at the one and two mile records. The second meeting will consist of cycle races in connection with the Century Cup contest.

Motor-Car Service in the Malay Peninsula.

WE have in previous issues referred to the scope for the establishment of automobile services in India and other parts of the Far East, and are consequently glad to learn that steps are being taken to inaugurate such a service in the Malay Peninsula. For this purpose the Malay Transport Syndicate, Limited, has just been formed, Mr. H. C. E. Zacharias, who has, we understand, severed his connection with the Automobile Association, being the general manager and one of the directors of the new concern. The roads in the Peninsula are on the whole good, while the distances are short, averaging about twenty miles from one centre to another, so that it is considered there is every expectation of the attempt to substitute motor-vehicles for the clumsy bullock carts at present in use proving a success in every way. A large number of lines could, it is stated, be profitably worked, but it is considered advisable to commence with one or two lines only, a service from Seremban to Kwala Pilah (23 miles), and one from Seremban to Kwala Klawang (18 miles). The question of transport between Seremban to Kwala Pilah has become so important of late that a light railway has been proposed, whilst Kwala Klawang is an important centre for tin mining. It is intended to start the services with three Thornycroft steam cars adapted for the transport of both passengers and goods. In addition to operating the above-named services the syndicate has obtained, through Mr. Zacharias, the agency in the Malay Peninsula, Archipelago, and Siam for the steam vehicles of the Thornycroft Steam Wagon Company, Limited, and in Siam, Annam, the Malay Peninsula, and Archipelago for the heavy oil cars of Messrs. Roots and Venables. Although the heavy vehicles which have been ordered will not be ready for about nine months, Mr. Zacharias is, we understand, shortly proceeding to Malay, taking with him two or three light vehicles.

Nervous Drivers of Horses.

AT the Pershore Petty Sessions, a case against the driver of a motor-car has been dismissed, and from the report which we publish on another page, it would appear that the complaining driver of a horse was more nervous than the animal itself. This is frequently the case. The idea that a horse will not face a motor-car gets into the head of a driver, and he dodges about in such a way that the animal gets restive and irritable—to the danger of all in his neighbourhood. We do not suggest that such happened in the Pershore case—in fact, no harm came to anyone—but drivers could often have more confidence in their horses to the advantage of horse and driver.

The Liverpool Self-Propelled Traffic Association's Run.

AS briefly mentioned in our last issue the Liverpool Self-propelled Traffic Association is organising an automobile meet and sixty miles run for Saturday the 9th prox. Mr. E. Shrapnell Smith, the hon. secretary of the association, has now sent us a programme of the outing, from which we learn that the run is to Knutsford *via* Chester and Delamere and back *via* Warrington. A start is to be made at Woodside, across the River Mersey, at 12.10 p.m., lunch to be taken at 1.30 p.m. at the Grosvenor Hotel, Chester. The journey to Knutsford will be resumed at 2.45 p.m., and at this interesting Cheshire resort

a halt for tea will be made. Leaving Knutsford at 5.15 p.m., Liverpool is expected to be reached at 7.30 p.m. In addition to the members' private cars which are expected to take part in the run, a limited number of automobiles will be provided for the convenience of members who do not as yet possess their own. Expert drivers will be in charge of these hired cars. The run will be open to ladies, and it is hoped that members will introduce friends who have private cars.

The Storage of Petroleum Spirit.

ON another page of the present issue we reproduce certain regulations, dated April 26th, 1900, made by the Secretary of State under section 5 of the Locomotives on Highways Act, 1896, as to the keeping and use of petroleum for the purposes of light locomotives, which have just been issued. In promulgating the regulations the Secretary of State for the Home Department desires to direct public attention to the dangers that may arise from the careless use of the more volatile descriptions of petroleum, commonly known as petroleum spirit. Not only is the vapour therefrom, which is given off at ordinary temperatures, capable of being easily ignited, but it is also capable, when mixed with air, of forming an explosive atmosphere. It is, therefore, necessary, in dealing with and handling the spirit, to take strict precautions by the employment of thoroughly sound and properly closed vessels and by avoiding the use of naked lights in dangerous proximity, to prevent leakage of the spirit and the contact of any form of artificial light with the highly inflammable vapour which it is always evolving. The regulations came into operation on the 15th inst., from which date the regulations dated November 3rd, 1896, were repealed.

The Gordon-Bennett Cup Race.

WILL the Gordon-Bennett Cup Race be decided this year in France after all? That is the all-absorbing question of the day, and the general opinion now appears to incline towards an affirmative answer to the question. Whatever may be the ultimate fate of the other road races it is thought in automobile circles that permission will be accorded for the holding of the international contest, and certain it is that the three defenders of the cup are already omitting no precautions to assure that their mounts will be in perfect condition for the *course*. No official news is so far forthcoming, but the impression exists among "A.C.F." members that the obstacles in the way of deciding the international race have been successfully overcome, and that the event will be decided on French soil. I believe, too, writes our Paris correspondent, that the Italian automobilists at Brescia have been in communication with the "A.C.F." as to the practicability of deciding the race in Italy if necessary, and suggesting as itinerary the route—Brescia, Padenà, Parma, Boulogne, Ferrare, Rovigo, Padoue, Vicenza, and Vécone. This route, however, only measures 414 kilomètres, and as cup rules stipulate for a distance of at least 550 kilomètres, a modification of the governing laws would be required before this itinerary could be accepted. As for the roads themselves, report states them to be excellent; whereas the routes between Turin and Milan, where a longer itinerary might be found, are too bad to permit of automobile

racing. However, it is to be hoped that the necessity will not arise for the race to be decided so far afield, and that the first contest for the Gordon-Bennett cup will be competed for in sunny France.

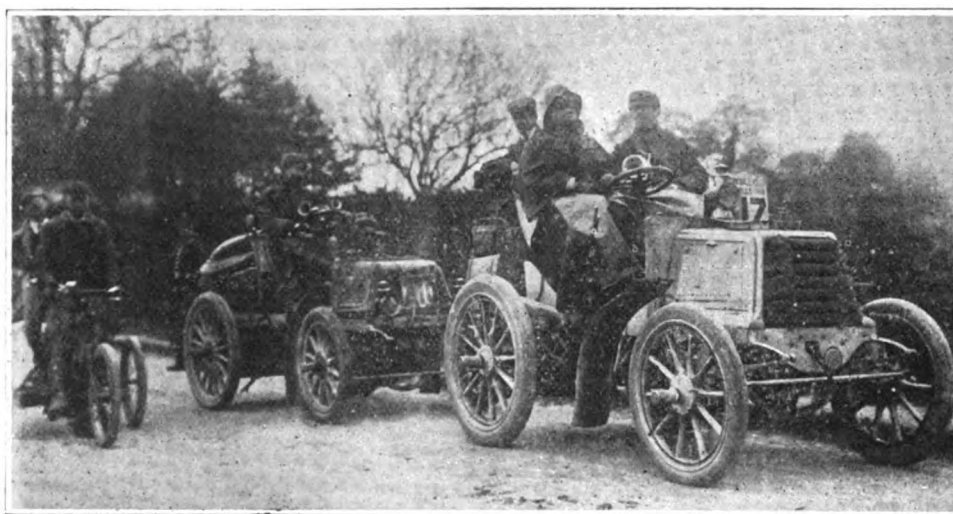
Newspapers Wanted.

AUTOMOBILISTS can serve the general interests of the new movement in two ways. Firstly by replying in the local papers to all criticisms on motor-cars and, secondly, by forwarding to our office copies of such journals containing depreciatory remarks on automobiles. A collection of the curious things that have been said against motor-cars would be interesting, instructive, and amusing.

Trouble at Bournemouth.

A PRETTY little quarrel is now going on at Bournemouth in which the Town Council is showing how it seeks to harass the inevitable. The Horse Committee of the Bournemouth Council has made a regulation that all motor-buses plying for hire between Pokesdown and Bournemouth must proceed to the County Gates under penalty of the revocation of the licence.

Writing to the chairman of the committee on the subject, Mr. F. J. Bell says, "The motor omnibuses between Pokesdown and Bournemouth most certainly do meet a public want. This is evidenced by the number of inhabitants who travel between these points. The motor omnibuses between the Square and County Gates do not meet a public want, as can be clearly seen by the practically entire absence of passengers. I am led to suppose the reason I am compelled to go to County Gates is



THE 1,000-MILE TRIAL. The three first arrivals at St. Albans—The Hon. C. S. Rolls's Panhard, Mr. Kennard's Napier, and the Ariel Tricycle with Whippet Trailer. (Mr. E. Kennard.)

caused by the action of the three Omnibus Companies, and I consider the Council should not be influenced by the threatened action of trade competitors." In the course of further correspondence Mr. Bell points out that he is prepared to run a number of motor-buses the additional distance to meet the actual needs of the case, but he protests against having to run all his buses a further distance when the traffic does not demand it. We learn that he is running his motor-cars between Pokesdown and the Square only, and we hope the Bournemouth Council will withdraw from the unreasonable attitude it has assumed.

The Lincoln Motor-Car Service.

THOSE who participated in the 1,000-mile Trial were pleasantly surprised to find so many motor-vehicles plying for hire in Lincoln. Certainly local enterprise is doing much for the automobile industry in the city, and the Lincoln Motor Bus Company is running cars from the Arboretum Gates to Carholme, from 8 a.m. to 10 p.m. In addition to this regular service the company is prepared to let cars on hire to private parties by the hour, half or whole day, and is also arranging organised trips to the Dukeries at fares including dinner, tea, etc. In this latter department there should be a good business, and motor-car proprietors elsewhere should try similar experiments in their own localities.

Some Trade Changes.

RUMOURS have been current in automobile circles for some weeks past that Mr. J. S. Critchley was severing his connection with the Daimler Motor Company. The rumour has proved to be correct, for this week official notification of the same has reached us, with the additional information that Mr. Critchley has taken up an appointment with the British Electric Traction Company, Limited, of Donington House, Norfolk Street, W.C. Another item of news which has come to hand this week is that Mr. Charles Jarrott, who lately resigned his position as the secretary of the British Motor Company, Limited, has been appointed manager of the De Dion-Bouton British and Colonial Syndicate, Limited, of 14, Regent Street, London, S.W. We wish both gentlemen every success in their new spheres.

A Motor-Car on Fire.

WITH such a headline have the papers in the Eastern Counties chronicled an incident which occurred in Norwich last week. It appears that one afternoon a motor-car engaged in conveying passengers between the Market Place and Thorpe arrived at Howlett's Corner, Norwich, and when the car stopped the driver observed smoke issuing from the driving apparatus. The smoke soon turned to flames, and had it not been for the quick application of water serious damage must have been done to the car. The outbreak was due to the overheating of the cylinder. And then, says our contemporary, the car, which was not seriously damaged, was led away. With such a small affair why give a somewhat sensational heading?

Another New Burns Car.

THE other day we had an opportunity of inspecting another new car which has lately been completed by Mr. J. Burns, of Berners Street, Oxford Street, London, W. The vehicle, which has seating accommodation for two persons, is propelled by a two-cylinder horizontal petroleum-spirit motor located in the front part of the frame. The ignition is electrical, while the cylinders are water-jacketed. There are several special features in the water circulation, which is maintained without the use of a pump. In fact, there is no water tank, a large cooling coil being employed instead, the coil consisting of no less than 55 ft. of Clarkson-Capel's 2 in. radiating tube. Two speeds forward—twelve and thirty miles per hour—are provided, as also a reverse motion, the latter being controlled by a foot pedal. The motor-shaft carries a pulley at each end, these being connected by belts to fast and loose pulleys on a countershaft at the rear, a single chain conveying the power to the back axle. Three brakes are available—one on the countershaft and one each on the hubs of the rear wheels. Wheel steering is provided; the car complete weighing about 12½ cwt. As to the hill-climbing capabilities of the car Mr. Burns tells us that it has been driven up Netherall Gardens, Finchley, where the gradient is one in eight, at a speed of eight miles per hour, with three persons aboard.

A Trade Directory.

THE new edition of Kelly's Merchants, Manufacturers, and Shippers Directory is rightly termed a guide to the export and import shipping and manufacturing industries of the world. We notice that the different customs tariffs are now arranged in one section instead of the geographical distributions adopted in previous additions. In the section relating to motor-car and carriage manufacturers there are entries relating to thirty firms in London, fifty-three in the provinces, and thirty-three in Paris, while directories for motor-car builders in Chicago, Genoa, Lille, Philadelphia, Stettin, Toronto, Vienna, etc., are also given. The director also gives lists of motor manufacturers in Eilenburg, Eric, Hamburg, Milan, Ober-Ursel, Orleans, San Francisco, etc.

Motor-Cars in Lakeland.

UNDER the title of the "Old and New" Sir Edwin Arnold chats pleasantly in the *Daily Telegraph* about the visit of the motor-cars to Westmoreland. The hills and valleys—"sanctuaries of ancient peace"—of the county were invaded, he says, by the new times. "The motor-cars came, sixty or seventy strong, through our valley, startling the ravens on Helm Crag, sending the black-legged ewes scudding with their lambs over Rydal Crag and Grey Fell, astonishing the simple shepherds of Seat Sandal, and drawing forth all the scanty population of these Westmoreland fells and dales, as if the blasts of their cars had been from so many magic horns from Fairyland. As they sped away through Grasmere and up the long slope of Dunmail Raise in a long and clamorous procession of electric, petrolic, and steamy fervours of speed, I felt a little bit glad my venerable and illustrious old friend, Mr. Ruskin, was sleeping too soundly at Conistone, beyond his astounded hills, to hear those novel echoes. The motor-cars vanished over the pass on their way to Carlisle and Scotland, and set me thinking of the other changes which had come over this lovely and placid valley, in which lie embedded a silver chain of lakes from Windermere to Thirlmere."

What "Madame" Says.

Madame may be an authority on ladies' attire and know a good deal about things feminine, but ere she ventures into matters automobilistic should have a lesson or two in accuracy. In the issue for May 19th appeared some photographs purporting to illustrate some of the vehicles engaged in the 1,000-mile Trial. One was the "Racing Vallee Motor-Car"; another "a Bollee voiturette and trailer," and a third "a Mors 8 h.p. dog cart." These, in addition to a Peugeot car carrying three ladies gazing at the camera instead of looking after themselves, and a "De La Haye" were included by our contemporary with photos of Mr. Rolls and some of the cars at Hounslow. If the photographs were misleading, what of the letterpress? "At the time of writing," remarked *Madame*, on May 19th, "the best car in the trial is undoubtedly the Panhard and Levassor. A car that will appeal to ladies is the 'Petit Duc' Mors motor-car. Mrs. Friswell drove this car part of the time. . . . The 8 horse-power Mors dog-cart, driven by Messrs. Bowen, acquitted itself very well in the trial. . . . The Delahaye car was running very well at the time of writing. A car that ladies will not like is the Racing Vallée. It certainly acted up to its reputation during the trial. Then there is a Bollée voiturette and trailer"—and more mistakes on the part of our contemporary which we will not republish.

Accuracy Wanted.

Now why does *Madame* imagine such things? Motoring has enough to encounter from enemies; it does not want intending friends to indulge in such muddles on its behalf, and we would suggest that before next seeking to interest automobilists in its columns it should obtain the services of someone who knows what he or she is writing about; or there is just a fear that its function will be limited to amusing motorists. There is a great deal of ignorance with regard to automobilism in connection with the Press, and the sooner accuracy is regarded as the first essential in such matters the better.

AMONG recent purchasers of Daimler cars are Mr. Alfred Ledger and Mr. John Dottridge, both of Blackheath.

APPLICATION has been made to the Park Commissioners for an exclusive twenty-five year franchise to operate motor-carriages and omnibuses in Golden Gate Park, San Francisco, United States, and connecting boulevards, at a stipulated rate of fares. The applicant is willing to assume all responsibility for accident, and in return for the concession agrees to pay 3 per cent. of the gross receipts for the first five years, 4 per cent. for the next ten years, and 5 per cent. during the remainder of the period of the franchise.

THE JOEL ELECTRIC CARRIAGE.

DURING the last seven years very great progress has been made with the practical application of electricity for carriage propulsion, and many difficulties have been met and overcome, as was the case with electric lighting in its early days. Electric lighting is now a success, and electric traction is making equal progress, as is proved by the many electric tramways and railways in use in different countries, and by the many types of electric carriages that can be seen in the streets. The principal improvements have been made in (1) the electric motors, which are now very efficient and reliable; (2) in the storage batteries, now made portable, of light weight, and capable of standing rough usage and hard wear and tear; and (3) carriages made with underframes for holding the motors, and specially built for motor propulsion, and also simplifying the controller

very simple, and there are good brakes, while should, from any unforeseen cause, one set of the batteries or one of the electric motors become damaged, the other set of batteries and the other motor can be used to drive the carriage.

This system allows, it is claimed, a much lighter construction and more elegant form of carriage to be used than has hitherto been available. The carriage runs easily without vibration or noise, at quick speeds. The electric motors are the invention of Mr. Henry F. Joel, A.M.I.C.E., and are each of 2 b.h.p. nominal. They work with 40 volts, run at 600 to 700 revolutions per minute, and weigh only 112 lb. Each will give 3 b.h.p., so that there is an available 6 b.h.p. to drive the carriage. The electric motors have been specially designed and constructed for carriage work, and are the result of many years of experience in making dynamos and motors. The armatures revolve outside the field magnets instead of inside as usual, and they act as fly-wheels to keep



FIG. 1.—GENERAL VIEW OF THE JOEL ELECTRIC CARRIAGE.

and connections—all to enable a man of ordinary intelligence to take charge and drive the carriage.

Our illustration (Fig. 1) shows one of the latest forms of electric carriage, constructed on the system and patents owned by the National Motor Carriage Syndicate, of 37, Walbrook, London, E.C. There are two small electric motors driving the two back wheels of the carriage by ordinary link bicycle chains acting directly from a small sprocket pinion on the motor axle to a larger sprocket wheel fixed to the spokes of the carriage wheel, these chains being adjustable as in a bicycle. The motors are fixed on an independent and "springy" underframe, and as each drive separately there is no necessity for balance gear. Two sets of batteries drive these motors; they are placed out of sight half under the front seat and half under the back seat, thus distributing their weight. The steering and electric controlling are

the motion of the carriage steady. The field magnets of these electric motors have twelve poles in opposite pairs, N.S. N.S., arranged to interspace equally round a circle in the plane of their outer diameter, and are turned true to fit close inside and under the armature core. A central wire magnet coil is enclosed by the iron of the field magnets on three sides, and thus the utmost effect of the current in the wire coils is utilised.

The winding of the armature is exceedingly simple. Short pieces of square insulated copper wire, all of exactly equal length and resistance, are passed through holes in the iron core of the armature; they are then bent obliquely and connected by the shortest possible path one to the other at the side of the armature, to form a zigzag winding, crossing the armature as many times in one complete coil as there are poles on the field magnets, and when completed they form symmetrical flanges round the

sides of the armature, with a minimum of non-active wire, an equal resistance in each coil, and little or no windage when revolving. The short pieces of wire can be easily taken out and replaced.

The advantages claimed for this armature are:—A maximum proportion of the winding is effective in induction and a minimum

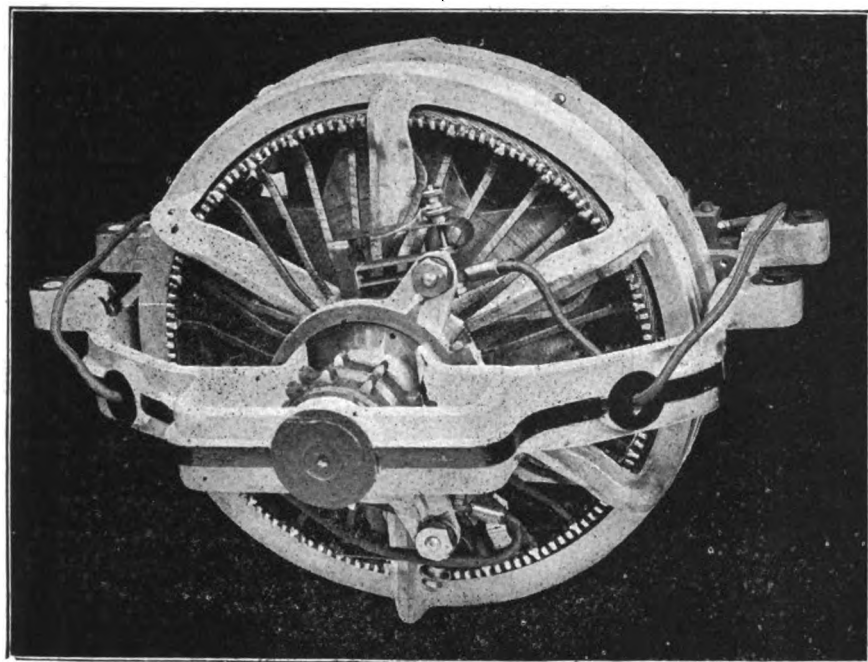


FIG. 2.—THE JOEL ELECTRIC MOTOR.

absorbed in ineffective connections. This enables the motor to be of comparatively light weight and high efficiency owing to the small waste in connections between the operative parts of the winding. The armature, which in other electric motors is usually the most delicate part, is in this motor very strong, simple in construction, proof against accidents, and will bear overloading 100 per cent.—this last being a most important feature. The illustration (Fig. 2) shows one of these electric motors with the armature outside and the field magnets inside. The axle carrying both the armature and field magnet is fixed at the front and back in a peculiar shaped cradle frame; the armature revolves on one long bearing, and the magnets are fixed to this axle.

The whole construction of the motor is unique, and has, the makers state, proved to be particularly well adapted for use on vehicles. The motors are completely encased when in use, and run either way, backwards or forwards, without sparking or giving the slightest trouble. The following short table gives the result of a test of a 2-h.p. nominal Joel motor, showing efficiencies at different powers—Speed, 650 to 700 revolutions; current, 40 volts; weight, 112 lb.:

1	b.h.p., efficiency 70 per cent.	...	$\frac{1}{2}$ power.
$1\frac{1}{2}$	" " 77 "		
2	" " 85 "	...	Nominal and average power used in carriage.
$2\frac{1}{2}$	" " 87 "		
3	" " 89½ to 90 per cent.		

The two motors are carried by a special independent underframe, as shown in Figs. 3 and 4. This underframe is made of steel tubes, *T T*, to form a rectangular frame fixed by half elliptic carriage springs, *S S*, to the front and back axles, *X X*, of the carriage wheels, *W W*, thus forming a "perch pole" and giving a direct drive to the carriage wheels. The front spring of this frame is arranged horizontally, and fixed at the centre to the front axle; the back spring is vertical, and fixed to the centre of the back axle. Complete freedom of movement is thus obtained without strain to the underframe.

The motors, *M M*, are easily fixed to the underframe by the lugs on the side of the cradle frame. The chain gear, *C C*, connecting the two motors to the wheels, as shown, are put in line

and adjusted for length by long-threaded screw pins, *P P*, and double nuts fixing the underframe to the vertical back spring. This underframe gives great facility for adapting electric propulsion, and can be fixed to any carriage. It is claimed to be resilient and to prevent any shock or jar when starting or stopping, and being independent of the carriage body any vibration at the motors is not communicated to the carriage. It also safeguards the motors from concussion when the carriage is passing over rough ground. When the electric current is put on the whole frame with the motors is at first lifted up a little against the back spring, and as the carriage moves off the whole frame returns to its normal position; thus the first rush of current is partly avoided, as the armatures start at once, and, in addition, the weight of the motors in returning to their normal position assists the carriage to move off quietly and without jar.

The batteries, "Rosenthal" type, are made up in portable sets of ten cells in a tray, or forty cells in all. They weigh 22 lb. each cell complete, and the total weight with trays is about 8½ cwt. They give 20 amperes discharge for seven hours, and will stand a discharge of 40 amperes without harm. The plates are of the pasted type, with special provision for expansion. They are enclosed in perforated cases, and are clamped together by rubber bands. These cells after six years of experience in practical use have been found to be very efficient and durable under the rough usage they have to stand in motor-carriages, and they are said not to deteriorate or sulphate when out of use. The working efficiency output of these cells is high, being 12 watt hours per lb. of complete cell, and 16 watt-hours per lb. of electrodes.

The illustration (Fig. 5) shows a set of nine cells of this type of battery, in a tray complete, ready for use. These trays measure 13½ in. wide, 23 in. long, and 11 in. high, and being portable are easily put in or taken out of the carriage. Simple rubber nozzles are attached to each cell and act as valves.

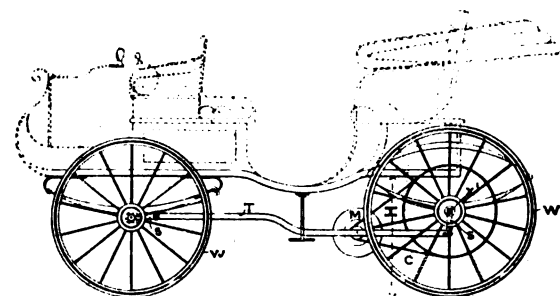


FIG. 3.—ELEVATION OF JOEL ELECTRIC CAR.

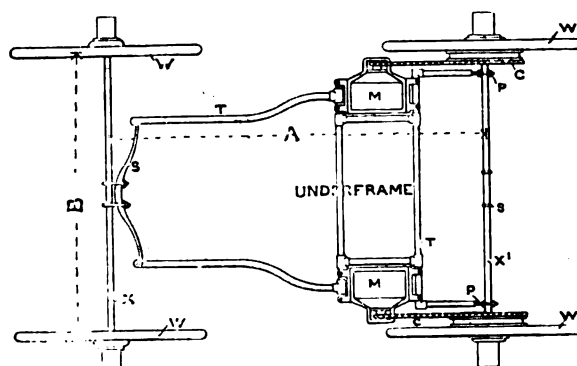


FIG. 4.—PLAN OF JOEL UNDERFRAME.

An electric commutating controller of very simple construction, the result of many experiments and trials in actual use, gives the carriage five speeds forward, viz.:—3, 6, 8, 10, and 12 miles per hour, and one speed of 3 miles per hour backwards. The handle of this controller is arranged to be moved forward for going "forward," and *vice versa*. The controller is also

arranged to couple up the four trays of the batteries in series for charging at 100 volts without loss. The variation in speed is obtained by: 1st. Batteries in parallel, motor armatures in series, 3 miles. 2nd. Batteries in parallel, motor armatures in parallel, 6 miles at full power for hill climbing. 3rd. Batteries in parallel, motor armatures in parallel varying power of fields, 8, 10, and 12 miles per hour.

The field magnet coils are separately excited, and can be altered at will. This has the advantage that the motors can be used as brakes, and the normal speed of the carriage of 12 miles per hour can be increased if desired to 20 miles per hour.

The carriage will run for 50 miles with one charge on good roads. The weight of the carriage, fitted with motors, batteries, etc., is about 17 cwt. We understand that the syndicate are also making special light carriages, "voiturettes," to carry two people for fifty to eighty miles, weighing only 11 to 12 cwt. Mechanical band brakes are fitted for use in addition to the electrical brakes.

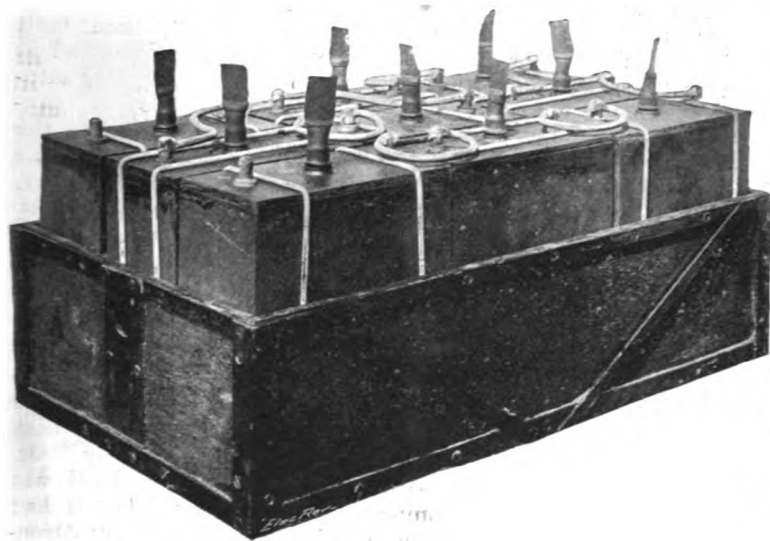


FIG. 5.

The carriage shown in Fig. 1 has been run some hundreds of miles through different parts of this country and on the Continent. One test was a run from London to Potter's Bar, up Highgate Hill, Finchley Hill, and Barnet Hill; another test was from Dover Harbour to the heights above Dover. The wheels in this carriage are 3ft. diameter, with solid rubber tires. The wheel track is 4ft. 6in. with 5ft. 6in. base, and the gear used is a Renold chain with gearing of 8 to 1. The current required for hard level roads with three passengers is 30 ampères, or 15 ampères for each battery at 40 volts, giving a full 1½-h.p. to the carriage at the speed of twelve miles an hour. When ascending inclines of 1 in 30 the current rises to 40 ampères, or 20 ampères each battery, and on inclines of 1 in 20 to 60 ampères, or 30 ampères each battery. In the voiturette made by the syndicate the wheels are 2ft. 9in. diameter back, and 2ft. 6in. diameter front: front track 3ft., back track 4ft. 6in., base 4ft. 6in. The voiturette is fitted with two 1-h.p. nominal motors, and a battery of thirty-two cells, weighing 7 cwt., coupled as in the carriage described in the foregoing. The wheels, however, have "Grappler" pneumatic tires, with roller bearings, and the whole carriage is exceedingly light and easy going. There is comfortable room for two, with a front seat. In this carriage the electric current required for propulsion is much less in proportion for the same weight than the carriage illustrated, 10 ampères only for each battery on hard level roads, and being a lighter carriage it will travel twice the distance, and go much faster for the amount of electric energy required for the heavier type of carriage. The carriages, motors, batteries, etc., are made for the syndicate by Messrs. Henry F. Joel and Co., 31, Wilson Street, Finsbury Square, London, E.C.

THE Moto-Club Anversoïis has just been formed at Antwerp with M. Dupont as first president.

MAFEKING DAY AT THE CRYSTAL PALACE.



ON Saturday last the dispersal of the cars taking part in the great 1,000-mile Trial of the Automobile Club took place at the Crystal Palace, where they had been on exhibition throughout the week. It was certainly a happy notion to bring the proceedings in connection with the Trial to a conclusion at the national playground at Sydenham, and throughout the days succeeding the arrival in London the cars were subjected to the examination of the expert and the curiosity of the curious. Thus they helped to further public interest in automobilism, and amongst the visitors were many from the provinces who had seen the cars while *en route*.

In the morning of Saturday the vehicles were weighed in the vicinity of the Palace by desire of the judges, being pushed out of the building before their burners were lit or petrol tanks filled—a prohibition insisted on by the authorities; and some amusement was frequently caused among the onlookers at the spectacle of enthusiastic motorists thus sending their cars into the North Gardens, where they were got ready for going of their own accord into the other parts of the grounds, where, on Saturday, they demonstrated their capacity for speed and their responsiveness to control.

In the afternoon an automobile fête was held and great was the gathering of club members and their friends, whose practical sympathy for Lady Georgiana Curzon's Mafeking Relief Fund was quickened by the news that had sent all London delirious with joy. During the earlier part of the afternoon seats on the vehicles were obtainable for one shilling; and later tickets were freely sold at half-a-crown, the most prominent cars in the recent Trial naturally attracting many passengers and securing large accessions to the Fund. While an animated scene was thus in progress around the bandstand on the Terrace—where Mr. C. Johnson had arranged a temporary box office—the scene within the Palace was more demonstrative, and groups of visitors, not content with the parading of flags, the blowing of whistles and the rattling of even noisier instruments, were so far favourable to automobilism as to utilise the hooters of some of the few cars then remaining in the building, for giving vent to their feelings. The sounds were certainly striking, if the combination was somewhat unmusical.

Among the vehicles which were driven along the terrace and into a portion of the grounds for the benefit of the Fund were the Hon. C. S. Rolls' 12 h.p. Panhard, the Hon. J. Scott Montagu's 12-h.p. Daimler, Mr. J. A. Holder's 12-h.p. Daimler, Mr. Edward Kennard's 8-h.p. Napier, and Mr. Mark Mayhew's 8-h.p. Panhard, as well as several of the vehicles entered by various manufacturers. To name all who were present would be an invidious task; suffice it to say that the automobile world was fully represented, and although the attendance of the public at the closing scene may not have been extraordinarily great it was certainly large enough to warrant the arrangement of such a *finale*.

At the conclusion of the visit to the Crystal Palace many of the cars were driven back to town and some were sent in procession through the streets of the West End, where they were associated with the popular pleasure at the news of Mafeking's relief. Throughout Saturday evening great crowds of people walked the thoroughfares around the West End and the horse-drawn carriages with occupants carrying flags were received with enthusiasm. But even greater was the welcome given the automobilists, who not only were thus able to contribute their quota to the general rejoicing, but also to demonstrate a new advantage that the automobile has over horses. It is not alarmed at crowds and shows no concern at such startling noises as were heard in the streets on Saturday. Such a motor-car progress is to be welcomed as adding another point in favour of our movement; and thus the events connected with the close of the Trial were able to emphasize the lessons that have been taught all the way on the long pilgrimage which is now a matter of automobile history.

1,000-MILE TRIAL INCIDENTS.

THE Trial should draw the attention of British spring and axle makers to the future that lies before them in the automobile industry.

IN the list of cars arriving at Newcastle we inadvertently omitted that of Mr. T. B. Browne, No. 3, which was fifth into the city on the Tyne.

THOSE of the Lincoln local committee who went on the cars as far as Newark returned to the city on two cars lent by the Lincoln Motor Bus Company.

AS the vehicles passed through Thirsk a hiring fair was in progress, and similar festivities were being indulged in at Leicester when the cars drew up at the Bell Inn.

A LARGE number of people waiting at Barnet to see the arrival of the cars engaged in the 1,000-mile Trial were disappointed — as the route lay through Elstree, a rather doubtful advantage.

AMONG the many cars seen at Lincoln was a neat-looking Billings voiturette which had been driven over from Gainsborough by Mr. H. W. Bamber, of Messrs. Baines and Sons, Limited, Gainsborough.

MRS. KENNARD draws our attention to two printer's errors in her article on "The Small Fry of the Trial," in our last issue. On line 20 the word "deeper" should be "steeper," and on line 52 "around" should read "crowned."

ACCORDING to a Woburn journal, the tire of one of the motor-vehicles burst as it passed through that village on the last day of the Trial, and "the explosion was heard a long distance, and many thought it was the report of a cannon."

IT is satisfactory to find a number of newspapers remarking that if the 1,000-mile Trial has done nothing more than demonstrate the wonderful control and facile conduct of self-propelled vehicles, a great result may be said to have been achieved.

AS Mr. F. H. Butler, the hon. treasurer of the Automobile Club, was pulling up at his door in Pall Mall, after his successful Trial, a horse attached to a carriage took fright at the motor-vehicle and damaged itself so badly that it had to be shot.

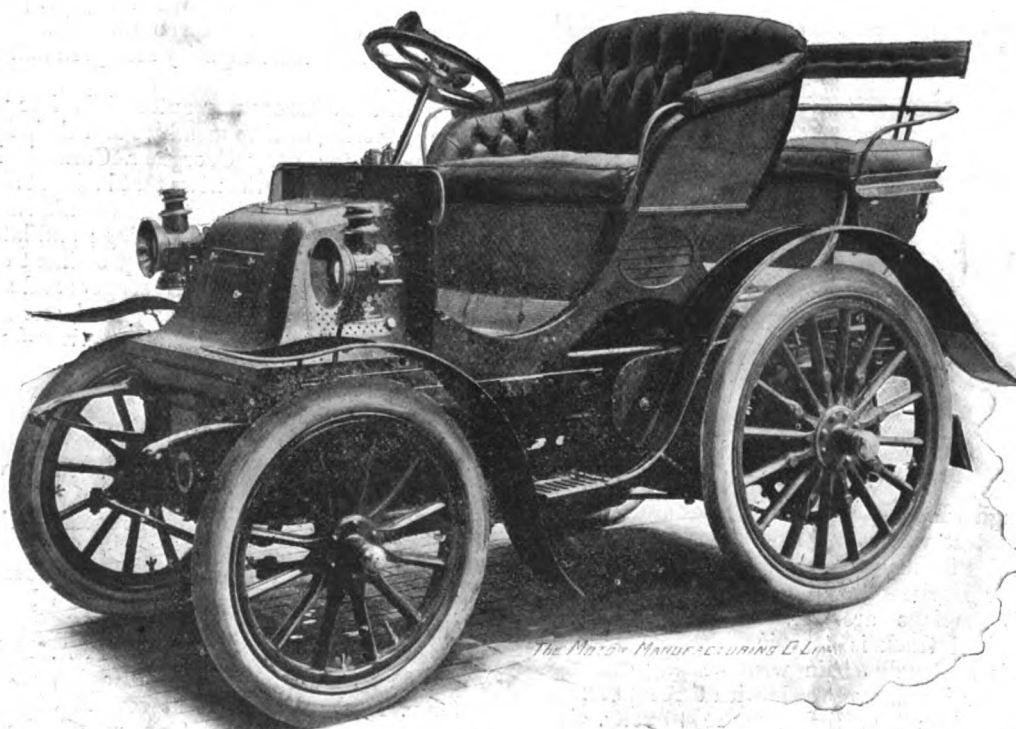
CAPTAIN LANGRISHE and Mr. Shrapnell Smith effected quite a smart repair to the pump on Mr. Harmsworth's Parisian Daimler during the course of the journey from Sheffield to Nottingham.

ham. Short of a washer, one was improvised out of a halfpenny piece.

AS the result of the local exhibitions in connection with the 1,000-mile Trial the following sums have already been handed to the War Fund:—Bristol, £25; Cheltenham, £32 18s.; Carlisle, £33 19s. 5d.; Kendal, £12 12s. Total to date, £105 9s. 5d.

AS an instance of the scrupulous care that was taken from the first by the promoters of the Trial to provide against accident, it may be mentioned incidentally that a note from the Chief Constable of Newark, drawing attention to the possibility of vehicles and caravans being on the road owing to the nearness of Newark Fair, was given special prominence in the programme.

ONE of the most stylish-looking vehicles at the Sheffield exhibition was the private carriage of Mr. E. P. Reynolds. The car is of the Daimler type, the body having been built in Sheffield under Mr. Reynolds's personal supervision, and in appearance it approximates as nearly to the really slightly automobile as anything that the genius of the manufacturer, English or Continental, has yet attained.



THE MOTOR MANUFACTURING CO.'S 6 H.P. PANHARD PHAETON—NO. 8 IN THE 1,000-MILE TRIAL.

THE voiturette referred to in our report as having been towed by Mr. Moffat Ford was No. 14. It had had pump troubles, and Mr. Egerton happened to be with it at the time, rendering assistance. Hence the reference to the vehicle as that driven by him. As a matter of fact, the De Dion voiturette No. 15, driven by him, never required extraneous assistance and

never fell below the twelve miles average speed.

TO be run over by one's own car is rather an unusual incident, but this is what happened to Mr. Grierson, who drove a De Dion voiturette on the journey from Sheffield to Nottingham. Applying the brakes somewhat suddenly, and getting up at the same time, with the intention of giving chase to some boys who had made themselves a nuisance, Mr. Grierson was thrown out in front of the car, the wheels of which went over his leg, fortunately without any serious result.

WE have it on good authority that the Beeston Motor Works at Coventry have been purchased by a chocolate and cocoa firm. In regard to the Beeston cycle factory negotiations are still proceeding with one of the leading motor houses.

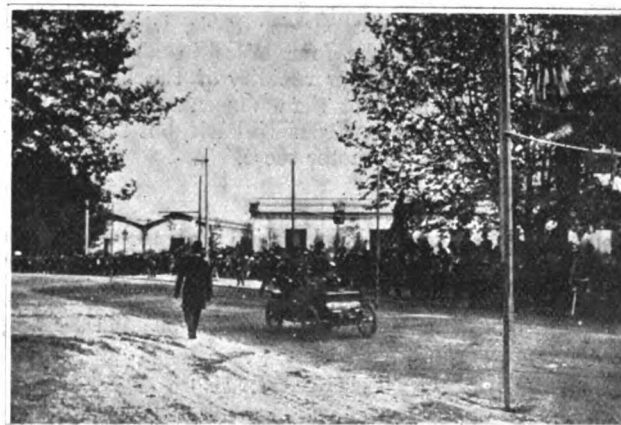
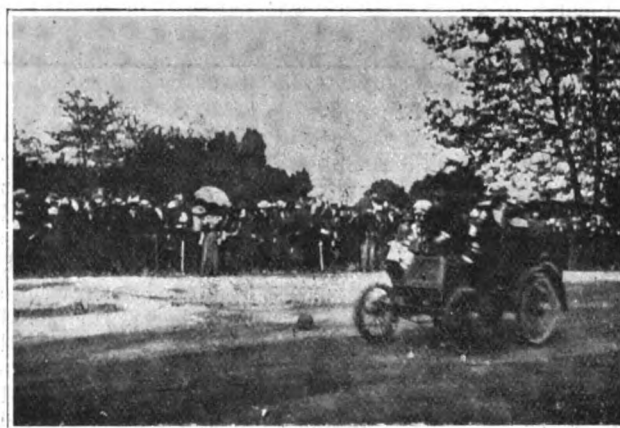
A MEMBER of the Automobile Club states that the police in Norfolk and Cambridgeshire are in the habit of marking off distances on the road and using stop watches with a view to, if possible, proving that an automobilist has travelled at a speed in excess of the legal limit. Members of the Club would do well to bear this in mind in connection with the forthcoming Whitsuntide Tour.

AUTOMOBILE FETE AT VINCENNES.

(From our own Correspondent.)

IT was on Sunday afternoon last that the Vincennes annexe of the Paris Exhibition gave its first real signs of life, for hitherto the chaste assembly of unfinished buildings, unaided by any outside attractions, has quite failed to secure any attention from the general public. But on Sunday conditions were wonderfully different. Not that the Exhibition buildings or the installation of the various stands had undergone any remarkable advance; indeed, they presented a melancholy spectacle of incompleteness and unattractiveness little likely to account for the huge influx of visitors. No, the public had not journeyed all the way to Vincennes to see the so-called Exhibition, but to witness the first of those fêtes which the Auto-

with spectators, who scanned with interest each car as it appeared upon the scene. And I can assure you there were a few to scan. They seemed to be numberless, and ranged in size from the diminutive voiturette to the huge steam omnibus. And they brought with them all the celebrities of the automobile world. There the Baron de Zuylen, on a 12 h.p. blue-painted Panhard; there M. Georges Lemaître on a Peugeot voiturette, M. Mors on a dog-cart, M. Santos-Dumont on a Stanley electric, Comte de Dion, MM. G. Rives, Michelin, Avigdor, Archdéacon, Renault, Bardon, Richard, Forestier, A. Ballif, Pierre Lafitte, Krieger, Paul Rousseau, de Diétrich, Georges Prade, Thévin, and a thousand others. Quickly the grand stand filled, and when at last a start was made with the programme hardly a vacant place was to be seen. The seat of honour was occupied by Mr. Alfred Picard, the commissioner-general of the Exhibition, and he was supported by many high



SNAPSHOTS OF THE CARS AT VINCENNES.

mobile Club of France is this year organising to take place on the road running round the Lac Daumesnil. Certain it is that no sport has a greater hold upon Parisians than automobilism, and in providing a series of fêtes and competitions the Exhibition Commissioners knew full well that they were adopting the best possible means to attract visitors to Vincennes. For without the certain knowledge that excellent sport is to be seen, but few people would take the trouble to make that tedious journey to and from the annexe, especially on a Sunday, when every means of transport is crowded to excess. But last Sunday all were assured of good sport, for was not the programme in the hands of those two well-known organisers, MM. Jeantaud and Ravenez, and accordingly everyone set out from Paris with perfect tranquillity. Proceedings were timed to commence at 2.30 p.m., but half an hour before that the roped-in road running round the Lac Daumesnil was lined

officials, in addition to the leading members of the A.C.F. But the personage whose presence sent a thrill of pleasure through every motor-man at Vincennes last Sunday afternoon was M. Lépine, the Préfet of Police, under whose personal direction the precautions for the public's safety were carried out. Here was the opportunity of *chauffeurs* to demonstrate to M. Lépine how perfectly under control were their vehicles, and I am bound to say that the drivers rose to the occasion and displayed a skill and discretion worthy of all praise. Not a mishap, even of the most trivial character, occurred to mar the afternoon's proceedings, and M. Lépine could not but be favourably impressed with the practical demonstration thus offered to him. The officials, undoubtedly, had this object in view when they directed that each vehicle should be driven up before the stand at a great rate of speed and then suddenly stopped. Their confidence, both in the drivers and in the machines, was not misplaced, for vehicle

after vehicle was pulled up in the most startling manner, the displays made by Madame Gobron on her beautiful Gobron-Brillie car and M. Dominique Lumberjack mounted on an Amédée-Bollée being particularly noteworthy. This item was perhaps the most interesting on the programme, at any rate to those intimately in touch with automobilism, but the gymkhana events also excited much attention. There was an egg race, a needle race, apron and skittle races, competitions with buckets, handkerchiefs, rings, and obstacles, indeed, all that could be devised to amuse the spectators and give the competitors a chance of showing their skill. As is usually the case in programmes of this nature, the Decauville drivers and cars showed to great advantage, some of the evolutions made by them being simply astounding. Then came a game of alleged polo, but it bore no resemblance to any game that I have ever seen, for some half-dozen large balls were in use at the same time and the players were absolutely indifferent as to the direction in which they smote these balls. Everybody having won, a sort of triumphal march of a snaky nature was indulged in by all the voiturettes engaged in the fray, and then a start was made with the *défilé général*. Considerably over two hundred vehicles participated in this promenade, lead by the Baron de Zuylen. And what a truly marvellous collection of types—racers and tourists, steam and electric, wagonettes and dog-carts, cycles and voiturettes, omnibuses and drays, all gaily decorated, and sporting the dainty commemorative banners handed to them. It was a sight to gladden the heart of a motor-man, even if he was afoot and smothered in the dust swept up and deposited upon him by his self-propelled friends. And in the midst there suddenly arrived, unannounced and all forlorn, a post-office cart drawn by one of those curious animals now rapidly becoming extinct—a horse. He walked soberly and majestically along the track, until, before the grand stand, his progress was arrested a moment while a commemorative banner was solemnly handed to his driver, and then he resumed his stately march, unheeding the shouts of laughter which greeted him on every side, and ignoring equally the rush and clatter of his mechanical rivals. Good old gee-gee, you are not such a bad sort after all! With the *défilé* proceedings terminated, and those of us unblest with cars—and I suppose that we numbered some ten thousand dusty mortals—set out for Paris, where we ultimately arrived, having made the four miles in about seventy minutes, thanks to the surpassing rapidity of the horse-drawn trams. A more inaccessible spot than Vincennes could hardly have been selected within the environs of Paris, but then every-one is presumably supposed to motor there.

THE Automobile Patents Exploitation Company has been formed at Trenton, N.J., with a capital of £200,000.

At his coach-building warehouse at Southampton Mr. R. Andrew is showing a motor-car by the side of a phaeton bearing the date 1790.

MR. F. G. BARTON, 11, George Street, Oxford, stocks Messrs. Carless Capel's petrol and can supply automobilists passing through the University city.

A FEW weeks ago the *Grocer* contained an article on motor-cars, and a correspondent of that contemporary now asks where he can buy a motor-lorry to carry one and a-half tons.

MR. C. CLIFFORD POTIER, of Sutton, has been appointed sole agent for Surrey for the Ariel Motor Company, Limited, and also sole agent for the counties of Surrey, Sussex, and Kent for the Components Cycle Manufacturing Company's motor-cycles and parts.

A COMMITTEE meeting of the Motor Trades Association was held on the 18th inst. at the Holborn Viaduct Hotel, when much detail work connected with trade matters was got through. Mr. Chandler, the secretary of the Association of Cycle Accessory Manufacturers, attended to explain the objects of his Association, and it is possible that the Motor Trades Association will eventually adopt a similar plan of operations. It was decided in future that committee meetings should regularly be held on the second Friday in each month.

THE AUTOMOBILE CLUB'S WHITSUNTIDE TOUR.

THE Whitsuntide tour of the Automobile Club has now been definitely decided upon, the route selected being to Peterborough, Norwich, and Cambridge, and the dates fixed upon Friday, June 1st, to Tuesday, June 5th. The following is the official programme:—

FRIDAY, 1ST JUNE.

	Miles.	Miles.
10 a.m. Depart from Horse Guards' Avenue via Pall Mall, St. James's Street, Piccadilly, through Hyde Park to Marble Arch, Edgware Road, Elstree, St. Albans	23	23
Harpden, Luton, Claphill, and lunch at Bedford (Swan Hotel)	30	53
3.30 p.m. Leave Bedford for Eaton Seccon Norman Cross	10½	63½
and Peterborough	21	84½
	7	91½

Sleep at Peterborough.

SATURDAY, 2ND JUNE.

11 a.m. Depart from Peterborough via Wisbech and lunch at King's Lynn (Duke's Hall)	21½	21½
3 p.m. Leave Lynn via Saxham and East Dereham to Norwich	13½	35½
	43½	78½
or (alternative) via Hunstanton	15½	50½
Burnham Deepdale, Wells, Cromer	39½	89
Aylsham and Norwich	22½	111½

Sleep at Norwich on Saturday and Sunday nights.

MONDAY, 4TH JUNE.

11 a.m. Depart from Norwich via Thetford and lunch at Bury St. Edmunds (Suffolk Hotel)	29	29
3.30 p.m. Depart from Bury St. Edmunds via Newmarket to Cambridge	12	41
	27½	63½
or (alternative):—		
9 a.m. from Norwich to Yarmouth	23	23
to Lowestoft	10½	33½
to Beccles and Bungay	16	49½
and Bury St. Edmunds	36½	86
and (after lunch) via Newmarket to Cambridge	27½	113½

Sleep at Cambridge:—

TUESDAY, 5TH JUNE.

11 a.m. Leave Cambridge via Royston, Baldoek	13½	13½
Stevenage, and lunch at Hatfield	8½	22
3.30 p.m. Leave Hatfield for Barnet	11½	33½
Finchley, Child's Hill, Finchley Road, Avenue Road, enter Outer Circle of Regent's Park by gate opposite Baptists' College, Park Crescent, Portland Place, Regent Street to Club	9	42½
	13½	56

The committee will endeavour to secure seats in club vehicles for members and their friends, provided that applications are received sufficiently early.

AN interesting chat with Sir David Salomons recently appeared in *Cassell's Saturday Journal*.

THE Darlington Rural Council has decided to draw up and present to the Chancellor of the Exchequer a petition in favour of a tax on cycles and motor-cars.

A COMPANY has just been formed in Paris (3, Rue Scribe), with a capital of £50,000, to be known as La Société Générale de Constructions de Voitures Automobiles.

THE Monarch Motor Company, Limited, has been registered with a capital of £250,000, to adopt and carry into effect an agreement expressed to be made between E. Jessuran of the one part and this company of the other part; and, generally, to carry on business as electricians and electrical engineers; as importers and exporters, manufacturers of and dealers in, as principals or agents, of oil motors, gas motors, for automobile or other purposes in the United Kingdom or elsewhere; as general manufacturers of gas and oil engines, etc.

THE MOTOR-CAR INDUSTRY PAST AND PRESENT.

—8—

AT a meeting of the Institution of Junior Engineers, held at the Westminster Palace Hotel, on Friday, May 18th, a paper was read by Mr. Charles H. E. Rush and Mr. Basil H. Joy, entitled, "A short Review of the Motor-Car Industry, Past and Present." The authors pointed out that the shortness of time at their disposal for the reading of a paper obliged them to confine themselves to a description of oil-driven vehicles only, other systems being only briefly alluded to. The enormous advantages to be gained by using motor instead of horse-drawn vehicles were summarised as follows:—1. Economy in working. 2. Increased possibilities in speed. 3. Greater safety. 4. Infinitely greater radius of action. 5. Humanity. 6. Economy in road repairs. 7. Cleanliness in streets. 8. Increased volume of trade. 9. Fewer unemployed. It was shown how restrictive legislation had hampered progress in the industry under consideration and given our Continental rivals a great lead over us. In comparing the merits of the various motive powers which can be employed, compressed air and gas were not considered, but steam was shown to have many advantages which for heavy haulage made it supreme; electricity, except for very limited purposes, was regarded as impracticable at the present time, while oil, or rather petroleum spirit, in spite of its many disadvantages, was shown to be the motive power for light tradesmen's vans and all light vehicles where long distances were to be covered.

The action and construction of the Daimler motor were then described in great detail, together with its application to a motor-vehicle, illustrated by diagrams, and an excellent full-size section model of a motor and gear box lent by the Daimler Company. The method of governing was referred to, and its complication pointed out. A new and very simple form was illustrated, in which the working parts are reduced to one, and it was stated that it had given great satisfaction on a car which had run some 300 miles. The De Dion and Benz motors were then described, and the reversing arrangement of the latter fully treated. The question of ignition was next dealt with, the three methods, tube, electric, and magneto-electric, being fully described. Preference was given to the first-named, as giving on the whole the least trouble. The various methods which can be employed for transmitting the power from the motor to the countershaft, and the different devices by which is overcome the difficulty of obtaining variations of speed in a motor vehicle fitted with a motor in which the speed is not variable, were described. It was shown that the question of steering was not quite such an easy matter as might appear at first sight, but difficulties had been overcome by the Ackermann, and again by the more geometrically perfect Davies' gears; other forms were briefly referred to, together with various methods of reversing.

Spray and surface carburettors were then described and compared, preference being shown for the former as requiring less adjustment of the mixture when running. The importance of an efficient method of keeping the cylinder-heads cool was touched upon, and the Cannstatt-Daimler cooler, which it was mentioned

was very much on the lines of a marine condenser, was described as being about the most efficient now on the market, the evaporation being practically nil; its weight and cost, however, were great. It was noted that air cooling is successfully adopted for small-powered motors up to $2\frac{1}{2}$ —3 h.p. The disadvantages, amounting almost to dangers, of the ordinary hand-brake were referred to and illustrated by experiences on the recent 1,000-mile Trial, in which they failed to hold vehicles from running backward down hill, and it was suggested that the expansion or internal hand-brake would meet this objection. The desirability of pneumatic tires for motor-vehicles was urged, and a brief reference made to the various forms of wheels used on such vehicles. The authors concluded by stating that they had only been able to touch upon a few of the better-known forms of vehicles now on the market, but that there were many others which might be considered equally as good, though not so well known.

By way of an appendix some quotations were made from a paper read by Professor H. S. Hele-Shaw, Hon. M.Inst.I.E., before the Institution of Mechanical Engineers on the same subject, and the conclusions to be drawn from the recent 1,000-mile Trial organised by the Automobile Club were tabulated, showing that the English 6 h.p. Daimler cars are fully equal to the French

6 h.p. Panhard cars; that the French pneumatic tires are better than the English; that even small 3 h.p. voitures can be depended upon to do such long distances as one thousand miles, that the dangers prophesied for running a large number of vehicles at high speeds on the public roads have proved to be non-existent, owing to the wonderful control under which they are at all times. An animated discussion ensued, in which Messrs. P. Marshall, Loftus Perkins, A. Tingle, G. C. Allingham, L. F. Awde, S. Boulding, A. C. Kent,

G. Gentry, A. K. Smith, E. Shrapnell Smith, T. Meacock, W. J. Tennant, and E. A. Berry took part.

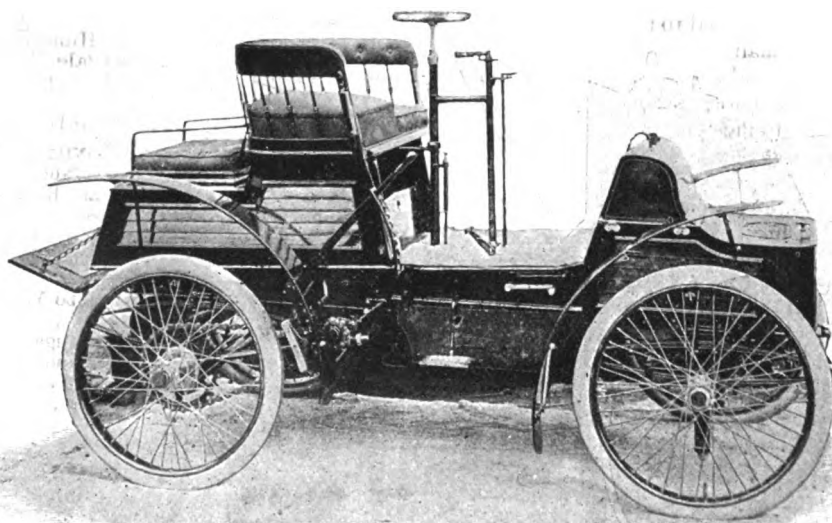
THE Cheltenham Rural District Council has unanimously decided to recommend the taxation of motor-vehicles at the rate of £1 1s. per annum.

SIR DAVID SALOMONS has been appointed by the French Government a member of the jury in the class "Automobilism," at the Paris Universal Exhibition.

THE Norwegian Government is reported to have just placed a contract with Messrs. Cudell and Company, of Aix-la-Chapelle, for a motor-car to carry two persons and to haul mitrailleuses and munitions.

THE Automobile Club of America is organising a run from New York to Philadelphia for June 2nd. The start will be made from the Waldorf-Astoria at 7.30 a.m. Dates for other runs have been chosen as follows: June 16th, Bernardsville, N.J.; June 30th, Asbury Park.

THE British Motor Traction Company, Limited, has been registered by A. S. Ramskill, 40, Holborn Viaduct, E.C., with a capital of £100 in £1 shares, to carry on the business of tramway constructors and proprietors, steam, oil, electrical, and other motor manufacturers, cycle makers, etc. Registered without articles of association.



GENERAL VIEW OF THE JACKSON DOCTOR'S CAR. (For description, see page 110, ante.)

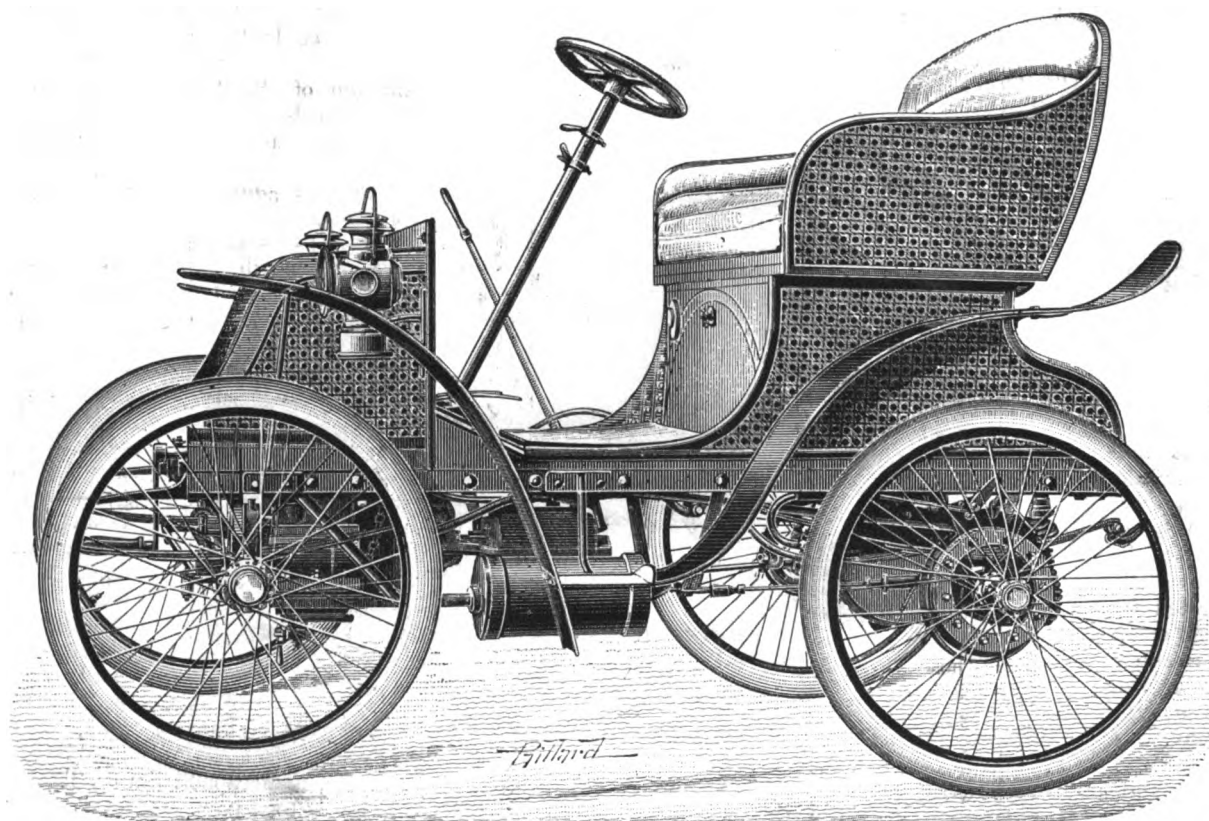
MOTOR-CARS ON THE CONTINENT.

The Swiss Automobile Club's Race.

It is not only the French promoters of automobile races who are made to suffer by the authorities' interdiction of motor events, but also several foreign organisations, who had planned holding *courses* wholly or partially on French territory. The Swiss Automobile Club, for example, has been obliged to give up its eagerly anticipated race from Geneva to Aix-les-Bains, and propose to replace it by a *course* entirely on native soil. The itinerary of this event has not yet been selected, but the trend of opinion among club members appears to favour the adoption of a very hilly route, which should not be difficult to find in that land of mountains. Personally, I do not believe a mountainous itinerary to be a desirable feature in an automobile race, but it is possible that the "A.C.S." propose to make the *course* a series of hill-climbing competitions.

Le Critérium des Voiturettes.

THURSDAY, the 17th inst., was the date selected by the proprietors of *Le Vélo* for their second annual "Critérium des Voiturettes" over the Etampes-Chartres route, and if only from a weather point of view, the selection proved to be a happy one. The race is popular with constructors and drivers of voiturettes, for the road is a most excellent one and is, moreover, singularly free from traffic. Entries, however, were not very numerous, but any lack in this respect was more than compensated for by the class of the competing vehicles, which was truly representative of France's best voiturettes. Two categories had been provided, the one for those vehicles not exceeding 250 kilos. in weight, and the other for the cars weighing up to 400 kilos. The actual starters in the first category were seven in number, these being—Tart, weight of car, 195 kilos.; G. Richard, 237 kilos.; Maudiquet, 246 kilos.; Gallet-Itasse, 249 kilos.; Marcel Renault, 250 kilos.; Louis Renault, 250 kilos.; Demester, 248 kilos. In the second classification the following dozen com-



THE HANZER VOITURE. (For description, see page 108, ante.)

At the Parc des Princes.

A SLAUGHTERING of records occurred on Sunday afternoon at the Parc des Princes, and although the majority of the new figures were made in the ordinary cycling events, still there was one remarkable motor-cycle performance. That came from Béconnais—needless to say—and was made over a distance of twenty kilomètres, the time achieved being all the more remarkable from the fact that no less than ten competitors actually engaged in the race. These were—Béconnais, Vasseur, Demester, Henri Loste, Bertin, Garin, Fossier, Rigal, Cabaillot and Ariès. Upon the signal to start being given, Bertin at once took the lead, but quickly lost it to Béconnais, who was never again headed. Demester, too, secured a considerable advance of the other competitors, but the battle for the third place was long and stubborn; Vasseur and Fossier being close together throughout the event. Béconnais covered ten kilomètres in 8min. 28sec., and untroubled by any untoward circumstance, he completed the full distance of twenty kilomètres in 16min. 47sec., beating the previous record, which also stood to his credit, by 32½sec. Demester finished second, Vasseur and Fossier third and fourth in the order given.

petitors lined up at the start:—Mercier—weight of car, 370 kilos.; Van Berendonck, 284 kilos.; M. Echalié, 260 kilos.; Fernandez, 309 kilos.; De la Roëre, 293 kilos.; Huguet, 270 kilos.; Coltereau, 399 kilos.; Ravenez, 380 kilos.; Théry, 392 kilos.; Chabrière, 398 kilos.; Ullmann, 316 kilos.; Fram, 333 kilos. Hitherto the 100 kilomètre races decided on this road have been run from Etampes to Chartres and return, but in order to avoid even the slightest possibility of protestation the promoters changed the itinerary completely, and the *course* of the 17th instant was decided over a distance of 25 kilomètres covered four times, thus necessitating the negotiation of the three turnings instead of one as formerly. Previous to following the performances of the small cars, however, I must refer to Béconnais' startling achievement, which will always be inseparably connected with the Critérium des Voiturettes of 1900. It will be remembered that the previous week this famous *chauffeur* had only succeeded in securing a third place in the motor-cycle race over the Etampes-Chartres route, and doubtless the fact rankled in his mind. So then on the 17th instant Béconnais set out at two o'clock precisely, to take advantage of the precautions provided for the competitors in the voiturette race. At Ablis, which marked the outward limit, Béconnais made his first turn, having

accomplished the 25 kilomètres in 18min., and when he reached Etampes his time for the half-journey (50 kilomètres) was 40 min. The second round was accomplished in practically the same time, and the total distance of 100 kilomètres was covered by Béconnais in 78 min. 54 sec. And this with three turns! The previous best time for the distance was 82 min. 34 sec., made by Béconnais on the Arles-Salon road on the occasion of the Salon meet this year. But to our voiturettes, who, without being able to travel quite so fast, are, as will be seen below, quite capable of making pretty speedy performances. Started at one minute intervals, no incident or mishap marred the departure, and upon the completion of the first round Cottereau had secured a substantial lead from Théry, the other men well to the front being Chabrière, Demester, Mercier, and Marcel Renault. Cottereau's time was 51 min. 49 sec., a performance all the more remarkable, as after the first 27 kilomètres he had been running with a back axle damaged to such an extent that one wheel wobbled in a terribly dangerous manner. Not one of the many experts who saw him complete the first round had any faith in his accomplishing the complete journey, but in this they were wrong, for not only did he finish, but he finished first. His time was 1h. 44min. 57 $\frac{3}{4}$ sec., beating Théry's 100 kilomètre record by 3min. Cottereau's voiturette is fitted with a four-cylinder motor, and on the level is capable of travelling at some 65 kilomètres per hour. The final classification was as follows:—Voiturettes of from 250 to 400 kilos.—1, Cottereau, 1h. 44min. 57 $\frac{3}{4}$ sec.; 2, Théry, 1h. 50min. 18 $\frac{3}{4}$ sec.; 3, Chabrière, 2h. 9min. 32sec.; 4, Mercier, 2h. 21min. 0 $\frac{3}{4}$ sec.; 5, Echalié, 2h. 27min. 14 $\frac{3}{4}$ sec.; 6, Ravenez, 2h. 28min. 41sec.; 7, Fernandez, 2h. 34min. 20sec.; 8, Ullmann, 2h. 41min. 24 $\frac{1}{2}$ sec.; 9, Van Berendonck, 2h. 41min. 33sec.; 10, De la Roëre, 3h. 6min. Voiturettes weighing less than 250 kilos.—1, Tart, 2h. 12min. 31sec.; 2, Marcel Renault, 2h. 16min. 36 $\frac{1}{2}$ sec.; 3, Demester, 2h. 20min. 52 $\frac{3}{4}$ sec.; 4, L. Renault, 2h. 24min. 47sec.; 5, G. Richard, 3h. 27min.; 6, Maudiquet, 4h. 6min. Out of the nineteen starters there, sixteen finished the course, the three delinquents being Gallet-Itasse, Huguët, and Fram. There is little doubt that the voiturette of to-day is rapidly approaching in reliability and regularity of running its larger brethren, and that the fragile machines of six months ago are as rapidly disappearing.

Racing in Germany.

THE race between Eisenach, Oberhof, Meiningen, and Eisenach, promoted by the Central German Automobile Club, was duly run off on the 6th inst. There were nine starters, the winner being Herr Tischbein, whose time for the journey of 140 kilomètres was 4h. 23min. The route, it should be mentioned, was a very hilly one. On Sunday, the 13th inst., a race was also run off between Mannheim, Pforzheim, and back, under the auspices of the Mid-European Motor-Car Union. The distance (168 kilomètres) was covered by the winner, Herr Benz, in 3h. 56m.

Racing at Vienna.

ON the well-known Praeter track at Vienna there took place last Sunday three motor-cycle races, rendered of particular interest by the presence of the two famous French *chauffeurs*, Marcellin and Gasté. A large number of spectators, among whom were very many members of the Austrian Automobile Club, witnessed the racing, and upon the conclusion of the meet accorded the French representatives a perfect ovation. The first event was one of 1,000 mètres, and this Gasté won, making the distance in 56 $\frac{3}{4}$ sec. Then followed a 5,000 metre race, and here Marcellin proved the victor, his time being 4 min. 34 $\frac{1}{4}$ sec. The third trial took place over a distance of 10,000 mètres, and Marcellin again scored a victory, completing the journey in 8 min. 8 $\frac{3}{4}$ sec., this beating the previous best made on Austrian soil.

A MEETING of the Anglo-French Association is to be held at the Café Monico to-night, the 26th inst., when Sir David Salomons, Bart., will read a paper on the Automobile Industry. The meeting will commence at 8.30 p.m., Mr. Roger Wallace, Q.C., taking the chair.

LECTURES ON AUTOMOBILISM.

ALL who have attended the discussions at the Automobile Club know Mr. Shrapnell Smith, the honorary secretary of the Liverpool Propelled Traffic Association, as one of the most attractive speakers who take part in those gatherings. As a lecturer he should be equally acceptable, and the announcement that he is willing to lecture on "Motor-Cars: Past, Present, and Future" will be regarded with pleasure by many of our readers. The lecture will be illustrated with one hundred lantern illustrations, and the following syllabus gives an idea of the popular character of the lecture:—

Past.—Introductory—Early Experiments—Cugnot—Murdoch—Trevithick—Carriages with legs—James—Gurney—Hancock—Steam Omnibuses in London—Maceroni and the Parisians—The Pre-Victorian Steam-coaching Period—Legislation—Tolls and Capitalists—The Early Sixties—Evading the Law—Thompson's Tires—The "Man-with-the-Red-Flag" Act—The First Motor-tricycle—The French Races—Sir David Salomon's Action—Revival of Interest in England.

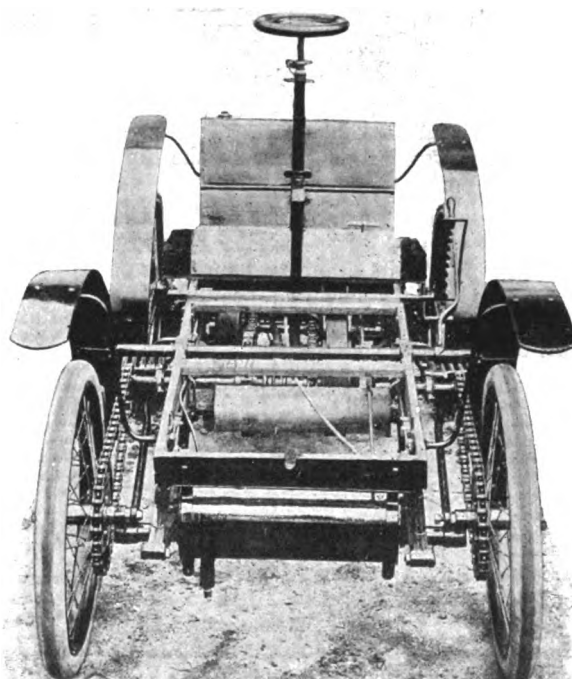
Present.—Oil, or internal combustion, vehicles—Steam, or external combustion, vehicles—Electric vehicles—The Liverpool Heavy Vehicle Trials—The 1,000-mile Trial of the Automobile Club.

Future.—Extinction of the Horse—Accidents—Control of Traffic—Damage to Roads—Effect upon existing interests—Economy of use—Perfection of Communication—General Aspects.

Mr. Shrapnell Smith's address is, The Royal Institution, Liverpool.

THE meet of the Automobile Club which had been arranged to take place at the Hurlingham Club to-day, the 26th inst., has been abandoned, the space being too limited to hold a satisfactory show of automobiles.

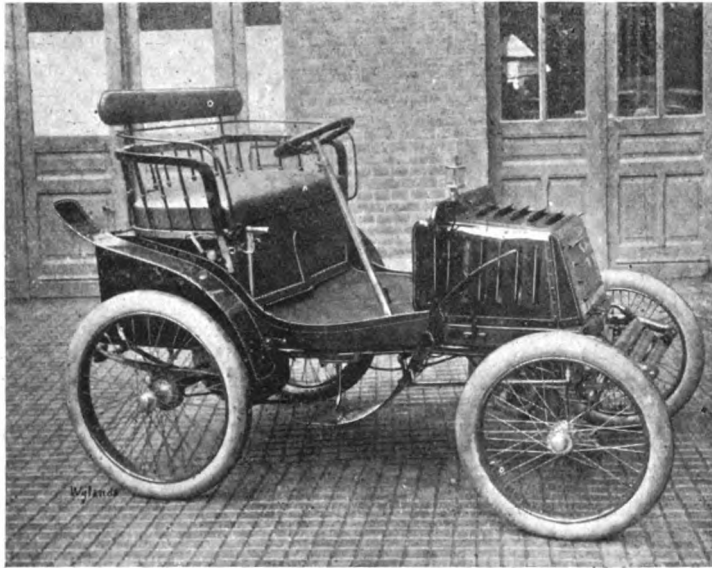
WE hear that Mr. John A. Brodie, M.Inst.C.E., one of the vice-presidents of the Liverpool Self-Propelled Traffic Association, has just purchased a "Locomobile" steam-car. Mr. Brodie left London on Saturday last with his new vehicle, intending to drive to Liverpool by road. Professor Hele-Shaw, another vice-president of the association, has given his preference to petrol, for we understand that he has placed an order with Messrs. Burford, Van Toll and Co., of Twickenham, for a New Orleans voiturette.



REAR VIEW OF JACKSON DOCTOR'S CAR, WITH BODY REMOVED.
(For description, see page 110, ante.)

THE "MAYFAIR" VOITURETTE.

THE accompanying illustration shows the little petroleum-spirit car which the Sports Motor-Car Company, whose temporary address is 45, Esmond Road, Kilburn, is introducing into this country, and which will be known as the "Mayfair" voiturette. The vehicle, which is said to be the result of fifteen years' experience, is fitted with a 3½-h.p. motor of the well-known "Abeille" type, has electric ignition, water circulation, pump and radiator in front, live axle, and strong



steel tube frame. The differential gear is of a new form and is enclosed in an aluminium case, doing away with chain gearing. The steering is of the wheel type, the driver sitting on the right.

A SALE by auction of a number of motor-cars, including several belonging to Prince d'Arenberg, was held in Paris on Saturday last.

THE United States Long Distance Automobile Company has been formed in New Jersey with a capital of £200,000. The company's headquarters are at Lewis Nixon's Crescent Shipyard, Elizabeth port, N.J.

"THE Automobile Wagon for Heavy Duty" is the title of a paper read at a meeting of the American Society of Mechanical Engineers just held at Cincinnati. The author was Mr. Arthur Herschmann, mechanical engineer to the Adams Express Company of New York.

THERE is a funny man on the staff of the *Globe*, who writes that "a motor-car enthusiast describes the great interest exhibited by a group of M.P.'s in a new car bought by one of the members. It was provided with a new and beautiful front piece, which is described as a 'cow-catcher.' We shall hear next of a three-acre turf-turf or a political vote-catcher."

WE regret to learn of the death of Mr. E. J. Walkley, which took place on Sunday last, at the age of 42, after a long illness. The deceased, an old racing cyclist, was an enthusiastic automobilist, and a director of Messrs. Hewetsons, Limited. His last motor ride was in connection with the Motor-Car Club's run to Brighton, in November last.

THE *Aberdeen Express* states that Banchory is about to secure the advantage of a motor-car service. A company has been formed, the aim of which is to provide a cheap and quick method of transport to the railway at Banchory through the valley of Strachan and Birse. The directors of the company propose to run for hire motor-vehicles for pleasure and business, and also for trade delivery and transport purposes in connection with the trains at Banchory Station through Strachan and Birse to the Sawmill, Finzean.

CORRESPONDENCE.

JOURNALISTIC CONTRADICTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice that the impressive *County Gentleman* has been getting wroth over the 1,000-mile Trial of the Automobile Club, and referring to Mr. Graham White's achievement on the run from Edinburgh to Newcastle, duly recorded in your columns, says that "motor-car maniacs are wild with laudatory enthusiasm" over the matter. This will be news to many of the "maniacs" who, without going into "laudatory enthusiasm" or any other peculiar condition, are nevertheless conscious of the fact that Mr. White proved that difficulties do not deter automobilists. So far as the London journals are concerned the great majority have recognised the sanity of those who drive motor-cars and also the advantages of the latter over horse-drawn vehicles. Only the *County Gentleman* is considerably behind the times and violent in his wrath. I hope, however, this is only a temporary aberration and no permanent malady. In fact, a return to saner ideas is already evident, for, after penning the above, I came across a later article in the same journal which, while contradictory to the spirit of the first paragraph, is satisfactory reading. It is a general conclusion of the results of the recent Trial and is as follows:—"No one can deny that the results of the 1,000-mile trial of motor-cars were in many respects highly satisfactory. The main object of the Automobile Club, who organised the Trial, was not to determine the number of miles that could be covered in a certain time—not a test of speed—but to demonstrate that the motor-car, even though it is still comparatively in the initial stage of development, is a safe, a reliable, and an economical means of locomotion. To a certain extent the members of the Automobile Club have succeeded in attaining their object. In the future, at all events, the British public will be less likely to regard the motor-car as a fad, and more ready to grant that it is an article of utility, that it has come to stay, and that it has wide possibilities before it."

Yours truly,

X.

York, May 22nd, 1900.

MOTOR-CARS WANTED AT KIDDERMINSTER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Another industry has discovered that the railway companies are not always so careful of the interests of the traders as the latter consider they ought to be. At a meeting of the Kidderminster Chamber of Commerce the president, Mr. J. H. Pearse, referred to the very unsatisfactory train service of the Great Western Railway Company. Mr. Tomkinson urged that it would well be worth consideration to have a motor-vehicle service between Kidderminster and Bromsgrove and the Midland Railway Company's system. Personally he was inclined to have a motor-car to run to Bromsgrove. There was, he thought, no reason why carpet manufacturers should not adopt motor-cars with success, as the millers of the locality have done. I would suggest that, in view of this discussion, the firms engaged in the motor-car trade should send particulars of their cars to the carpet manufacturers of the Kidderminster district.

Yours faithfully,

A TRADER.

Birmingham, May 21st, 1900.

THE seven principal French railway companies and the Ceinture Railway Company of Paris have agreed under certain conditions to accept automobiles as passengers' luggage. The regulations stipulate that, provided their dimensions allow of their being put in the luggage van, vehicles of all kinds, including motor-cycles and automobile carriages, will be accepted, but the weight must not exceed 150 kilogrammes when the vehicles are unpacked, and 100 kilogrammes when packed. Presumably the reduced weight allowed when the vehicle is packed is due to the lessened mobility of the same.

ELECTRIC IGNITION FOR PETROLEUM-SPIRIT MOTORS.

IN the early days of gas and petrol engine construction, the only method of ignition was by what was commonly known as the incandescent tube. The tube which entered the combustion chamber or cylinder is heated to redness by a gas or petrol burner, which necessitated the maintaining of an open flame outside the engine cylinder. The many dangers accompanying this form of ignition, especially on petrol engines, made it in some localities extremely hazardous, together with the uncertainty in the period in which the ignition would actually take place due to high or low compression. Under favourable conditions, such as tight-fitting cylinder rings on the piston head and perfect fitting valves, whereby high compression was obtained and the explosive mixture forced into the hot tube to a point where the tube was at an igniting temperature, the ignition would take place at a proper period of the stroke, and high efficiency was the result.

When the opposite condition existed, such as a slight leakage at the rings on the piston head or in the valve seats, low compression existed, causing a loss in power. This, together with the frequent breakage of the hot tubes due to the oxidation and other uncertainties of this method soon led inventors and manufacturers of gas and petrol engines to seek a more reliable means of ignition, free from the many dangers accompanying the use of the hot tube. This was found in electric ignition. Yet many builders of gas and petrol engines have frequently met with difficulties, and sometimes failure, in their efforts to obtain satisfactory results with electric ignition under the various conditions.

This is due to the many details which are overlooked and regarded by many builders as unimportant. The great strides that have been made in the perfection of the petrol motor, especially as adapted for automobile service, are due in great measure to the improvement made in electric igniters, spark coils, and batteries. Perfect ignition is the most important factor in producing successful results. Engines having igniters that combine durability with simplicity have met with the greatest success in the hands of the average operator.

Another leading feature is the cost of maintenance. The writer will endeavour to explain what he regards as the most successful igniting devices in use at the present time. They consist of two distinct classes—the primary and the secondary, commonly called the jump spark igniter. The primary igniters, which are by far the most largely used by the motor builders in America, are constructed in three distinct forms. The first are known as the striking or make and break contact points, which are made to pass through the side of the cylinder or through the cylinder head into the combustion chamber. The movable point, which strikes against the stationary point, is actuated by a suitable mechanism on the outside of the cylinder. This mechanism is usually so arranged that ignition can be produced at the highest point of compression, or at the point where the highest efficiency is obtained with the combustible mixture contained in the chamber.

The second form of primary ignition, commonly known as the rotary or wipe spark igniter, is not so largely used as the

striking or make-and-break type just described. One objectionable feature that the writer has not yet seen successfully overcome in the rotary type is the great wear in the sliding contact points. It is true this form of ignition produces a much larger spark with the same consumption of battery power than the striking or make-and-break igniter, but the frequent attention that this form of sliding contact ignition requires to keep it in perfect condition will prevent it from ever becoming as popular as the striking or make-and-break ignition.

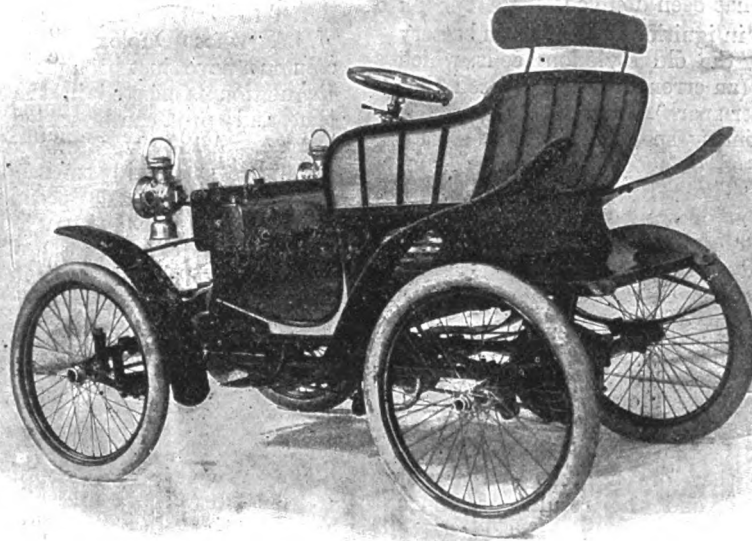
The third form of primary ignition used in this make-and-break igniter is known as the inside igniter. This igniter is constructed by passing the insulated stationary rod through the side wall of the cylinder, or through the cylinder head. The movable part of this igniter is attached to the piston head inside of the cylinder, and when the piston head compresses the explosive mixture to the highest point of compression the igniter, which had been brought in contact by the forward motion of the piston, is separated by the movement of the piston head, thereby igniting the mixture. There are many other forms of primary ignition in use, but those described above are the most largely used in America.

The second class of igniters, commonly known as the jump spark igniters, have only one form of construction. This is an insulated plug through which the wires from the induction or secondary coil pass to the inside of the combustion chamber. The two wires which pass through the insulated plug are usually spaced from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. in passing through the plug, and curved inward or toward each other to allow from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. air space through which the spark passes from the positive to the negative wire. It will be noticed that no movable parts exist in this form of ignition. When the battery is closed by suitable insulating plates on the revolving shaft of the engine, a spark is produced in the combustion chamber or cylinder.

The insulating plugs used for this secondary current, or jump spark ignition, must necessarily have very high insulating properties. They are usually made of lava, which is a composition of soapstone, or made from mica, which has high insulating properties. The Ruhmkorff or induction coil, as it is sometimes called, which is used to produce the jump spark, is constructed with a primary coil of coarse or heavy wire having a soft iron core. Over the primary coil are wound a great many layers of very fine, insulated copper wire having no metallic connection with the wires of the primary battery coil.

When a battery current passes through a primary coil it magnetises the iron wire core, and also charges the tin foil condenser, which is usually placed in the base of the coil. When the battery circuit is closed a current of very high voltage is produced by the induction in the secondary coil, the ends of which terminate in the ignition plug inside the combustion chamber. This high voltage causes a spark to pass from the positive to the negative wire inside the combustion chamber.

To ignite the charge in a motor successfully with any of the above forms of ignition a battery of great strength and durability is absolutely essential, and is by far the most economical to use. These requirements are only found in a closed circuit battery that is manufactured expressly for high-speed engines. Practical tests and demonstrations on automobile motors have



GENERAL VIEW OF THE GLADIATOR VOITURETTE.—No. 16 IN THE 1,000-MILE TRIAL.

proved a battery having from $4\frac{1}{2}$ to 6 volts, or $\frac{3}{4}$ to 1 volt per cell, to be the correct voltage to use. The battery should have a very low internal resistance, and have an amperage or current discharge of from 8 to 16 amperes on closed circuit measurement.

Too much cannot be said about the use of a suitable primary spark coil in connection with any of the primary igniters. It has required many tests to determine the correct resistance to have in the coil. If the resistance is too low, the coil will allow too large a flow of current from the battery, thus wasting very much of the battery power; also frequently destroying the platinum points on the igniter. To obtain the best results, from $1\frac{1}{2}$ to 2 amperes should be the limit of discharge through the coil. Coils are now wound for four, six, and eight cells, as the case may be.

Since the early days of electric ignition many forms of spark coils have been used—in fact, any coil that would produce a large spark was considered the correct coil to use, irrespective of the great waste in battery power. Many spark coils in use to-day are wasting as much current as is required to successfully ignite the charge. This is due to the very low resistance of the spark coil, which allows twice the amperage or current to flow through the coil when the circuit is closed as is necessary for successful ignition. This waste of current is prevented by having the correct resistance in the coil, so as to produce a reliable spark and prevent any waste in the battery power. It has been found from actual tests on modern engines that by having a coil of the correct resistance the life of the battery has been doubled.

Another great improvement in ignition and saving in battery power was effected by discarding the old style long coils, which were 8, 10, and 12 in. in length (an erroneous idea existed that a long coil would produce a larger spark). Practical experience and tests have shown that a primary spark coil best suited for high speed engines, such as used on automobiles, should not exceed 6 in. in length over all. The 8, 10, and 12 in. coils will not, with the same consumption of battery power, magnetise and demagnetise as rapidly and completely as the 6 in. coil; consequently, the latest improved primary coil has an extra large diameter core, which is composed of No. 20 annealed Swedish iron wire, re-annealed after cutting to 6 in. in length. A coil having a core made of this grade of iron and with this degree of care will magnetise and demagnetise instantaneously. This enables the engine builders to provide for only a short duration of close—that is, allowing the circuit to remain closed only half as long as would be required to produce the same results with an 8, 10, or 12 in. coil. It is therefore a great economy in battery power to use a 6 in. coil, and the results are much more satisfactory.

Another important feature in the construction of primary spark coils for automobile use is the thorough waterproofing of the spark coil to produce thorough insulation under all conditions met with in use. No spark coil, if not proof against dampness and moisture, will give satisfactory service for any period of time; it is, therefore, necessary to have the coil thoroughly waterproof.

No form of dry battery should be used for continuous use. All dry batteries and sal ammoniac batteries are open circuit batteries, and only suitable for periodical work. The first cost of a dry battery and sal ammoniac battery is very low, but its life in heavy service is very short. Dry batteries are sometimes used for starting an engine where a dynamo is used for continuous ignition. A number of builders are using dry batteries for starting their motors, and as soon as the required maximum speed is obtained an automatic switch cuts the battery out of the circuit and closes the dynamo circuit. This is also sometimes accomplished with a two-point switch, and the dynamo will then ignite the charge until the speed is reduced. While the dynamo or generator is used, the batteries are at rest.

The writer considers a good portable closed-circuit battery not only more economical than the dry battery and dynamo combination, but it requires less care, as there are fewer parts to become disarranged in the rough service to which ignition devices are subjected in automobiles.

Many builders of vehicle motors have had difficulties, no doubt, with the many forms of closed-circuit batteries. These

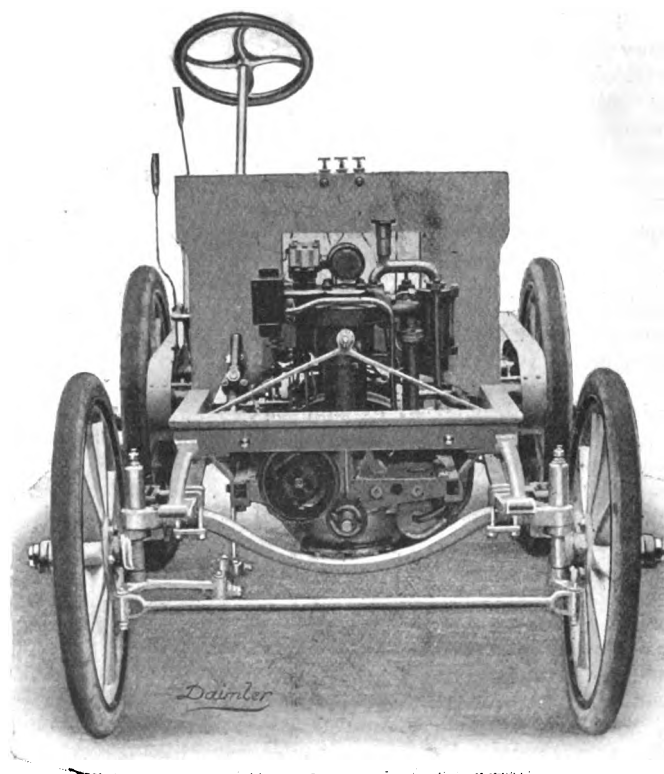
difficulties are sometimes easily located. A closed-circuit battery in which a paraffin oil must be used on the solution should be avoided, as it will be found to give short life and comparatively poor service. This is due to the rough usage in carriages causing the paraffin oil to coat the elements and interfere with the action of the battery. A perfectly sealed or liquid-tight battery does not require any oil to protect the solution from the atmosphere. A battery which may show excellent service in stationary use may be a complete failure in portable use.

There are no trade secrets about electric ignition. The degree of success that the various manufacturers are meeting with depends entirely upon the amount of attention that has been given to the most important details, which the writer has endeavoured to explain in this article. There are perhaps other causes for success or failure in electric ignition, but those referred to are from the writer's personal experience and observations made in the past ten years, or since the development and perfection of the gas engine in the United States.—By P. P. Nungesser in the *Horseless Age*.

AN automobile club has just been formed at Geneva, Switzerland. Steps are also being taken to form a club at Barcelona, Spain.

THE Dresden Gas-Motoren Fabrik Gesellschaft (Moritz Hille), of Dresden, reports a profit of £72,065 for 1899, which admits of a dividend of 10 per cent.

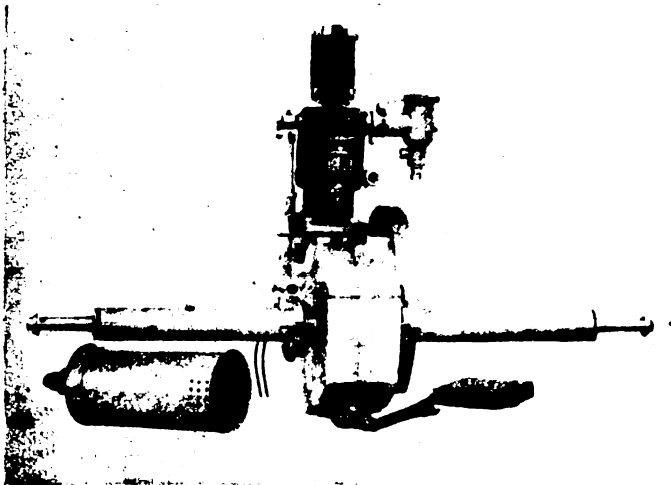
THE Crest Manufacturing Company, of Dorchester, Mass., U.S.A., whose Duplex petrol motor has been illustrated in these columns, have just brought out a new vertical air-cooled motor. Regulation is effected in the usual way by varying the ignition time, and speed can be varied from 200 to 2,000 revolutions per minute. All the working parts are of tool steel, hardened and ground; the wearing surfaces are large, and no adjustment of any kind is needed. Specially large radiating surfaces are provided, as also special through-bolts, which hold the cylinder head, cylinder, and crank case in place. In a letter to us the Crest Company state that: "We have not decided on its rated horse-power, but we can assure you that the motor is not only of ample horse-power for tricycles and quadricycles, but it will be satisfactory for very light types of automobiles."



FRONT VIEW OF DAIMLER CAR, WITH BODY AND BONNET REMOVED.

THE BRITISH AND COLONIAL VOITURETTE MOTOR.

THE other day we had an opportunity of inspecting a new petroleum-spirit motor and rear axle, adapted for light voituresses, which is being introduced into this country by the British and Colonial Motor-Car Company, Limited, of 38, Snow Hill, E.C. The motor, which is provided with a water-jacketed cylinder and electrical ignition, develops slightly over 3 h.p. when running at 3,000 revs. per minute. It is provided with an external fly-wheel, the crank shaft working in an oil-containing case. The inlet and exhaust valves are arranged one on each side of the cylinder, the sparking plug, which can be readily removed, being fitted in the top of the explosion chamber. Another feature to which attention may be drawn is the adoption of roller bearings to all the working parts of the engine. As will be seen from the accompanying illustration, the motor is located centrally, and drives the rear axle direct by spur gearing. Two speeds are available, the gear wheels being always in mesh, they being so arranged that any one of the two pairs can be made to transmit the power. A friction clutch is also provided, so that the motor can be instantly cut out from the transmission gear. The variable gear, as also the differential, is entirely enclosed in the central oil-contain-



ing case seen in the illustration; ball-bearings are employed in connection with the axle. The British and Colonial Motor-Car Company have introduced this combination set of motor and rear axle with the view of meeting the wants of the many firms up and down the country which are anxious to go into the motor industry. We have also inspected a light three-seated experimental car fitted with a motor and gear of the type above referred to. It has a frame of tubular construction, spring suspended on the axles, and a device whereby the motor can be set in operation without it being necessary for the driver to dismount from his seat. The little car, which weighs between 6 and 7 cwt., can attain a speed of sixteen miles per hour, and is said to run quietly and with but little vibration. Mr. Adams, the managing director of the company, tells us that they have just opened a large depot at 11, Baker Street, London, W., for the sale of motors and vehicles, and that in addition to the 3-h.p. engine above alluded to, they hope shortly to be able to supply motors of larger size ranging up to 8-h.p.

LA SOCIETE EUROPEENNE D'AUTOMOBILES, of Brussels, which has a capital of £40,000, reports a profit of £24,000 for 1899.

THE Acting Secretary of the U.S. Treasury has ruled that an automobile is not free of import duty as a personal effect, but is free of duty as a household effect if used abroad by the owner one year or more.

THE STORAGE OF PETROLEUM SPIRIT.

THE following is a copy of the new regulations with regard to the storage of petroleum spirit which have just been issued by the Secretary of State for the Home Department.

Regulations dated April 26, 1900, made by the Secretary of State under Section 5 of the Locomotives on Highways Act, 1896, as to the keeping and use of petroleum for the purposes of light locomotives.

REGULATIONS.—By virtue of the powers conferred on me by the Fifth Section of the Locomotives on Highways Act, 1896, I hereby make the following regulations for the keeping and use of petroleum for the purposes of light locomotives. Save as herein provided the provisions of the Petroleum Acts shall apply to all petroleum kept or used or sold for the purposes of light locomotives. In these regulations the expression "petroleum spirit" shall mean the petroleum to which the Petroleum Act, 1871, applies, provided that when any petroleum other than that to which the Petroleum Act, 1871, applies, is on or in any light locomotive, or is being conveyed or kept in any place on or in which there is also present any petroleum spirit as above defined, the whole of such petroleum shall be deemed to be petroleum spirit. In these regulations the expression "storehouse" shall mean any room, building, coachhouse, lean-to, or other place in which petroleum spirit for the purposes of light locomotives is kept in pursuance of these regulations.

1. These regulations shall apply only to petroleum spirit which is kept for the purpose of or is being used on light locomotives, and shall not apply to petroleum spirit which is kept for sale and partly for the purposes of light locomotives.

2. Petroleum spirit shall not be kept, used, or conveyed except in metal vessels so substantially constructed as not to be liable, except under circumstances of gross negligence or extraordinary accident, to be broken or become defective or insecure. Every such vessel shall be so constructed and maintained that no leakage, whether of liquid or vapour, can take place therefrom.

3. Every such vessel, not forming part of a light locomotive, when used for conveying or keeping petroleum spirit shall bear the words "petroleum spirit highly inflammable" legibly and indelibly stamped or marked thereon, or on a metallic or enamelled label attached thereto, and shall be of a capacity not exceeding two gallons.

4. Before repairs are done to any such vessel, that vessel shall, as far as practicable, be cleaned by the removal of all petroleum spirit and of all dangerous vapours derived from the same.

5. Where a storehouse forms part of, or is attached to, another building, and where the intervening floor or partition is of an unsubstantial or highly inflammable character, or has an opening therein, the whole of such building shall be deemed to be the storehouse, and no portion of such storehouse shall be used as a dwelling or as a place where persons assemble. A storehouse shall have a separate entrance from the open air distinct from that of any dwelling or building in which persons assemble.

6. Every storehouse shall be thoroughly ventilated.

7. The amount of petroleum spirit to be kept in any one storehouse, whether or not upon light locomotives, shall not exceed sixty gallons at any one time.

8. Where two or more storehouses are in the same occupation and are situated within twenty feet of one another, they shall for the purposes of these regulations be assumed to be one and the same storehouse, and the maximum amount of petroleum spirit prescribed in the foregoing regulation shall be the maximum to be kept in all such storehouses taken together. When two or more storehouses in the same occupation are distant more than twenty feet from one another, the maximum amount shall apply to each storehouse.

9. Any person who keeps petroleum spirit in a storehouse which is situated within twenty feet of any other building whether or not in his occupation, or of any timber stack or other inflammable goods not owned by him, shall give notice to the local authority under the Petroleum Acts for the district in which he is keeping such petroleum spirit, that he is so keeping petroleum spirit, and shall renew such notice in the month of January in each year during the continuance of such keeping, and shall permit any duly authorised officer of the local authority to inspect such petroleum spirit at any reasonable time. This regulation shall not apply to petroleum spirit kept under licence, nor to petroleum spirit kept in a tank forming part of a light locomotive.

10. The filling or replenishing of a vessel with petroleum spirit shall not be carried on, nor shall the contents of any such vessel be exposed in the presence of fire or artificial light, except a light of such construction, position, or character, as not to be liable to ignite any inflammable vapour arising from such spirit, and no artificial light shall be brought within dangerous proximity of the place where any vessel containing petroleum spirit is being kept.

11. In the case of all petroleum spirit kept or conveyed for the purpose of or in connection with any light locomotive, (a) all due precautions shall be taken for the prevention of accidents by fire or explosion, and for the prevention of unauthorised persons having access to any petroleum spirit kept or conveyed, and to the vessels containing or intended to contain, or having actually contained the same; and (b) every person managing or employed on or in connection with any light locomotive shall abstain from every act whatever which tends to cause fire or explosion, and which is not reasonably necessary, and shall prevent any other person from committing such act.

12. These regulations shall come into operation on the 15th day of May, 1900, from which date the regulations dated 3rd November, 1896, are hereby repealed.

M. W. RIDLEY,
One of Her Majesty's Principal
Secretaries of State.
Whitehall, S.W.,
26th April, 1900.

FURIOUS DRIVING CASE.

MR. CHARLES FRISWELL, of Holborn Viaduct, and Mr. Oswald Edward Lord, of Bartholomew's Hospital, appeared at the Bow Street (London) Police Court on the 17th inst., to summonses charging them with furiously driving their motor-cars in High Holborn on the evening of April 21st. P.C. 433 E said that he saw the defendants travelling at the rate of sixteen miles an hour, and scattering people in all directions. He called upon them to stop, but, though they slowed down, they would not stop until the constable on duty, at the corner of Southampton Row, hearing the whistle, stopped the traffic. The defendants asserted that the gear on their machines would not permit of such a speed as sixteen miles an hour, and Mr. Friswell said he was following a Bayswater bus, and talking to the conductor when he was stopped. Two constables, however, corroborated the previous evidence, and Mr. Marsham fined each defendant 10s., and 2s. costs.

SEQUEL TO A MOTOR-CAR ACCIDENT.

At Edinburgh last week Sheriff Macdonochie fixed proof in an action for damages raised by William M'iver, coachman, 9, Hope Street, North Leith, against the Edinburgh Autocar Company (Limited). The amount claimed is £100. The pursuer avers that on March 27th last, while he was driving a carriage in Lothian Road in a southerly direction, and when opposite Grindlay Street, was run into by a motor-car driven by a servant of the defendants named Collins. The pursuer was violently thrown from the box to the street, and sustained a severe shock, from the effects of which he has not yet recovered, and was severely bruised in the body, and it will be some weeks before he will be able to resume his vocation. The driver, Collins, who was in charge of the motor-car, was convicted in Edinburgh Police Court for having recklessly and carelessly driven the car, and a fine of £5 imposed. The defenders deny that the accident occurred through the fault of their driver. The car was proceeding at the rate of not more than four miles an hour, and if the driver of the carriage had exercised ordinary care he could have avoided the collision. They also deny that the motor-car was on the wrong side of the street, and with regard to the conviction in the Police Court the defence is that Collins pleaded not guilty, and that the case was prejudiced by the absence of one of his witnesses, but admitting liability, the defenders offer the sum of £25 in full of the pursuer's claims.

STOPPING WHEN ASKED.

At the Pershore Petty Sessions last week, before General Davies (Chairman), Colonel Stringer, and Mr. C. Whitaker, Ralph Fort, 19, Queen Street, Oxford, was charged, under the Locomotive Highway Order, with refusing to stop when asked. Mr. T. Mallam (Oxford) defended. Defendant was driver of a motor-car. William Dee, Woollass-hill, said he was riding to Eckington on the 25th April, and met a motor-car. The horse became restive. He asked the driver to stop the car, but he refused, and told witness to go back to the corner while the car passed. By General Davies: The car was not going very fast, about eight miles an hour. Ann Cross said she saw the car going along the road, and Mr. Dee could not get his horse to pass. The car did not stop at all. She saw Mr. Dee put up his hand for the car to stop. Charles Osborne, Eekington, said he heard Mr. Dee call to the driver to stop. Mr. Dee had to go back into a side road while the car passed. Mr. Fort, Oxford, said he drove the motor-car 120 miles on the day in question. He saw complainant coming along the road. The horse was very restive. He at once stopped the car and put the back motion on, in case the horse should come toward him, as he could then go backwards. Fred. Jarner, Birmingham, corroborated, and said he persuaded Mr. Dee to go back to the side road, which was about twenty yards from where they met Mr. Dee. They gave Mr. Dee every opportunity to pass. Mrs. Fort corroborated her husband's statements. Seymour Fort, son of Charles Fort, said he thought the rider was more frightened than the horse. The Bench thought Mr. Fort a very competent and careful driver, and that Mr. Dee had every opportunity to pass without danger. The case was dismissed.

THE EARL OF CARNARVON AND HIS MOTOR-CAR.

THE Earl of Carnarvon, who is High Steward of the Borough of Newbury, and whose Hampshire seat, Highclere Castle, is but a few miles distant, was summoned by the police superintendent of that town for driving his motor-car at a greater speed than was reasonable or proper, having regard to the traffic on the highway, and to the common danger of the public, on May 5th. The hearing took place on Friday, the 18th, at the Newbury Borough Police Court. The Earl did not put in appearance, but was legally represented by Mr. F. Tuckett Louch. A technical objection was first raised as to the wording of the summons, but this was over-ruled, and evidence was called. Police Constable Pounds said on Saturday evening, May 5th, at 7.40, he was in Bartholomew Street, and saw Lord Carnarvon pass on his

motor-car. The car went by like a flash of lightning, and before he could put up his hand to stop it the car had disappeared in a cloud of dust. The pace was from 20 to 25 miles an hour. There were a good many people about in the streets, mostly on the pavements, but there were no vehicles. In cross-examination the constable said he had never ridden on a motor-car, but was a cyclist, and judged pace accordingly. It took about a minute for the car to travel 400 yards. Further pressed to give an exact statement as to the pace, he said it was excessive. Mr. Rawlings, relieving officer, said the car was going at a very rapid rate, and whilst he and the constable were crossing the street it passed out of sight in a cloud of dust. He saw women and children running to get out of the way. Mr. Henry Higgs said the car was going at twenty miles an hour, as far as he could judge, and it bounded over the bridge. He had never seen a motor-car going so fast, and he had seen a good many. This being the case for the prosecution, Mr. Louch asked if he had any case to answer. He submitted that a motor-car came under the definition of a carriage in the Highways Act, under which proof must be given of injury, interruption, or personal danger to any person travelling on the highway. In two cases upon which he relied, *Hills v. Somerset* and *Stenson v. Brown*, it was held on appeal that there could be no offence unless proof were given of injury, interruption, or personal danger. No such evidence had been given in this case, and the only statement made on the point was that women and children were seen to run out of the way. But none of these had been produced, and therefore he submitted that there was no case to answer. The Bench expressed a desire to hear witnesses for the defence. Alderman Benjamin Smith said he saw Lord Carnarvon's car pass, but it was not travelling faster than other motors he had seen pass, and he did not think it was going faster than it ought. He did not see it "bound" over the bridge, and there was nobody in the street endangered or interrupted. There was nothing in the speed to attract his attention, and certainly it was not fast, having regard to the traffic about. Dr. Marcus Johnson said he was on the car with Lord Carnarvon, who was driving. They passed between two or three vehicles, and Lord Carnarvon was very careful. They were going at about six or seven miles an hour, and nobody showed any signs of danger or held up their hands to them to stop. He had driven and ridden horses faster in the same street. He had travelled many times on the car with Lord Carnarvon, and considered him a very careful driver. The women ran more to see the car than to get out of its way. It was impossible for the car to progress by leaps and bounds: had it done so they would have been all thrown out. Mr. Louch explained to the Bench that the cloud of dust was caused by the heated air being forced out on the road, which caused the dust more than the action of the wheels. The Bench, after a short deliberation in private, unanimously decided to dismiss the case.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.


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COMMENTS.



THE Whitsuntide tour of the Automobile Club is now in progress. Leaving London on the 1st inst. the party reaches Peterborough on the first day; on the 2nd inst. progress will be made as far as Norwich; and Sunday will be spent in the fine old city of narrow and winding lanes as well as of historic associations and pleasant surroundings. Then on Monday the journey will be resumed to Cambridge alternative routes *via* Bury St. Edmunds and Yarmouth having been thoughtfully suggested by the organisers.

On Tuesday the return to town will take place *via* Royston and the road along which the Commercial Efficiency Trials of 1899 were conducted. After lunch at Hatfield the last stage will be run *via* Barnet and Finchley to the club-house.

The Road to St. Albans.

OUR remark that it was a rather doubtful advantage for the route of the 1,000-mile Trial to terminate into London by way of Elstree has called forth a letter from a correspondent, who says the suggestion echoes the opinion that has been expressed by a great many. He expresses surprise that the route to Peterborough for the Whitsuntide tour is also *via* Elstree, and declares the persistent shunning of the Great North Road to be a matter of mystery. While the road is narrow and tortuous for such a large procession of vehicles as entered London recently, the objection to such a route is removed on the outward journey, so far as members of the Automobile Club are concerned, by its convenience to those leaving the club's premises and the generally good condition of the road. At the same time we are glad to see that during the present tour opportunity is given for club members to have experience of both routes.

The Manchester Automobile Club.

WE learn that the first run of the season of the members of the Manchester Automobile Club was held on Saturday last, the 26th ult. The members, after a run from Manchester, met for dinner at the George Hotel, Knutsford. The weather was everything that could be desired, so that there was nothing to detract from the success of this first outing. The cars taking part left Knutsford for home about 8.30.

Motor Racing at the Crystal Palace.

IN our last issue we gave an outline of the motor-cycle races which are to be held on the Crystal Palace track on Monday next, under the auspices of the Motor-Car Club. We learn that Mr. S. F. Edge, who is one of the competitors, has a "dark horse" for the contest for the Brassard Cup in the shape of a special De Dion racing tricycle fitted with a 6 h.p. motor. As Mr. F. F. Wellington is one of the competitors it is almost certain that he will mount his 7 h.p. machine recently illustrated in these columns, so that Monday's racing should prove of an exciting character.

The Gordon-Bennett Challenge Cup.

THE date for the Gordon-Bennett challenge cup race is rapidly approaching, and the contest is now the leading subject of conversation not only in automobile circles in France, but also in this country. As is fairly well known the date fixed for the race is Thursday, the 14th inst., and it may be useful to give once more the route, which is as follows:—Paris, Etampes, Pithiviers, Montargis, Nevers, Moulins, La Palisse, Roanne, Villefranche, and Lyons, a distance of about 560 kilometres, or 350 miles. It is probable that the start will take place from Versailles, and excellent roads will be encountered throughout the route, although the level nature of the course gives way to a hilly, if not mountainous, route after Roanne is passed. Our Paris correspondent this week sends us some interesting information regarding the race, which will be found in other pages of the present issue.

Some English Visitors.

WE hear that quite a number of the members of the Automobile Club are making arrangements to go over to France to witness the contest. Not a few are contemplating making the journey by motor-car, and judging from present indications several twin-Daimler cars will be taken across the Channel. A vehicle which is bound to attract attention in France is the 16-h.p. Napier car, which Messrs. Napier and Edge hope to take over about the 9th or 10th inst.

The Napier 16-h.p. Car.

WHILE referring to the Napier car we may mention that the success of this type of vehicle in the recent 1,000-mile Trial is likely to bring it into striking prominence at no distant date. Already a large number of 8-h.p. cars have been ordered, while of the 16-h.p. vehicles orders for seven or eight have also been secured. A feature of the 16-h.p. cars is that all the bearings are to be of the roller type, while as to the speed capabilities we understand that each vehicle will be guaranteed to be capable of travelling at a speed of a mile a minute. Among those who have 16-h.p. Napier cars on order are Mr. Roger Fuller and Mr. Mark Mayhew. The first one turned out, however, is for Mr. S. F. Edge's own use; it is being fitted with a special set of Dunlop pneumatic tires, 90 m.m. for the front wheels and 120 m.m. for the rear pair, this being, we understand, the largest size so far made. Mr. C. Jarrott is to be the fortunate possessor of the second vehicle of this type.

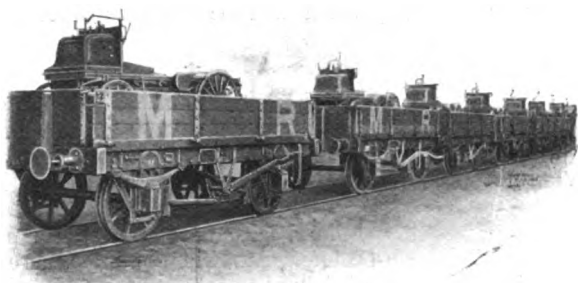
At the Anglo-French Association.

THERE was a gathering of the Anglo-French Association at the Café Monico, London, on Saturday, to hear Sir David Salomons on automobilism. The attendance included ladies as well as gentlemen, and their interest in the progress of automobilism was evidenced in the opportunities that were presented for conversation during the evening. Mr. Roger

Wallace Q.C., presided, and introduced Sir David Salomons in felicitous terms. Sir David had much to say of current interest as well as of permanent importance, and his reference to the ultimate reduction of the prices of vehicles of the voiturette class will be read with interest. As the industry becomes better organised in this country the possibility of lower prices will become nearer, but any great reduction will only follow an active demand. This is a point to be remembered by both the trade and the public, and makes the popularisation of the automobile in Society an essential factor in the development of the industry.

Sir David Salomons.

SEVERAL other excellent and suggestive ideas occurred in the paper, which we print on another page, and which is worthy the careful perusal of all interested in the subject; and Sir David's criticisms of various types of vehicles are most valuable. At the conclusion of the paper M. Bernard Mitson proposed a hearty vote of thanks to the reader of the paper. In doing this M. Mitson referred to the connection of Sir David Salomons with the Automobile Club of France, to which he had rendered great service. An article he had recently written in the review of the French Touring Club on public school life had created quite a stir in France, and if Sir David was not fully cognisant of the objects of the Anglo-French Association, he had, like M. Jourdain in talking prose, been helping them without knowing it. It had been said that the friendship of the two neighbouring nations would be firmly established when the French played cricket and the English rode on motor-cars. The latter



A BIG DESPATCH OF DAIMLER CAR.

was near its fulfilment, and the first was being furthered by Sir David Salomons' advocacy of his views on public school life.

Zola on the Motor-Car.

THE motion having been adopted with great cordiality, Mr. Wallace brought the speech-making to a pleasant conclusion by reminding the company of the importance attached to automobilism by no less a novelist than Zola, who had brought one of his novels to a happy conclusion by letting the lady turn bicyclist, and the gentleman convert some explosive material which was to have wrought vengeance, into a means for working an automobile. Automobilism was undoubtedly having a great effect on the French character, and he quite agreed with Sir Francis Jeune, who had lately pointed out the good work it was doing in improving life in the country.

Jules Verne's Views.

ZOLA is not the only novelist who believes in automobilism. Jules Verne, who foreshadowed the coming of the motor in his "L'Île à Hélice" and "La Maison à Vapeur," is also a firm believer in the regenerating mission of the motor. Only the other day he told a visitor to his house at Amiens that he believed automobilism to be the most precious of modern inventions. "Its destiny," he declared, "will be to combat the great danger of the future—the tendency of populations to desert the country for the great towns. The crowding of the great centres, the three-storied life, underground, surface, and overhead, decreasing birth-rates and increasing self-indulgence—

these are the spectres of the coming century. But the time is sure to come when every ordinary citizen will possess his motor-car, and let us hope there will come with it an emigration back to the fields."

Roads.

THE development of automobilism and the improvement of the roads are so intimately connected that no excuse need be given for the introduction to our columns of an extract from a paper read before the county surveyors of the country by one of themselves. From this, which is published on another page, it will be seen that Mr. G. J. Bell, the county surveyor of Cumberland, recognises the success which attended the recent 1,000-mile Trial and is of opinion that this form of road locomotion will shortly become general in this country. But, says Mr. Bell, if the people are to secure the best results from the new form of locomotion, county councils must have increased power to deal with highways, and also expend more than is now spent in devising roads of a better description. With his views automobilists will naturally have a large amount of sympathy and, individually, they can help their dissemination by placing them before county surveyors of their acquaintance for reading, if not for actual endorsement.

A Wail from the Park.

A GENTLEMAN calling himself "X." has been active of late in writing to the press against the motor-vehicles that are allowed in Hyde Park. He asks, "Is it the desire of the controllers of the park to destroy the pleasure of those of us who still delight in a fine pair of horses, for the convenience of the plutocratic manufacturers of machines which, however desirable they may be for the conveyance of Brummagem goods, are not fit for the society of self-respecting human beings." What a fine sentence, and how descriptive must "X." regard that phrase, "the plutocratic manufacturers of machines"? But is it not a little mixed? We did not know that motor-cars were any more intended for the "society" of human beings than are milk-pails, nose-bags, and even horses themselves. These things have their uses, and so have motor-cars, but none are intended for the society of man or woman. Such silly tirades are, however, becoming less in number if not in ferocity, and "X." should remember the case of Canute and the waves, and take the simile unto himself.

Motor-Cars in Poland.

IN view of the necessity for the improvement of our roads to take place simultaneously with the development of automobilism, there is a reference of interest in the report of the British Consul-General at Warsaw. Nearly all the efforts, he says, which were made to introduce the use of motor-cars have failed on account of the bad state of the Polish roads. The motor-car service between Piotrkoff and Kalish was discontinued after about a week's trial; that between Wloclawsk and Lipno was completely abandoned. It is more than probable that there will be no opening whatever for a long time to come for motor-car builders in that consular district; firstly, because running them is too expensive, and, secondly, on account of the deplorable state of the Polish roads.

Motor-Car Excursions.

MESSRS. DEACON AND SON, of Llandudno, are developing the idea of motor-car tours, and their programme will probably be of interest to those thinking of starting such services elsewhere. A Daimler car leaves every Monday, Wednesday, and Saturday at 11 a.m., for Colwyn Bay, returning through the Vale of Moelre, the fare being 2s. 6d. At 2.30 p.m. on the same day a car leaves for Penmaenmawr and Dwygyfelli Fairy Glen, the fare in that case being 4s. On Tuesdays and Fridays a longer trip at a fare of 7s. is being arranged

to Bettws-y-coed, and on Thursday, starting at 10 a.m., a run is made through Bettws-y-coed, Capel Curig by Lake Ogwen, through the Nantfrancon Pass to Bethesda, and returning *via* Aber, Llanfairfechan, Penmaenmawr, and Conway, arriving at Llandudno about 6.30. The fare for the latter trip is half a guinea. Messrs. Deacon and Son are providing short trips round Craigydun, and conducting the tours with an enterprise that should merit success. We also hear that Mr. J. J. Langley, of Park Square, Luton, is arranging similar trips in the locality of his town, two capital trips testing the capacity of his Motor Manufacturing Company's char-a-banc, and giving the passengers a good view of the surrounding country, being to Old Warden (*via* Bedford) and Hitchin respectively.

Motor-Cycles and How to Manage them.

THIS is the title of a useful little handbook which has just been issued by Messrs. Iliffe, Sons, and Sturmev, Limited. It is from the pen of Mr. A. J. Wilson, whose acquaintance with motor-cycles is of the most complete kind. After a chapter on motor cycles generally, there follows one on how to ride and drive, one on the motor, and another on the care of the machine. Defects and their remedy are next dealt with, while a useful chapter is devoted to motor-cycle law. The little work is one which should prove of assistance to all who are contemplating entering the rapidly-increasing army of motor-cyclists.

A Tour on a Steam-Car.

MR. GEORGE ISHAM SCOTT, a member of the Automobile Club of America, recently made a tour with his Locomobile steam-car of more than six hundred miles. Leaving New York Monday, April 4th, he reached Philadelphia the same evening, finding the roads fair and the machine running to perfection. From Philadelphia to Havre de Grace, on the Susquehanna, the roads were very rough and difficult, but the trip was made without mishap. The evening of the third day out of New York found him in Washington, where he remained three days. The cylinder head and steam chest needed repacking, and this was done while in Washington. From Washington to Baltimore and to Havre de Grace the roads were deep with mud, and extreme care was necessary to bring the wheels out of the chuck holes. In turning a corner in Baltimore a wheel came too close to the curb, and a visit to a repair shop was necessary to have the eight damaged spokes replaced. From Philadelphia back to New York everything ran well, and over a twelve-mile stretch alongside the railroad a little brush with the train was one of the pleasant diversions. The train came in a minute and a-half behind the automobile. Mr. Scott and his brother, who accompanied him, expressed themselves, states the New York *Automobile*, as having thoroughly enjoyed the ten days' tour.

Motor-Cars and Tram-Cars.

WHERE monopolies exist high fares are generally the rule. At this point the motor-car can often be utilised in the public interest, and the inauguration of the Lincoln Motor 'Bus service along certain streets of the city, which we announced last week affords an instance. There was some talk of the company running their motor-buses on the High-street route—from the Cornhill to Bracebridge and back, and the possibility of opposition seems to have had its effect on the Tramways Company, for they have reduced their fares from twopence to a penny the entire distance, a concession for which the public had vainly asked for years. The reduction in the fare will be none the less appreciated because it comes rather late in the company's existence.

In Madagascar.

THE technical secretary to the Automobile Club of France, the Count de La Valette, is about to leave Paris shortly for Madagascar in company with General Gallieni, and automobilists will be interested to learn that he is taking with him no less than six specially constructed self-propelled vehicles. These cars are fitted with 12-h.p. motors, and are intended for

public service work in the island. Certainly the experiment of M. de La Valette is a bold one, for with the roads none too good and the grades exceedingly heavy the work will not be easy to perform. Should the enterprise prove successful it will appeal strongly to those colonial governors who are desirous of further opening up the provinces under their control, and the experiment will undoubtedly be followed by them with considerable interest.

Aluminium.

At the annual meeting of the British Aluminium Company, held the other day, Mr. Roger Wallace, Q.C., made reference to the effect of the automobile industry in assisting the development of the company introducing aluminium into France. "The increase in their business," he said, "was due to the motor industry; for in automobiles aluminium is largely used. We are only beginning that industry in this country, and I was pleased to see that in the 1,000-miles tour, which took place recently, most of the machines used aluminium. These are only sample machines; but we believe from that industry we have a great deal to expect."

The Finchley Carnival.

ON Thursday, the 24th ult., Finchley kept the Queen's Birthday by afternoon and evening parades in aid of the Widows' and Orphans' Fund. Automobilists duly took their part, a few running in the afternoon and several in the evening processions. The costumes were good and the decorations



Photo by]

Edgar Scamell, Crutch Hill.

on the ears looked especially well when illuminated by the many Japanese lanterns which most carried. Owing to the morning rain side-slip was rather prevalent amongst the cyclists, two of whom fell within five feet of the front of a motor-car, which, happily, was able to pull up in time. All passed off well, and no doubt the Fund will receive a handsome addition as the result of this worthy effort. Our illustration shows Mr. C. W. Brown on his Benz car as Dick Turpin, and Mrs. Brown as Mother Shipton. The other car is that of Mr. Johnson, who paraded as Paddy, while Mrs. Johnson represented Ireland.

Opposition to Motor-Cars.

A MEETING of 'bus proprietors, chiefly those in the Torry district of Aberdeen, has been held in Mr. Scott's office, for the purpose of protesting against the proposed motor-car service to Torry and the beach. Councillor Gray presided. He said that the object of the meeting was to make it clear to the people of Torry that they were not going to throw up the sponge in view of the proposed introduction of motor-cars. He thought it a great hardship that when a few men put their savings into a few machines and horses they should be swooped down upon by men who had some capital which they were evidently

anxious to get rid of. He was sure that in London alone at least a quarter of a million of money had been sunk for such a project, but no company had yet been able to pay one farthing of a dividend. Perhaps it would only be friendly to express the wish that their friends in Aberdeen might be successful. Had the project, however, originated with the Torry people, it would have been excusable, but it was not the right thing for others to step in for the purpose of taking away the living from men who had a hard struggle to get ends to meet. The result of the meeting was that a committee was appointed to look after the interests of the drivers, and do anything necessary to safeguard these interests.

The Legal Status of Motor-Vehicles in America.

MR. FRED D. STANLEY, a Boston lawyer, has written a pamphlet entitled "Motor Vehicles in the Public Streets and Highways; Their Legal Rights and Liabilities," in which he reviews numerous American statutes bearing on the subject, and quotes opinions delivered in over a score of cases involving the use of streets and highways in unusual ways. The author defines highways and streets, showing that the former include the latter, and pointing out that "a municipality has no authority over the streets within its territorial limits, except such powers as are delegated to it by the Legislature, and in no case can it exercise dominion beyond those powers." The streets and highways being for public use, except as restricted in dedication or by statute, no particular mode or modes of locomotion can be favoured thereon by the municipality. This, however, does not debar the municipality from enacting such regulations of traffic as are necessary for the general advantage; but it debars total prohibition of anything not demonstrably a nuisance. "The drivers of horses have no more rights in streets or carriage ways than those using other common modes of conveyance, and the mere frightening of horses is neither actionable as a tort nor complainable as a nuisance, nor an obstruction which city officers or public boards are accountable for." "Some horses are frightened at a piece of paper, others are not. * * * Some horses are frightened at bands of music, others are not, but it is a recognised principle of law in this country that no action can be sustained against a municipality that permits bands to march through its streets, by reason of which some horse may become frightened and occasion damage." This fact should be more widely realised in this country.

An Accident at Luton.

WHEN motorists are going along roads to which they are unaccustomed exceptional care should be taken. It was probably owing to the driver being unaware of the precipitous descent of the London Road hill at Luton that a recent accident occurred which will probably upset the nerves of those who only look at the dark side and take little notice of the thousands of miles that are now covered with safety by motor-vehicles every week. If the vehicle had been drawn by horses and the results more serious they would have said nothing. It appears that Mr. W. A. Sewell was driving his motor-car, his son, Mr. F. Sewell, and a lady and gentleman friend being passengers. They had had a capital run to Luton, but in coming down the London Road hill the car got a great impetus, and while an effort was being made to negotiate a bend in the road the driver appears to have missed control of the steering apparatus and the vehicle capsized, throwing the occupants into the road.

Help at Hand.

THEN came, to the onlookers, the sensational part of the proceeding, for some of the woodwork of the car caught on fire. Water was stupidly thrown on to the flames, and only when sufficient earth had been piled on were they put out. Fortunately Mr. J. J. Langley, who has a motor and cycle works in Park Square, Luton, was quickly on the spot, and with assistance he was able to get the car up and run it to his works

for repairs. It is clear that the affair was owing to no breakdown of the working parts, and altogether there was nothing in the unfortunate mishap to shake local confidence in motor-cars.

Touring Europe.

IN the early days of the Queen's reign the tour of Europe was regarded as an indispensable part of the education of the man who could afford the expenses of the journey. Latterly, however, it has fallen from its old popularity, and extended roving has taken its place combined with a closer study of our own country and the colonies. Will the idea of European tours on motor-cars do anything to resuscitate the favour with which the "grand tour" was once regarded, seeing the extended adoption of the automobile on the Continent and the facilities it offers for seeing the landscape while covering great distances in short spaces of time?

Baron de Crawhez's Travels.

WE are led to this reflection by a series of photographs published on another page. These views were taken during the recent tour of the Baron P. de Crawhez (a leading member of the automobile world of Belgium) through France and Italy, and concluding as far away as Tunis and Algeria. The Baron's love of travel has just led him to another automobile trip, this time through Switzerland, where his experiences ought to be particularly interesting. Such tours as these, occupying many weeks, going over roads of infinite diversity and in climates of equal variableness, afford strong testimony not only to the reliability of the motor-car, but also to the cosmopolitan character it is likely soon to attain.

Views in Rome and Algeria.

THE first photograph is a snapshot on the Grenoble road, in France, where automobiles are familiar sights indeed. That to the right is a view of La Grande Chartreuse. The third and fourth photographs present views of the modern automobile amid ancient surroundings—St. Peter's at Rome and the Coliseum. Evidently the presence of the motor-car at the latter place attracted the curiosity of the inhabitants, some of whom must have thought it in very incongruous association with the famous ruins to which gladiatorial contests and chariot races have been far more familiar than "merely modern mechanical contrivances." The last pair of photographs were taken in northern Africa, and apparently the natives quickly grew accustomed to the motor-vehicle, probably regarding it as something associated with the march of civilisation. What would they think could they read the comments of some of our rural councillors on the subject?

Dust.

SPECTATORS of the recent 1,000-miles Trial were much impressed with the dusty appearance of the cars and their passengers, and the impression has become current that such a dusty aspect is inseparable from automobilism. Those with that view should remember that when they saw the cars they had been some days upon the road, and that the vehicles left each day in procession. Those in the rear of a long row of horse-drawn vehicles would appear equally well covered with dust, and the roads leading to Epsom Downs on Wednesday revealed the work of horses' hoofs in raising the dust to an extent to which no motor-car has ever been guilty. The other day we drove to Hampton Court in a carriage and pair, and can testify to the dust that was raised being quite as irritating and annoying as that associated with a motor ride along the same road. A few minutes' reflection should be sufficient to convince anyone that a motor-vehicle having no horse in front cannot possibly raise the dust in such quantities as an ordinary carriage or cart.

A PROJECT is on foot at Nice to establish an automobilodrome. The proposed track would be ten kilometres long.

A FIVE-MILE MOTOR RACING TRACK.

THIS is Derby week, and old frequenters of the famous Epsom road have been deploring the altered character of the crowds that formerly attended the great race. Without entering into the *pros* and *cons* of their contentions it would be interesting to inquire whether motor-car races are ever likely to attain the importance of the Derby in the popular mind. Epsom, Ascot, and the other great race meetings have each their devotees, and we believe the formation of a track equally carefully prepared as is the racecourse would lead to the raising of automobilism to a position of first-rate importance. We in Great Britain have little idea of the possibilities that lie in motor-car contests. French automobilists have raced until the pace has frightened the authorities, who have interfered so as to seriously curtail the normal privileges to which we contend they are legitimately entitled.

In this country, on the other hand, the limits of speed on country roads have not given manufacturers the opportunity for suggested improvements which rather higher speeds would have provided, and *chauffeurs* who have watched with pleasure the doings in some of the less conspicuous French races have sighed for less restrictions and occasional lapses into rapid flight along unfrequented roads. They do not want to rush round corners at a break-neck pace; they have no desire to knock their heads against brick walls; but they would like an opportunity of enjoying the exhilarating experience of rushing along the countryside without fear of the policeman's power of imagination being used to mulct them in heavy fines and damages. This feeling has probably been increased by the success of the recent great trial and those who put on speed at Welbeck and through Clumber Park felt an incitement that should be ministered to in some way or other.

Hence we regard the provision of an automobile track as a matter of great importance to automobilism, and also as meeting the need for the organisation of sports and pastimes on a thoroughly representative scale. Firstly, such an institution would provide a centre for automobilism as a sport, and destroy the necessity for any suggestion for road racing—a form of motorism that is never likely to be acceptable to the great majority of the British public. The desire for going ahead on a motor-car can no more be wholly suppressed than the anxiety of the race-horse to go to the front; hence the need for some place where trials of speed could be carried out without hindrance from the police and without risk to the public.

In view of the rapid growth of the automobile industry, and the favour with which the sport is being regarded, any scheme of the kind we have indicated should be conceived on broad lines, and carried out with a liberal policy. It would not be wise to

have the track of small diameter so that the feeling of fishes in a globe should be borne in upon the minds of those who used it. There should be varying gradients as well as straight runs, and after discussing the matter with several gentlemen who regard the proposal as quite feasible, we have come to the conclusion that a track five miles round would present an opportunity that all automobilists would enjoy. With a width of fifty or sixty feet and with well-marked lines so that the motor-vehicles should not cross each other's paths there should be every chance of getting up to good speeds without the dangers and accidents that have proved inimical to the sport on the Continent. Such a track with a good macadam road never traversed by horses would give manufacturers as well as owners a means of adequately testing the speed of their vehicles and so establishing a standard criterion which would be useful to buyers and serviceable to makers.

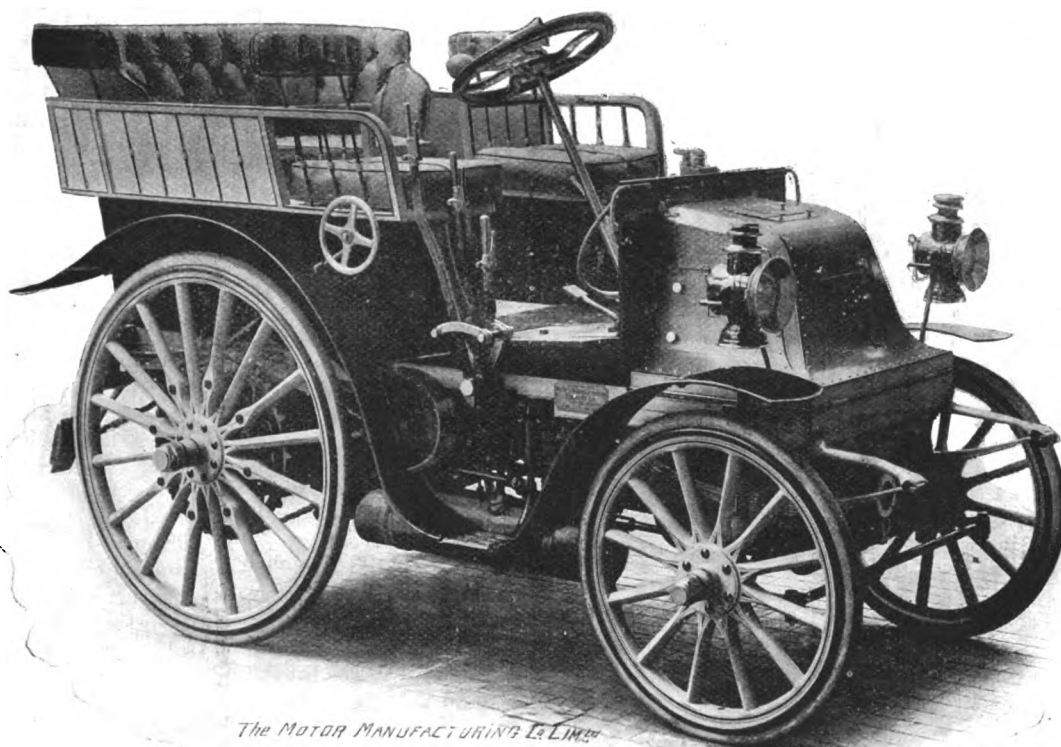
As to the locality, such a venture would have to be established within easy access of London, say, at a distance of thirty or forty miles. There are plenty of estates within such a radius unprofitable as farm land, only poorly productive as market

gardens, and not yet ripe for building where such a track could be laid without any great road-making difficulties being encountered. Some landowners might regard the proposal as one worth encouragement, and doubtless a good area could be obtained on reasonable terms if the proposal were made by a band of enthusiastic motorists.

While providing the opportunity for developing automobilism as a sport, such a track would also serve as the centre for other sports of a popular character, for within the space actually required for the

motor-cars, grounds for tennis, cricket, golf, and other amusements could be laid out, and a careful planning should ensure arrangements for social festivities, with features that are now impossible. The matter is certainly worth discussion, and we shall be glad to open our columns to correspondence on the subject, feeling certain that something of the kind would go far in helping the new locomotion as well as showing its possibilities as a sport. When the automobile world has just shown how successfully it can organise a great tour throughout the length of England seems a fitting opportunity for the introduction of such an idea which seems to give the opportunity for speed that automobilists require and also to introduce motoring to the votaries of other sports as one deserving their consideration and likely to give healthy pleasure and keen enjoyment.

THE *Daily Express* on Wednesday had a sketch of "Going to the Derby twenty years hence"—showing the roads lined with automobiles of various types conveying spectators to the famous Epsom course.



THE MOTOR MANUFACTURING CO.'S 6 H.P. IVEAGH PHAETON.—No. 9 IN THE 1,000-MILE TRIAL.

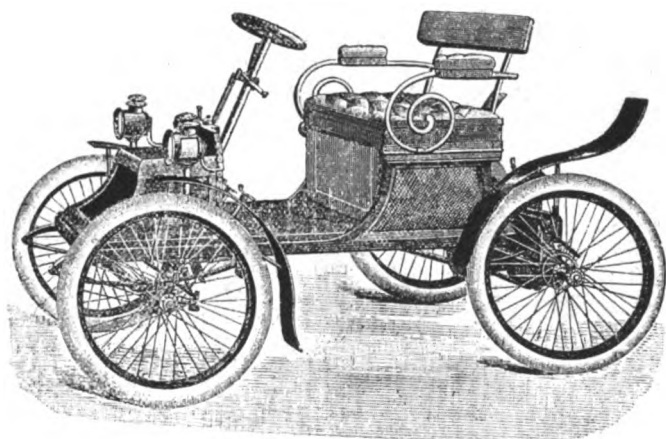
MOTOR-CARS ON THE CONTINENT.

French Ministers who Motor.

M. WALDECK ROUSSEAU himself, President of the Council, is one of the latest notabilities to join the ranks of automobilists, and during a recent visit to Havre he might have been seen frequently driving a car. But he is not the only French Minister to whom the pleasures of motoring appeal, for already we have M. Pierre Baudin and M. Jean Dupuy, both enthusiastic followers of the new sport. Now if M. Lépine, the Préfet of Police, could be won over to the cause of automobilism, what a victory that would be, and how easier in mind would become the Parisian *chauffeur*! And why not?—for all things are possible, and M. Lépine himself is as susceptible to the pleasures of smooth and easy travelling as the rest of mankind.

The Clement Voiturette.

MESSRS. CLEMENT, of Levallois, Paris, are now manufacturing a two-seated voiturette of the type illustrated herewith. The motor is of the De Dion 2½-h.p. air-cooled type, geared direct to the rear axle by a two-speed gear. The engine is placed well below the body, and the sides of the latter are of perforated material, to permit free access of air to the



cylinder. Steering is controlled by a sloping hand-wheel in proximity to which all the control levers are located. The carriage, which is capable of attaining a maximum speed of 30 kilometres an hour, weighs only 300 lb., or just below 3 cwt.

Chéri's Sale.

ONE of the most interesting features among recent automobile events in Paris has been the auction held some short time ago at Chéri's establishment at Neuilly, not only by reason of its novelty, but also on account of the far-reaching effect it may ultimately have upon the industry. A year ago a somewhat similar sale was held by M. Charron with results so little beneficial to himself that he has not since repeated the experiment, and apparently has no intention of doing so. But the conditions prevailing at the *garage* of M. Charron and the Haras de Saint-James are so totally different that what proved a failure at the former may well score many successes at the latter. Looking at the sale as a novelty the experiment was certainly a peculiar one in a spot so inseparably associated with blood stock as Chéri's. Those sportsmen who habitually attend the sales held at the famous establishment would have hardly recognised the lawn and the horse boxes, so absolutely destitute were they of the noble steed. And in place of the yearlings there were numbers of smart cars being put through their paces before a crowd of the best known automobilists of the day. The vehicles put up for sale were the property of M. Edmond Blanc, Prince Obidine, Prince Pierre d'Arenberg, Comte Gérard de Ganay, Baron de

Dietrich, Marquis de Balleroy, Vicomte Foy, Vicomte de Perigny, Comte de Beaumont, M. Michel Ephrussi, and several other leaders of automobilism in the fashionable world. The majority of these owners put a reserve price upon the cars; indeed, the idea of ascertaining the marketable value of their vehicles more than the desire to actually sell them seems to have prompted these society *chauffeurs* to include their mounts in the sale catalogue. As a consequence, but few vehicles changed hands, although the aggregate of the bids made exceeded £12,000. M. Halbroun, who was conducting the sale, was, however, more than satisfied with the result, not only because more cars were disposed of than he anticipated, but also by reason of the interest manifested in the experiment. Many leading automobilists expressed their hearty approval of the idea, and intimated their intention of sending some of their cars to M. Halbroun for disposal; indeed, it is extremely probable that another and larger sale will be held at an early date. In the event of regular auctions being established the immediate effect will be the diminution of the excessive prices now demanded by the leading agents and a corresponding spread of the industry. It is the middleman who takes the heavy profit on automobiles, for in general the constructor's price is not excessive, and it is only when a car gets into the hands of the intermediary that its value goes up to fancy figures. Regular sales, too, will afford to wealthy automobilists an outlet for their cars of an older type to that of the prevailing fashion, and these vehicles will be eagerly sought for by those motor-men unblest with a purse sufficiently long to enable them to possess a car of the latest pattern. I am of opinion that the institution of such auctions will have a distinctly beneficial effect upon the industry, and it is to be hoped that a system of sales at regular intervals can be organised.

Cabourg's Troubles.

It will doubtless be remembered that towards the close of last summer the whole automobile world in France was horrified to learn of an apparatus designed by the owner of a property in the vicinity of Cabourg, for the purpose of preventing the passage of cars along the road adjoining his grounds. This contrivance consisted of a tree, cut at the base, and held in place by means of ropes and pulleys. Upon the approach of an automobile the tree was promptly dropped across the route, effectually barring the way, and the anti-automobilist chuckled with delight. This innocent amusement having been put a stop to, the gentleman has broken out in a new direction. It appears that, having a strong personal objection to the deputy-mayor of Cabourg, he intimated to the inhabitants of that charming little town that should the official be re-elected for the current year he would transform his house into a sanatorium for contagious diseases. As a result of the recent municipal elections the deputy-mayor has, however, been re-elected, and now the threatened sanatorium has duly made its appearance, presumably with a proper complement of sufferers from infectious maladies. What a charming citizen the man is, and in what a bewildering state of perplexity must be the inhabitants of Cabourg, the situation not being simplified by the steadfast refusal of the deputy-mayor to resign. Developments are awaited with interest.

The Mechanic.

A LEGAL case that has excited considerable interest in automobile circles was decided in the Paris courts last week, and the judgment given should have a salutary effect upon those mechanics—and unfortunately there are only too many of them—who consider themselves to be superior beings to the ordinary mortal in general and to their employer in particular. In the case under notice M. Michel Ephrussi, a well-known French sportsman, had engaged some time ago a *chauffeur-mécanicien* named Martinet to look after his cars at Melun, where he has a large estate. According to his master, Martinet frequently absented himself without leave, and upon returning from one of these pilgrimages M. Ephrussi gave him eight days' notice to leave, and the amount of salary due to him to that date. This

proved not to be to the liking of Martinet, for he commenced an action against his former employer, claiming a month's salary, viz., 250 francs, and 100 francs compensation, based upon the argument that he was an employee and not a mere domestic servant. The court did not, however, uphold this view of the case, but ruled that Martinet was a servant and as such entitled to but a week's notice. There exists in France, just as there exists in England and probably every other country, a class of mechanics which may well be styled the "swollen-headed brigade." The members of this community are indeed a trial and a tribulation to the automobilist, for when they do condescend to engage with a master they give him no peace of mind. They don't clean the car—oh no! that is a stableman's work; they don't carry out repairs—that is a workman's occupation; they object to sit upon a back seat, or wear a uniform, and if they occasionally condescend to drive it is merely to show their long-suffering master how a car should be driven. If anything goes wrong with their charge—and I have known things happen even with the best of cars—these men regard their masters with withering scorn and mumble remarks about "no gear will stand changing speeds like that," or some similar criticism. Of course there are mechanics who do not belong to this class, but in general they are young men ignorant of the usages of the profession. Why, not so long ago, I heard of a mechanic who, having been so kind as to enter the service of a lady automobilist, so far forgot himself as to permit her to actually drive the car while he sat on the back seat, until a fellow engineer pointed out the enormity of his fault, when he promptly resigned his engagement. What would the profession come to if such proceedings were allowed? Oh, no, our young friend might have been asked to start the motor next, as if there were not ordinary men for that class of work. On the other hand, there are numbers of skilled mechanics who take a pride and pleasure in their masters' cars, and to whom no work is too hard or too difficult, and it is to these men that automobilism owes a debt of gratitude, for, thanks to their efforts, their cars run with regularity and with that absence of mishap which does so much to convince the public of the reliability of the new form of locomotion.

The South-Western Clubs.

THE authorities having officially sanctioned the Bordeaux-Périgueux-Bordeaux race, the first stage of this event will be contested to-morrow over a course of 116 kilomètres. Starting from Bordeaux the racers will pass by way of Libourne, Saint-Médard, Monpont, and Mussidan to Périgueux, where, upon conclusion of the race, an automobile exhibition and congress will be held. On Monday the big cars of 8 h.p. and upwards will return to Bordeaux by a circuitous route of 202 kilomètres, through Ribérac, La Roche-Beaucourt, Angoulême, Barbezieux, Montlieu, and Saint-André, while the journey to the same place for the smaller vehicles will be one of 144 kilomètres only. In connection with the race over the longer route there will be decided the championship of the south-west of France, the title going to that member of a local club whose car makes the best time over the course. More than thirty entries have been received for the various categories, among them being the names of Levegh, Bostwick, Joyeux, Legendre, Briol, and Rondier. The organisers of the race are the Automobile Clubs of Bordeaux and Dordogne.

An Original Idea.

ONE of the most recent novelties is that introduced by M. Guérin of Bordeaux, and consists of a compact little arrangement by means of which the occupant of a trailing car can render muscular assistance to his companion in ascending hills without resort to the somewhat *infra-dig.* method of pushing. A very simple arrangement of levers and chain wheels, which remains absolutely stationary except when operated upon by the occupant of the car, should certainly have a market, for in a country at all hilly the use of the trailer is but little known by reason of the difficulty in ascending severe grades.

The addition of a trailer to a motor-cycle makes little difference on level, or fairly level ground, but when a grade has to be mounted it is quite another story, and the passenger cannot in common decency sit still while the motor-man pedals the two for dear life. So he gets out and pushes, and doesn't like it, not a little bit. But to remain comfortably seated and pedal for a while would not have such a disturbing influence, so possibly M. Guérin's idea may be made much of.

Racing in France.

AUTOMOBILISTS in France are happy again, for, as I anticipated in these columns, the veto placed upon automobile road-racing by the authorities has proved of short duration, and all fixtures from this date onwards will take place just as originally intended. It was on the 26th ultimo that the Governmental decision was made known by the Minister of the Interior to the Comte de Chasseloup-Laubat, M.M. Jeantaud and Ravenez, the delegates of the Automobile Club of France, who had gone to consult him as to the prospects of holding the race for the Gordon-Bennett Cup and the "Course de l'Eventail," and very quickly the whole motor world of Paris learned the good news. So after all we are to have the two above-mentioned races, and also Paris-Brest-Paris, Bordeaux-Périgueux-Bordeaux, Draguignan-Aix, and although not actually quoted, presumably Paris-Ostend. All this fuss and excitement has been truly typical of the character of the good people on this side of the Channel. The sudden change from laudation to denunciation of road-races, all on account of the miserable accident at the Croix-des-Noailles, which was occasioned quite as much by the fault of the spectators as that of the racers, was of much too violent a nature to last any length of time, and now after a month of senseless persecution and rigorous restrictions we are back in much the same position as before. The agitation has done good, I do not deny it, but the same result might have been attained without such a display of feeling as we have recently witnessed. The Sports Committee of the "A.C.F." are now hard at work in organising the Gordon-Bennett Cup race, which is set down for decision on Thursday, June 14th. What a race it should be! The cars of the three cup defenders are now practically ready, while Mr. Winton is in Paris with his racer. This latter vehicle has but little the appearance of a *voiture de course*, and on the day of the race will look puny beside the French leviathans. Its single-cylinder motor only develops 10 h.p., while the lightness of construction and the absence of the wheel steering so universally adopted on French racers give the car the appearance of a pleasure vehicle rather than that of a high-speed racer. Perhaps its very simplicity will carry it home, but my own opinion is that the Frenchmen need have no serious apprehension from this or any other foreign competitor.

Public Services in Brussels.

APPLICATION has been made to the Permanent Deputation of Brabant to establish a public service motor-vehicle between the Luxembourg and Midi Railway stations in Brussels. It is also proposed to start a similar service between La Porte Louise and the Rue de l'Abbaye in the Belgian capital and the suburbs of St. Gilles and Ixelles.

THE Boston Automobile Company has been registered at Bar Harbour, Me., U.S.A., with a capital of £20,000.

FOUR motor-cars figured prominently in the procession organised at Lowestoft to celebrate the relief of Mafeking.

"M AND B," who inquire for the makers of a magneto-electrical sparking device, are referred to the Motor-Carriage Supply Company, Ltd., of Balderton Street, London, W.

THE New Jersey Electric Vehicle Transportation Company has arranged to instal automobile stations during the coming season at a number of points on the Jersey coast. At each of these stations Columbia automobiles, both electric and petrol, of various designs, will be for sale, and a speciality will be made by charging and caring for motor-cars owned by private parties.

TOURING NOTES.

BY A WORLDLING.

ENGLISH automobilists who are going to Paris for the Exhibition, and who purpose taking their cars with them, must bear in mind that they can be fined and even imprisoned if they cannot produce a *permis de conduire* on the demand of a *sergent de ville*. The war against automobiles in France has lost much of its severity, but I pity the English offender who has to appear before M. Mule or, indeed, any of M. Lépine's lieutenants of the magistrature. The risk of travelling on one's car without a *permis* is very great just at present, but it is by no means easy to devise a scheme that will overcome the difficulty of an inconvenient day being fixed for examination. The only thing to do is to ask politely if it would be possible to hold the examination on the day and at the place you land in France at the same time as you send in your official request for a driving licence. This request must be addressed to the *préfet* of the department (Pas de Calais, if you go by Calais or Boulogne, Seine Inférieure by Dieppe), and must give your full name, occupation, and address—if you are a member of the A.C.G.B.I., it would be well to state it—and a description of your car. If the car is of French make it will be only necessary to give the name of the manufacturer, the "type," and the number of the "type" series, particulars which can easily be obtained from the dealer who sold the car, if they are not actually recorded on a *plaque*. If, however, it is an English car, not registered as a "type" in France, you would do well to give the fullest particulars of its construction, not omitting a careful description of the brakes. Enclose in your letter, which must be written on *papier timbré*, two photographs of yourself, not on cards. In a few days you will receive a letter telling you to present yourself for examination at a certain time and at a certain place. The driving examination is not difficult, but the judges may make a little trouble about your car if it is not of a recognised type, especially if it is a steam one. The *permis* which you will receive will be only for the type of car in the driving of which you have been examined, but it is possible to get a certificate for any and every type of car; this is, of course, a much more tedious affair.

The French speed regulations are not well-known in England. They are very reasonable, as may be seen from the following translation of the 14th Article of the Decree of March, 1899: "The driver of an automobile must have its speed under instant control. He must reduce it, or even bring his car to a standstill, whenever it might cause an accident, disorder, or a block in the traffic. In narrow passages and when the traffic is congested the car must not be driven at a greater pace than that of a man walking. Under no circumstances may the pace exceed 30 kilomètres an hour in the open country and 20 kilomètres an hour in *agglomérations*." *Agglomérations* means anything from

a small hamlet up, but it may be made to mean, as after the Croix de Noailles accident, a small shop and an ambulance wagon. But, at any rate, 18 miles an hour in the country is sensible.

Baron de Crawhez, the most popular *chauffeur* in Belgium, and a keen tourist, does not think much of Italy as a country to travel through on a motor-car. He made a trip in the early part of the year from Rome to Naples on a car which he had bought from Charron, and to which he had given the ill-omened name "Devastation." Although his experiences were not quite so bad as Senor Juan Ricano's in Castille, they were sufficiently unpleasant. At Teresina a howling and malodorous mob broke the lock of the *remise* in which he had put his car, and stole several things from it. "The same thing, only more so," at Gaeto, where the crowd nearly tore him to pieces. This is almost as bad as at Macclesfield, where the aborigines are the most savage people in the world. Ask Mr. Herbert Ashby, who was *en panne* there for a few minutes during the "Thousand Miles."

I strongly advise anyone going through Ripley not to pass by the Talbot Hotel without going in. First of all, the cheer is of the best, and then mine host keeps petrol as well as wine.

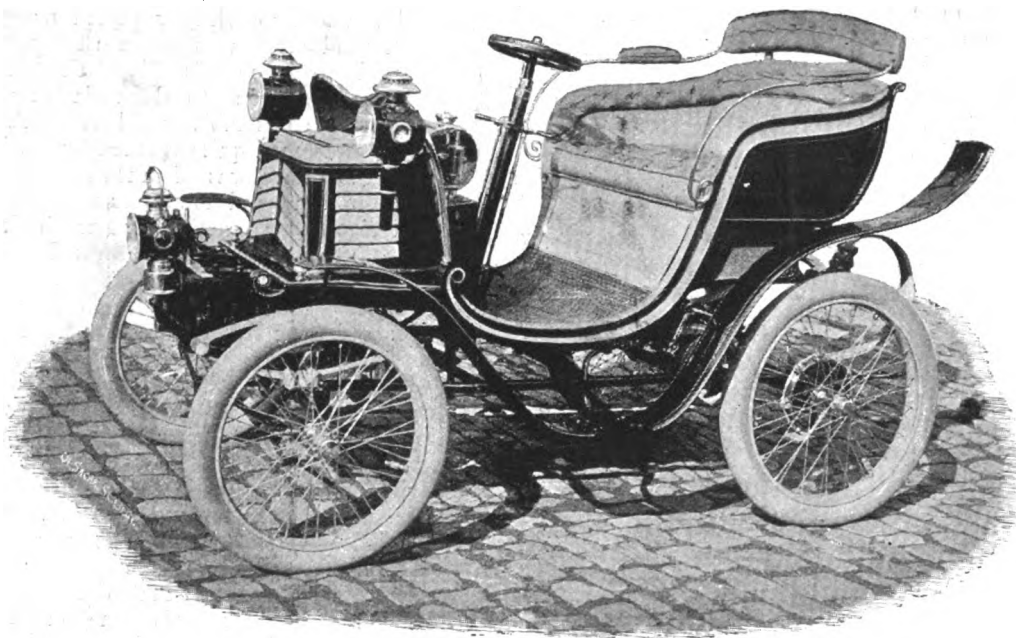
The other day a party of us were down there on a Mors, when we suddenly discovered that we had lost all our petrol through a small leakage; and what did this good man do but send his own traps six miles out and six miles back to get some for us, and then refuse to take a penny for work done? It is good to chronicle such acts of kindness to the *chauffeur*.

It would be impossible to find a more delightful trip than one from London to Monte Carlo. One passes

over excellent roads, through some of the finest scenery in Europe, and the hotel accommodation is of the best from start to finish. As many of the readers of the *Motor-Car Journal* are probably going to take their cars over to France for tours in the summer, I should advise them to follow the route and "tips" I give here and they will be certain of a most delightful run.

FIRST DAY.—From London to Dieppe via Newhaven. The road is so well known that it is hardly worth while describing it here. Get to the boat as early as possible, as there is sometimes difficulty in the shipping of a car.

SECOND DAY.—From Dieppe to Paris. You will arrive in Dieppe early in the morning. You will have to get your car through the *douane*, pay a deposit and have it *plombé*. Then get some one to show you the way to Meyer's *garage* by the Casino. Let him fill up with petrol and oil while you go down to the Grand Hôtel, where Monsieur Découvert, himself an enthusiastic *chauffeur*, will give you as good a breakfast as you can want. Then off to Rouen, where you would do well to lunch at the Hôtel de France; it is not so well known as the Angleterre, but the experience of many years has taught me that it is the best hotel and the cheapest in the town. If you want petrol or any thing done to your car go to Bernard, 9, Place de l'Hôtel de



THE ANTOINE VOITURETTE. (For description, see opposite page.)

Ville. Then on to Paris. Stay at the Continental, as there is a covered yard at the back where they will let your car stay for the night. The porter will get you petrol—you had better insist on Stelline in *bidons de cinq litres*. If you want any mechanical help telephone 503-50 and ask Messrs. Guyenet and Balvay to send you down a man who understands the type of car you are driving.

THIRD DAY.—From Paris to Auxerre. As far as Melun the road is very bad, big cobbles the whole way. Lunch at Sens. Get petrol from Saussier, an excellent *mécanicien*, 23 Cours Tarbé, and then go on to Auxerre, where you can get Benzomoteur from Charlot. I cannot remember the name of the hotel I stop at there, but it is in the main street; any one will tell you where the automobilists usually go. There is a little Café Concert in the same street where one can spend a fairly amusing evening.

FOURTH DAY.—From Auxerre to Dijon. A magnificent run over one of the most perfect roads in Europe; lunch at Avallon; petrol from Corniau, wholesale grocer. Go to the Hôtel de la Cloche at Dijon: prices reasonable, large coach-house behind. If you want anything for your car you had better send to Cottureau et Cie., Usines des Lentillères. Their voiturette holds the 100-kilometre world's record, and they can be relied on to do their work well.

FIFTH DAY.—From Dijon to Mâcon. Lunch at Chalon-sur-Saône; petrol from Preuil, 8 Place St. Pierre. At Mâcon, stop at the Hôtel des Champs Elysées, a very good hotel with an excellent garage for automobiles.

SIXTH DAY.—From Mâcon to Geneva. This is a hard day's work, as the country becomes very hilly; the roads are, however, excellent. Lunch at Nantua—Hôtel de France, cheap and good. Petrol may be obtained here. Then on through the most wonderful scenery by Bellegarde to Chancy, the frontier town. Here again you must pay a deposit of 100 francs or so, and have your car *plombé*. At Geneva stay at the Métropole and overhaul your car well, as there is trying work for it ahead. If you want help go to Panchaud, at the corner of the Jardin des Anglais, nearly opposite the hotel. He will be able to give you petrol and any assistance you may require.

SEVENTH DAY.—I should advise a rest for man and machine. Go and call on the Automobile Club de Suisse in the Parc des Eaux Vives; you will probably find some member who would be glad to go for a run down the lake towards Lausanne or even right round.

EIGHTH DAY.—From Geneva to Grenoble. Frontier at Chêne, where your 100 francs will be returned to you and your Swiss *plomb* taken off. Then by Annecy to Aix-les-Bains, where lunch at the Brasserie Russe, in the Avenue de la Gare, and take petrol from Domenge, in the Avenue du Petit-Port. On *via* Chambéry to Grenoble. The best hotel in Grenoble is the Monnet, in the Place Grenette, the centre of the town. Petrol and repairs from Ducroiset, the famous automobile manufacturer, 15 Rue Voltaire.

NINTH DAY.—From Grenoble to Digne. A long climb *via* Monestier de Clermont and Clelles to the Col de la Croix Haute, and then down into Sisteron by St. Julien and Veynes. Take petrol at the last named village, at a small *épicerie*, painted blue with green shutters, in the middle of the only street, but do not be induced by the most terrible pangs of hunger to eat anything at the hotel, as it is the worst in France. Push on to Sisteron, where you will find the Nègre very comfortable. By-the-way, it is a favourite inn of the poet Mistral. At Digne stay at the Boyer-Mistre, a good hotel, but with a very indifferent cellar.

TENTH AND LAST DAY.—From Digne to Monte Carlo. Start early and go straight away to Castellane, where you can have breakfast of eggs and asparagus at the little Hôtel de Commerce. I remember staying there once with a friend and a servant. Our bill for the three, supper with wine, lodging and breakfast, was 12 francs 50 cents. From Castellane there is a long pull up, and then a wonderful run down through Grasse into Nice. Petrol, repairs, etc., at the Autogarage de Nice, at the corner of the Boulevard Gambetta and the Promenade des Anglais. From Nice to Monte Carlo is the most perfect run in the world; it is worth going the hundred of miles to see. At Monte Carlo stay at the Cesari Palace Hotel, if it is open; if not, at the Hôtel de Paris, which is never closed. Roustan, of the Avenue de la Costa, will help you with anything you may want for your car.

THE ANTOINE VOITURETTE.

THE illustration given on the opposite page shows the light voiturette exhibited at the recent cycle and motor-car show in Brussels by Messrs. V. Antoine Fils and Co., of 43, Quai St. Leonard, Liège. The frame is of tubular construction, the body being comfortably suspended by plate and C-springs. The car is propelled by a single-cylinder vertical motor, known as the "Kelecom," and rated at 4-e.h.p. It is fitted with electric ignition and water jacket, the latter extending around the combustion chamber as well as the cylinder. The engine is located in the fore part of the frame, under the bonnet, and is started by means of a detachable handle. Two speeds are provided, the power being transmitted direct to the rear axle. Steering is controlled by an inclined wheel on the standard on which all the control levers are mounted. The wheels are of the cycle type, fitted with pneumatic tires. The car, which has a neat appearance, will, it is claimed, mount any ordinary hill.



MR. W. J. PEALL, THE WELL-KNOWN BILLIARD PLAYER, ON HIS DAIMLER CAR.

MR. C. CLIFFORD POTIER, of "St. Moritz," Cambourne Road, Sutton, Surrey, has sent us a copy of a useful little illustrated list of motor-cycle accessories he has just issued.

MR. F. R. HATCHER, of the Saracen's Head Hotel, Dunstable, keeps Capel Carless and Leonard's petrol and also Pratt's motor-car spirit, a fact of interest to all automobilists using that important road.

MR. JULIUS HARVEY has, we are glad to find, recovered from his long illness, and is now to be seen as usual at his office, 11, Queen Victoria Street, E.C. His firm, Messrs. Julius Harvey and Co., have just secured an important order for abroad for steam motor-vehicles for both passenger and goods service.

THE Star Motor Company, of Wolverhampton, have sent us a long letter in reference to the performance of their car in the ascent of Bunny Hill, on the way from Nottingham to London, on the last day of the 1,000-mile Trial as given in a contemporary last week. The Star car was classified under the heading "stuck," and to this in the letter referred to the Star Company take exception, stating that they did not stick either on Bunny Hill or any other hill throughout the Trial.

THE MANAGEMENT OF ROADS BY COUNTY COUNCILS.



IN a paper entitled "The Suggested Future Management of all Roads by County Councils, and the Amendment and Codification of all existing Highways and Bridge Acts," read at the annual meeting of the County Surveyors' Society, held at the Guildhall, Westminster, on the 23rd ult., Mr. George Joseph Bell, the county surveyor and bridgemaster of Cumberland, said:—From various discussions at county council meetings on the question of main road management, it appears that many county councils have not yet arrived at any clear conception or idea of their duties with regard to a proper system of main road maintenance and repair, and consequently the different systems of management in force have been brought to the front in consequence of the increasing cost of maintenance under the contract system along with the visible deterioration of the roads.

It may be said, "We pay our surveyor for looking after the contractors and for seeing that we get value for our money," but a road contractor can veneer his work over in such a way that the average surveyor could not fairly refuse to certify for the work, which if refused would probably mean a lawsuit; and by this sort of sailing close to the wind from year to year the roads gradually become deteriorated, and at last it is discovered that a much larger outlay is required to restore the roads even to their original condition before the contractor was introduced. To supervise contractors thoroughly it would almost require a surveyor or clerk of works for each contractor.

Both systems are in force in the rural districts of Cumberland, but in the districts where the contract system is followed the roads are not nearly so good, and they also cost considerably more in the £1 than where the work is done direct by the rural district councils.

The contract system is a very comfortable way of managing the roads for the surveyor, but how about the ratepayers who have the money to find?

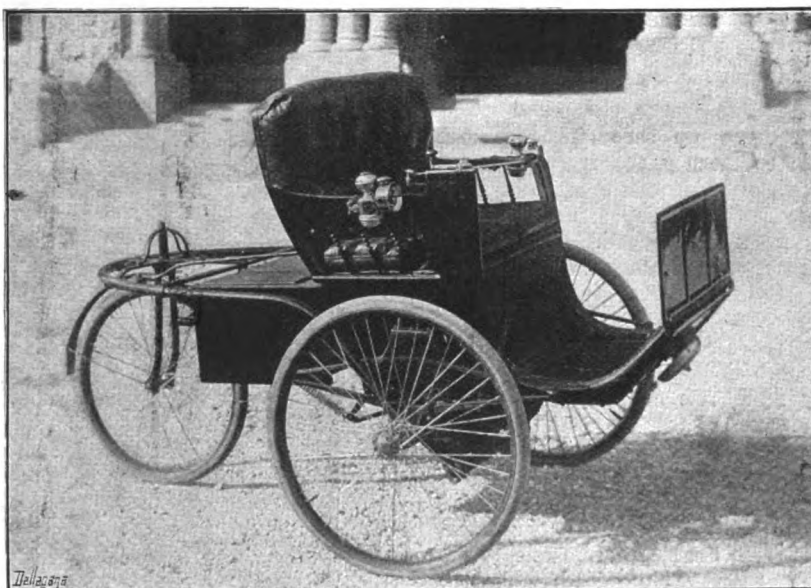
The rural main roads in this county have been managed direct by the county council from the first, and the steady improvement which has taken place on the old, worn-out turn-pike roads has raised a strong feeling in many quarters in favour of county management generally, both of main and district roads; and I see no reason why county councils should not undertake this further responsibility. It only means an extension of the system already in force in many counties; and if the ratepayers have to pay a higher county rate, they will be correspondingly relieved by a lower district rate. This change would get rid of a dual system and be the death-knell of many local jealousies, and tend to greater economy and efficiency in the management, and render possible such much-needed improvements as the easing of gradients, the rounding-off of corners, widening of roads and bridges, etc.

But to accomplish these transparent and necessary improvements the machinery of Parliament will have to be put in motion. All the existing Highway Acts require to be codified and amended, as well as the Acts relating to bridges, so as to bring all these different statutes within the compass of one or two handy volumes, for easy reference.

County councils ought to have the power to take over the management of all or any urban main roads where the county council think these roads are extravagantly and wastefully managed. Sub-sec. 2 of sec. 2 of the Local Government Act of 1888 requires reversing, and instead of a petty parish, which may have acquired urban powers, being able to dictate to the county council as to the main road expenditure within their area, the county council ought to have the power to say to an urban council, "You are wasting money on your roads, and from and after a specified date we will take them over and manage them ourselves." The mere fact of county councils having this absolute power would be sufficient to deter urban councils from incurring the wasteful and needless expense which many of them do incur at present, and so keep them in check and within reasonable bounds of expenditure.

Power ought also to be given to county councils to clear out all ditches and watercourses parallel to the roads and across any enclosed land, so as to secure the proper drainage of all roads: also power to acquire any land compulsorily, at agricultural value, which may be required for the purpose of reducing gradients, diverting roads and taking off dangerous corners, without the intervention of quarter sessions, so as to facilitate and encourage the use of mechanically-propelled vehicles on public highways, with power to borrow money to carry out such improvements.

From the practical success of the recent 1,000-miles run of motor-cars, from London to Edinburgh and back, it is quite clear that this form of road locomotion will shortly become general in this country, both for passenger, agricultural and general traffic, and the Queen's highways will then become more and more the arterial feeders of our great railway systems; but to secure the best possible results from this new form of traction on our highways county councils must have conferred upon them by Parliament more enlarged powers than those they possess at present, to enable them to cope with the increasing



MESSRS. SHIPPEY BROS., THREE-WHEEL ELECTRIC MOTORETTE.
(For description see page 115 ante.)

popular demand for a better class of roads and more in accordance with the requirements of mechanical traction, and the public are evidently prepared to pay for this increased accommodation herein.

A BILL has been introduced in the New York State Assembly, entitled "An act to regulate and govern the running and operating of all motor-carriages and vehicles other than railway or traction engines upon the highways of the State of New York." It provides that all operators of automobiles must obtain a licence from an examining board. Local boards in cities, counties or towns that pass on the qualification of engineers or inspect boilers are to constitute examining board. If no such board exists the supervisors are to appoint a person. Each owner is to pay an examination fee of \$1 in addition to a licence fee of \$2. The board is to grant licences to persons who upon examination are judged competent for a period of one year. The board is also empowered to revoke licences for a period not longer than six months upon satisfactory proof of drunkenness, incompetence and reckless driving. Persons violating this act shall be guilty of a misdemeanour, and upon conviction shall be subject to a fine of not less than \$10 nor more than \$100. The act is to take effect immediately upon its passage.



Cliche de)

BARON DE ICRAWHEZ'S AUTOMOBILE TOUR. (See page 230.)

[La France Automobile.

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THE "NOEL" PETROLEUM-SPIRIT MOTOR.

—88—

AMONG the many types of petroleum-spirit motors displayed at the recent motor-car exhibition in Paris was the "Noel," made by Messrs. Fritscher and Houdry, of Provins (Seine-et-Marne), of which we are able to give illustrations (Figs. 3, 5, and 6) herewith. As will be seen, the motor is of the single-cylinder vertical type; it weighs just a little over 1 cwt., and is stated to be capable of developing 3 h.p. The ignition is electrical, while radial discs provide for the cooling of the cylinder. The valves are arranged on each side of the explosion chamber, the inlet valve at *s* and the exhaust valve at *S*. A feature to

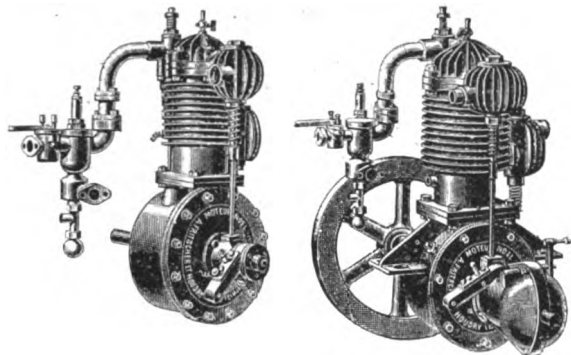
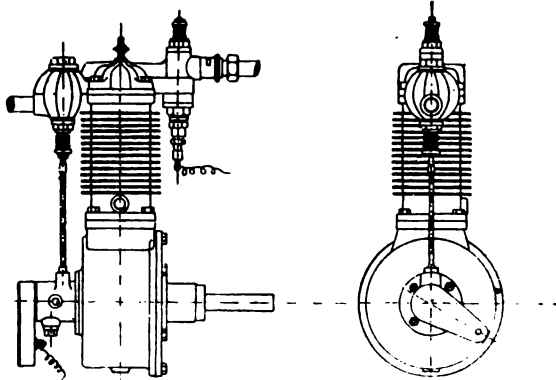
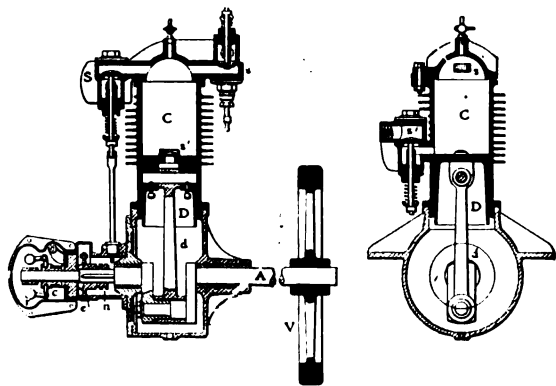


FIG. 1.

FIG. 2.



FIGS. 3 AND 4.



FIGS. 5 AND 6.

which attention is drawn is the location of the sparking plug below the admission valve, such position, it is claimed, not only reducing the chance of miss-fires, but also protecting the plug from accident. Another point worthy of notice in connection with the motor is the introduction of an automatic exhaust valve *S'* in the end of the piston, through which the hottest of the consumed gases are emitted at the commencement of the exhaust stroke, leaving only the cooler burnt gases to be exhausted through the valve *S*. No secondary cam shaft is employed in the motor to operate the exhaust valve, this being done by means of a special cam on the motor shaft. The engine is provided with a centrifugal governor (*C*), which controls the piece *N* actuating the

exhaust valve *S*. If the speed of the motor becomes excessive the piece *N*, which is free to slide on the shaft, is displaced under the action of the governor, so that it no longer lifts the exhaust valve rod. The 3-h.p. motor, which is provided with an external fly-wheel, weighs 120 lbs. Messrs. Fritscher and Houdry are also making a 1½-h.p. and a 2-h.p. motor of the same type (Figs. 1, 3, and 4) which are, however, not provided with governors and which have flywheels located inside the oil-containing case. The latter is so arranged that the cranks and piston rod, etc., of the motor can be quickly opened out for examination.

THE SPLIT IN THE A.C.F.

—88—

AS was to be expected, the general meeting of the Automobile Club de France was a stormy affair. Baron Van Zuylen read the annual report to a very unsympathetic audience; there was nothing remarkable in it, nothing more interesting than a timid intimation that perhaps in four or five years' time the Club would be in a position to give substantial pecuniary assistance to the movement. It was received with a silence that could be felt, a silence that was made the more terrible by the spasmodic applause of the few who had the courage to support the chairman. When, however, M. Lehideux-Vernimmen had read the accounts of 1899 and the proposed budget for 1900, Paul Rousseau rose in his wrath and called on the meeting not to adopt the accounts, with shouts of "Divide, Divide!" "Let us leave the past alone," he said; "pass last year's accounts if you will, but let us have some explanation of this extraordinary budget, which presumes a profit of 100,000fr. and only grants 5,000fr. for the encouragement of automobilism. M. Querenet and others broke the uproar with a few words of help for the unfortunate committee, but nothing told against the firm attitude of the malecontents. The meeting broke up in orderly disorder.

The outcome of it all is that a new club has been formed, with the following well-known *chauffeurs* as its nucleus:—Messrs. Serpollet, Pierre Giffard, Paul Meyan, René Varennes, J. Berlier, Ernest Archdeacon, Riguelle, Cadier, Delaunay, Paul Rousseau, Hérard, Trouette, Ravenez, Marmottan, Desaché, Poussard, Duval, Léger-Dorez, Favreau, Joanny, Scotte, R. Lemoine, Draulette, Gautier, Desnues, Vinet, Legrand, Desmarais, Labouré, Sarrazin, Guyonnet, Gonnet, Godart-Desmarest, Mathieu, Malicet, Moussette, Debaugé, Buisson, Du Laurens, de la Barre, de Meaulne, Debray, Labat, Dr. Nitot, Caldas, Edwards, Gaillardet, Herburger, Boureau, Lesieur, de Lucenski, Wehrle, Noël, and Jaeggé.

The new institution will be called the Moto-Club de France, and will not be a club in the ordinary sense of the word, but a *société d'encouragement*, with offices, but no clubhouse. The conduct of the association will be entrusted to a committee, who will elect annually a chairman, a vice-chairman, and a treasurer; the secretary will be a paid official. The annual subscription will be fifty francs for town members, that is, for those who live in Paris and the department of Seine-et-Oise, and twenty francs for all others. Its object will be the encouragement of the automobile industry and the defence of the rights of the *chauffeur*.

THE Oxford Automobile Company has been formed at Augusta, Me., to manufacture automobiles. The capital is £12,000.

AN automobile club has been formed at Reading with Mr. Alfred Harmsworth as first president. The new club is arranging a two-days' Whitsuntide tour.

OUR correspondent "H. P." is informed that we hope shortly to publish an article on the subject of Tests of the Horse-Power of Motor-Cars.

MESSRS. G. G. TURRI AND CO., Salisbury Building, Queen Street, Melbourne, Victoria, are anxious to receive catalogues and prices from English builders of motor-cars.

ON Saturday the opening meeting of the Coaching Club was held in Hyde Park, when there was a large attendance of spectators in carriage and motor-car, and on horseback and on foot.

THE ROTTENBURG VARIABLE-SPEED GEAR.

WE have already alluded to the ingenious variable-speed gear exhibited at the recent Show at the Agricultural Hall by Mr. L. Rottenburg, of the Patella Works, Paisley. We are now able to illustrate the device (Figs. 1 and 2), and to give some additional particulars. The gear consists of two automatic

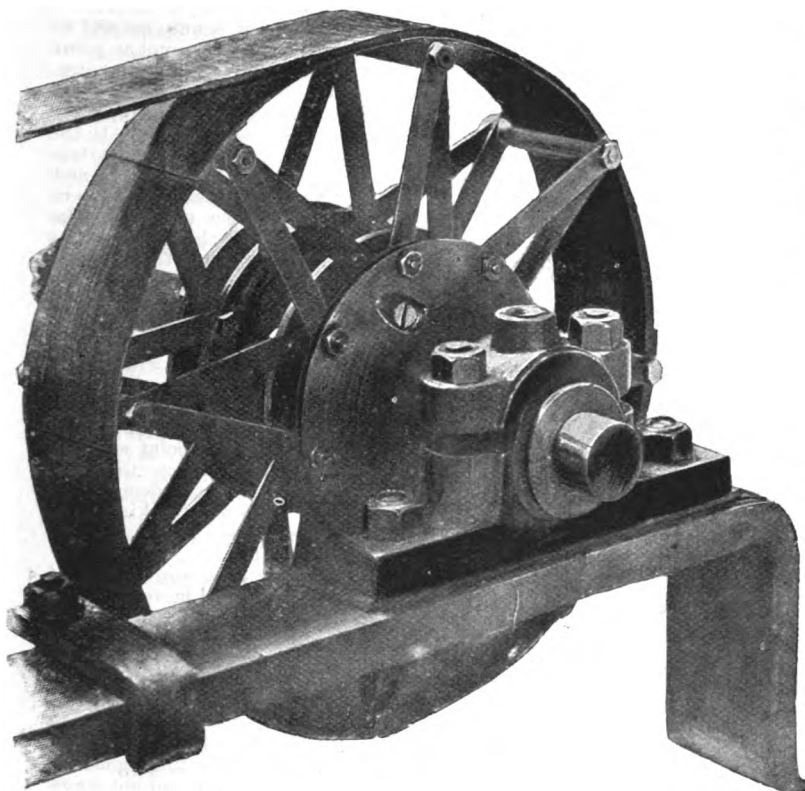


FIG. 1.—THE PULLEY AT ITS LARGEST DIAMETER.

expansible pulleys connected by a belt. The driving pulley on the motor shaft is constructed with expanding and diminishing spokes so arranged that the tangential pull of the driving belt tends to decrease the size of the pulley, while a very strong spring inside the latter tends to expand it. The periphery of the pulley is made in four segments of thin steel, suitably curved, and each overlapping the other. The tension of the spring can be adjusted so that the pulley can start closing at a certain fixed maximum load upon the belt. The driven pulley is constructed in a very similar manner to the driver, but the arms or spokes are so arranged that the pull of the belt tends to expand the pulley, so that as the force exerted through the belt becomes greater, as it does in hill-climbing, so the one pulley contracts—providing that the pull exceeds that arranged for the spring to withstand. The two pulleys are in the ratio of 1 to 3.3 to each other. The advantages claimed for the new gear are—(1) By setting the spring of the driving-pulley to suit the most efficient torque of a given motor, the motor, except on a light road, will drive a car a given distance with the smallest expenditure of energy. (2) The driver does not need to keep on changing the gear on an undulating road—it sets itself to suit the gradient; and (3) The driving-pulley does not allow the belt to get slack.

WE understand that the Earl of Durham has purchased Mr. S. F. Edge's Napier-Panhard car.

THE Malay Transport Syndicate, Limited, has been registered, with a capital of £3,000, to carry on the business of van, wagon, and vehicle builders and proprietors, carriers, suppliers of power for traction, etc. The first directors are J. W. Moore (chairman) and H. C. E. Zacharias. The registered office is at 93 and 94, Chancery Lane, W.C.

CORRESPONDENCE.

A MATTER OF POLICY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As one who has for some months observed the course of the British automobile industry, and who is not interested in any one company more than another, I should like to ask whether it is not time British concerns ceased the costly experiment work to discover new vehicles, and kept themselves to manufacturing types that are doing well, and are sufficiently powerful for the present period of development.

I hear that one or two companies which have attained a certain measure of success are still allowing expensive ideas to be developed in their workshops, instead of confining themselves to the types with which their position has been won. Would it not be wiser to save on the former outlay and make profits on the latter, than to continue a policy which seems to me, as one on the fringe, to savour of the following of hopes the realisation of which is afar off?

Leeds, May 28, 1900.

Yours truly,
AN OBSERVER.

A MOTOR-RACING COURSE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As motor-car racing has been stopped in France by the authorities, and as from the first day that automobiles were allowed on the roads in this country their speed has been restricted, I now consider the time is fast approaching when we should have a motor-car racing course. There is no doubt that motor-car racing is a sport with a large future before it, and without going into this side of the question I consider that racing is an absolute necessity for bringing motors up to the highest perfection.

I mention a racing course, and do so by reason that it should not be less than five miles in circuit, and should have some stiff gradients. I do not suggest that the ground embraced by the course should be acquired, but merely the land necessary to build a road of sufficient width, say fifty feet. I can fully realise the cost of such an undertaking, but consider that motor-car

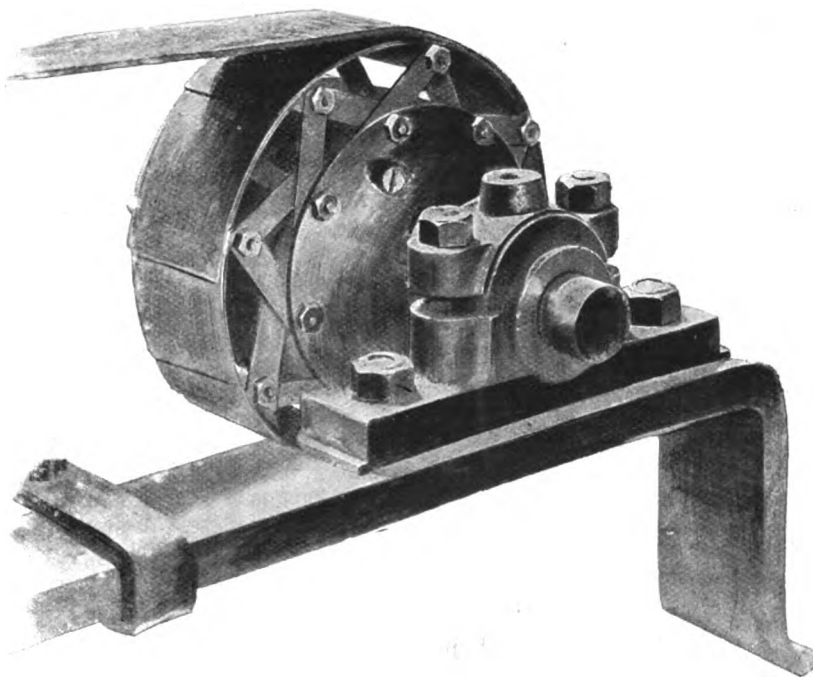


FIG. 2.—THE PULLEY AT ITS SMALLEST DIAMETER.

racing will immediately have such a following as to justify the founding of a course.

London, May 28.

Yours truly,
T. UNDERWOOD.

ELECTRIC IGNITION FOR GAS AND OIL ENGINES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—May I draw your attention to a slight error in the article on the above by an American writer in last week's

issue, and which appears to show that they are not so well posted on the other side of the Atlantic in past history of this subject. The earliest form of ignition was not, as stated, by incandescent tubes, this being introduced by Messrs. Crossley. The first explosive motor of any description, viz., Lenoir's French gas engine, employed a galvanic battery, therefore electricity was the first form of ignition. (See page 803, Vol. XII., Mackenzie's National Encyclopedia," condensed from "Rankine's Manual of the Steam Engine and other Prime Movers.") Considering the fact that Lenoir's engine has been claimed for Dr. Drake, of Philadelphia, as an American invention, it is rather strange such a statement should have been put forward.

Cranbrook, May 29, 1900.

Yours faithfully,

PRECURSOR.

THE AUTOMOBILE CLUB TOURS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your remark that it was "a rather doubtful advantage" for the route of the 1,000-mile Trial to terminate into London by way of Elstree only echoes the opinions that have been expressed by a great many; but to my surprise I see that for the Whitsuntide Tour of the Club it is arranged that the route to Peterborough is also *via* Elstree! To anyone with the slightest knowledge of the roads to St. Albans, this persistent shunning of the Great North Road is most mysterious. Can it be that some influential committeeman lives or has friends living in the Elstree district; if not, why are we to everlastingly thread our way through these narrow and tortuous lanes instead of taking to the broad high road?

Barnet, May 30th.

Yours truly,

BARNET.

[Our correspondent will see from the itinerary given in our last issue that the return journey of the Club's Whitsuntide Tour is to be made *via* Barnet and Finchley.—ED. M.-C. J.]

ARRANGEMENTS are in hand for the starting at an early date of a Scotte steam road train service between Valencia and Palanquinos, Spain.

ON Monday last a Daimler motor-wagonette was put up for sale by auction at Lowestoft. There was a good attendance, but the bidding did not reach the reserve, and the vehicle was withdrawn at £240.

WE understand that arrangements are in hand for the introduction of a large number of light Serpollet steam cars into this country. A first lot of four is expected to reach England by the end of the present month.

THE Banchory and Strachan Auto-Car Co., Ltd., has been formed to conduct and carry on the business of proprietors of motor-cars, motor-vans, and any other description of motor-vehicles, including motor-cycles, jobbing masters, carriers of passengers and goods. The capital is £1,000.

MESSRS. HEWETSONS, LIMITED, of 7, Dean Street, Oxford Street, London, W., have sent us a copy of their 1900 list of motor-cars, which gives particulars and clear illustrations of the automobiles on the Benz system for which they are agents in this country. We notice that the vehicles are now styled the "Hewbenz." They comprise the little two-seated car, a Victoria, a four-seated Duke, the four-seated "Emperor," dog-carts, a commercial car, vans, brakes, and racing cars. A couple of interesting illustrations are those showing the original motor-vehicle built by Messrs. Benz and Co. in 1885, and which was recently illustrated in our columns.

MESSRS. BROWN BROS., LTD., Great Eastern Street, E.C., have secured the sole agency for Great Britain and Ireland, for a new sparking plug, which has been named the "Elisa." The plug has a body made of one piece of nickel steel, the insulating porcelain being made of two parts. The advantage claimed for the new plug are that it can be taken to pieces instantly and repaired without special tools. There is said to be no loss of current, the compression tending to force the lower porcelain more firmly against the body of the plug. By employing two short and thick porcelain parts the cooling or heating of one cannot influence the other, consequently reducing the chance of breakage of the porcelain.

MODERN LOCOMOTION.*



BY SIR DAVID SALOMONS.

THE present age may be described as the age of locomotion. Our forefathers were content to be born and die on the same spot, much in the same way as many sea animals of unchanging habit live their lives attached to a rock.

For no obvious apparent reason, railways made their appearance, and with them the desire for perpetual motion was born in man. I say for no apparent reason, because it would appear that people generally were content to remain in the same place from the beginning of the world's history until the commencement of this century, and it is only natural to suppose that no great desire existed to move about from point to point before that time, or the means to do so would have been forthcoming. The last seventy years marks an epoch in the world's history, and without weighing the circumstances which have produced the revolutionary changes which we call "progress," the casual observer might come to the conclusion that the brain of man was suddenly developed to an extraordinary extent, and that many of the discoveries with which we are now familiar are more wonderful than anything that has ever been done in the history of the past. It is, therefore, not out of place to consider for a moment the probable real causes of the complete change which has come over the daily life of the present generation, due to the scientific and engineering developments of our time.

In expressing these opinions, I am ready to concede that everybody may not look upon the subject in the same light, and if any discussion is allowable on this paper, it will be as interesting to myself as to others to hear what has to be said on the point. The great advances which have been made are due in the first instance to the increase in population, which renders existence more expensive and more difficult. Consequently, it was necessary to increase wealth, and to effect this, locomotion was one of the first aids towards the end, to move labour to the point where it was most required, and to convey mineral and other products to places where they could best be dealt with. There was also the demand for large bodies of people to be moved to quieter spots when taking their rest. The demand exceeded the supply, and engineers gave the world improved machinery and better methods of locomotion.

At a later date the development of the wealth of the world exceeded the supply of labour, and improved machinery was called in to dispense as far as possible with human hands. This is undoubtedly the reason why the Americans have proved themselves so ingenious in regard to automatic machinery—it was the difficulty of securing labour at the time of the demand for manufactured produce that necessitated iron hands in place of flesh and blood.

Then again, looking on the side of pure science, which has made great strides in recent years, I cannot concede that this is due to better training, greater industry, or increased brain power over times gone by. In the olden day the scientific man had to work alone, he did not know what others were doing in a similar field, and half a lifetime was sometimes wasted in discovering something which had been done before, and of which he had no means of ascertaining.

To-day scientific men work like bees in the beehive, every individual taking advantage of the work done by his comrades. Cheap printing, journalism, scientific societies, and general intercourse has made this age utilitarian to them in common with others, and they waste but little time in re-discovering matters already found. Under such conditions, which may almost be described as an organised scientific factory, rapid progress can be made, but the brain power of man may degenerate in consequence of labour being so subdivided. This clearly will not alter the march of civilisation. It will only destroy the adaptability of the man and render him more and more a machine and less of an intelligent being.

Our engineers have done extraordinary feats, due to the possession of materials which were unknown in former days, and the two materials which have revolutionised engineering science are cheap coal and reliable steel. But for these engineering to-day would probably find itself in the same position as it was a century ago.

I venture to believe that the great men of the past will yet remain stars in the path of celebrity, and will remain mentally head and shoulders higher than any of the greatest men that we can point to in the present age, for their work from the beginning to the end emanated from their own brains, and in periods of intolerance, corruption, and religious prejudice. I will merely name half a dozen as instances—Moses, Alexander the Great, Plato, Cæsar, Galileo, and Newton.

I will now drop from what you may call the clouds of speculation to the more prosaic portion of my subject, and then rise again to speculation as to the future. The celebrated Lord Chesterfield said that no two men could be friends unless they had some subject of common interest to both, and therefore when among strangers it was important to ascertain what their interests were. This association, which seeks a cordial relationship with our French neighbours, has at least one subject in common, and it is one that is exercising the minds of both manufacturers and police at this moment—automobiles and their speeds.

For years past I have worked, as you may know, in my small way to increase the friendship between the two nations by bringing influence to bear on individuals on both sides of the water who are held in esteem by their fellow countrymen, and I feel proud that my exertions have met with considerable success, for the result has been the close friendship between the French and English automobile clubs. I do not make these remarks out of vanity, for in some measure it has been due to the chance

* A paper read at the meeting of the Anglo-French Association in London on Saturday, May 26th, 1900.

which guides many of our careers. A love of mechanics was born in me, and thus has brought me in connection with the new method of locomotion, and with it in contact with so many friends on both sides of the Channel.

No one more deeply deplores than I do the shameful financial transactions which have taken place in connection with self-propelled traffic, and which has done so much to weaken the confidence of the public in the movement, and I fear that it will continue to do so for some considerable time to come. But the demand for self-propelled vehicles in England is on the increase very slowly but surely, and you will fully recognise that the demand cannot be met in this country unless money is invested in the business, and the business must be honestly conducted. We shall, therefore, still see for a long time the importation of foreign carriages. This is a misfortune to us from the point of view of prestige and from the side of the user, because English-made machinery is decidedly better and more substantial than the cheaper articles made abroad, for the best foreign automobiles are far beyond the means of the ordinary Englishman. The purchaser has, therefore, not only to pay the value of the car but the expense of carriage and the profit of the agent, so that it is not unreasonable to suppose that all such cars sold in England cost at least 25 per cent. more than if these were made in our own country, quite apart from the question of whether they could be made better in England than abroad.

We must, therefore, look forward to a considerable reduction in the price of these vehicles from the day when properly organized manufacturing factories are started in England, with an honest capital to meet their requirements. This remark applies to the small type of carriage known as the voiturette. I doubt whether the large carriage will be greatly cheapened, on account of the great precautions which are necessary in their manufacture; but as soon as these can be turned out in series of fifty or a hundred or more at a time the cost of manufacture must be greatly lessened, though their production on a large scale will not depend on the manufacturer, but on the demand from the private user.

Motor-car racing, like horse racing, has done much to improve the breed, and the time has now been reached when road racing is considered a dangerous pastime from the public point of view; and if racing is to take place at all it must be on a private ground. However, sufficient progress has been made to enable satisfactory vehicles to be turned out, and the continual disturbing element of the past, which disorganised even the largest factories, viz., preparations for the race, may well be dropped for some time to come, and serious attention given to producing that for which a demand exists—a carriage which is comfortable, suitable for the purpose required, not likely to break down, and of types at prices to meet the majority of possible clients.

It is impossible to compare the progress which has been made in France with any progress which has or might have been made in England. The temperament of the two nations is so entirely different. The French, protected by the Government on every hand, are led like a child by its parents from birth to the grave. Any fresh excitement or novel experience is to the Frenchman like a new toy to a child, and no one knows how long that new toy will give pleasure or at what moment it may be cast aside as done with. The Englishman has, on the other hand, to rely on himself absolutely from the time he leaves school or college, and from his earliest days it has been his habit to weigh all sides of a question carefully before embarking on any project, however simple it may appear. Therefore, when an Englishman buys an automobile it is, with few exceptions, that he does not ask himself the question whether or not he can in some way get an advantage either in the form of making more money or reducing his expenditure. Another class will consider whether some special advantage can be obtained or increased convenience found by the possession of such a carriage.

I think there are few who will disagree with me in the proposition that the first great extension in the use of motor-vehicles will come from the commercial classes, and motor vans and wagons will be greatly to the fore at an early date. I estimate that the motor-van will do the work of six horses, with no more labour to the men in attendance; and

the expense of running such a van will be less than the maintenance of the horses and the rent of the stables.

Another class will take advantage of this mode of progress, viz., the professional man, particularly country doctors, surveyors, and others who have to cover considerable distances in the course of the day. Railways will also take advantage of engine-vans in the collection and delivery of goods. There will be a gradual displacement of horses by those who use driving for social purposes. There can be no doubt that where long journeys are made in the country for particular objects the horse will give way to the motor, even with those who are most prejudiced against it to-day. But it does not follow that those who can afford to keep horses for pleasure will discard them. They will, however, cast aside the horse in the mere drudgery work in favour of the more mobile vehicle, and the better breeds of horses will survive. The farm horse also must remain for field operations.

There comes the question what the motor-car of the future is to be—whether steam, electric, petroleum oil, or petroleum spirit. Engines worked with the last-named material have made such progress and have been brought to such perfection that notwithstanding many disadvantages, not the least of which is that of storage of the spirit, their use is fairly universal at the present moment. But it by no means follows that this will be the case in the immediate future. There are few to-day who will dispute that for heavy work steam is the best, and English experience bears this out by the fact that the number of steam vans in use is increasing every day for commerce. There is only one difficulty with steam for small carriages, and it is but a question of time when ingenuity will get over it. It is the boiler. In the steam van the boiler may have a considerable dimension, and the difficulty ceases to exist, but in the light vehicle no satisfactory solution has yet come to hand.

Many boilers in existence answer well for light carriages, but in every instance they are either quite inaccessible or troublesome to clean.

We must not despair if steam has not advanced so much to-day as other modes of road propulsion. Even if the exhaust steam is condensed and the water used over and over again, there always will be a loss, and fresh water has to be taken in. Oil will get into the water under the best regulations. We have therefore to look to two possible solutions of the small steam boiler difficulty. One is in the construction of the boiler itself, and the second is some means by which the water is not liable to produce any deposit whatever. The petroleum spirit engine possesses a disadvantage which apparently is inseparable from its use at the present time, viz., that it will carry very little more than its own weight. There is no doubt that the weight carried could be increased,

but a very small increase reduces the speed considerably; consequently at the same time the power of mounting hills is reduced.

Some years ago, before much attention was given to the subject in this country, I published various information combined with the suggestions in regard to this class of traffic, and pointed out that nothing less than ten horse-power per ton would be satisfactory on carriages to be driven at twelve miles per hour. At that time 3½ and 3¾-h.p. was in general use on foreign automobiles, and I was met with a good deal of ridicule from makers on the other side of the water for placing my standard so high. This standard was not a mere guess or hobby. It was founded on theoretical combined with practical considerations, and it is satisfactory to know that this very standard is adopted almost universally at the present time.

Recently the 1,000-mile Trial has been concluded with very satisfactory results, but viewing the matter as an expert this trial has been simply child's play. It was necessary in order to advertise the movement and familiarise the public with the method of locomotion which before long will be adopted throughout the country. Certain carriages, notably the "Panhard and Levassor" type, stood out to the front in these trials, but the public ought not to be deceived in regard to these vehicles. The best was a racing carriage costing from £1,200 to £1,500, everything being sacrificed to diminish weight. They may be compared to the racehorse with the saddle weighing but a few ounces, which would be found most unsuitable and uncomfortable for ordinary



SIR DAVID SALOMONS ON HIS PEUGEOT CARRIAGE.

Photo by

(G. Glencille, Tunbridge Wells.)

riding. If these 12 h.p. racing cars had placed upon them bodies for comfort, and hoods and other protection against rain, their speed performances would come down wonderfully.

I have myself a 12 h.p. Panhard carriage, not of the racing type, which is very comfortable for riding, but not capable of high speeds. I point this out to show the truth of what I say; that the benzine engine will not carry much more than its own weight if any reasonable speed is demanded of it. In using the expression "its own weight," I include the framework of the carriage and the wheels. These auxiliaries will be proportionately heavier as the engine itself increases in size. The Panhard and Levassor firm have met with such extraordinary success in all their racing experiences, for the reason that they have a good motor, first class jockeys, and devote great care and attention to the manufacture of their carriages; but in the races their attention has unfortunately been taken off many other points which add greatly to the comfort and convenience of the motor-car user. The majority of those who have this firm's carriages are more or less experts or good mechanics, but the time is rapidly approaching when their use will extend to other classes less experienced. To gain access to the valves of the engine is a troublesome matter in the "Phoenix." Many bolts and nuts have to be removed before access can be obtained. The new "Napier" carriage, English made, appears to be far superior to the "Panhard" carriage, and time alone is required to perfect it.

In the Peugeot engine points of convenience have been carefully attended to and by the removal of one screwed cover the inlet and outlet valves of a cylinder can be removed. To give an idea how convenient this is, I will relate an experience. In consequence of my Panhard having been laid by for several weeks the inlet valves stuck, and it was necessary to remove ten bolts to expose these. The mechanic was an experienced man, and he did this with considerable rapidity. All was replaced and the engine tried, yet the difficulty still existed. We had therefore to take it apart the second time, and the total operation lasted about twenty minutes. On the other side, a short time since, on leaving the gates of Broomhill to catch a train at Tonbridge, the engine of my little Peugeot car failed to respond. I believe the cause was due to cement dust from some building operations next door to where the carriage was placed, and which had got under the valves. The covers were removed and the valves cleaned and replaced without extinguishing the burners in the space of four minutes, and by running very sharp I caught the train. I do not give this instance with a view to puff one carriage and disparage another, but to show how necessary it is that makers should give attention to details which are of the greatest service to their clients.

The engine of the future will probably be on the Diesel type, which is superior to the steam engine from every point of view. All apparatus required for ignition is absent, the running is as steady as with steam, the cylinder does not require cooling, the simplicity is such that its cost must be small, and, lastly, the efficiency, as is the case with all petroleum engines, is between two and three times greater than that of the steam engine.

Mr. Crompton in a paper that he read stated that the limit of speed of a motor-car should be merely the function of the brake. In Utopia such a law might hold good. My experience in France has been that whatever the function of the brake may be, if the driver can send everybody flying off the road he will refrain from using it. I think myself that the speed in England being limited to twelve miles in open country is unreasonably limited, but for other places the law as it stands is good.

There is one matter relating to motor-cars in this country which I regard as eminently unjust. It is the tax which is placed upon them. All unprejudiced persons must admit that with rubber tires the wear and tear on the roads is practically nil. It is therefore not justice that more should be paid by the mechanical carriage than by the horse-drawn vehicle, and I think that redress might be given on this point if representations were made in the proper quarter, as it is unfair to tax a coming industry in this arbitrary manner.

Many of you may know that I have always been an opponent of pneumatic tires, except on the lightest form of vehicle and cycles, as I have always contended that attention should be paid to the springs, but I am ready to admit that anything will take the jar off the wheel will relieve the springs and give easier riding, and remove some of the wear and tear from the under carriage. If a pneumatic is to last on engine vehicles it must be blown out as hard as possible; in fact, from there to five atmospheres the square inch. Under these conditions, most of the advantages sought for to a great extent disappear, and all requirements are met by solid india-rubber of large diameter, the internal portion being soft and the exterior of hard rubber, and this has no disadvantage except in weight; even this will but slightly exceed that of a large pneumatic. For road racing the pneumatic tire, being somewhat lighter, may hold its place, and in districts laid with rough blocks of stone, as found in villages in France, the pneumatic may be an advantage if it is intended to proceed at high speeds over such roads; but against these small advantages the trouble and inconvenience connected with this kind of tire are so great that they would try the temper of an angel.

The gearing, which is such an important part of a carriage, has been devised in every conceivable manner, and although the belt system is perhaps the most pleasant for the occupant of the carriage it gives trouble at various times, mainly for the reason that the perfect belt and joint has not yet appeared. Personally I prefer for comfort as well as ease and safety direct gearing by cogwheels, and those systems which enable you to keep the teeth continually engaged are the best in practice.

Undoubtedly the best method of changing speeds would be by mounting every cogwheel which has to be employed for this purpose on a clutch. This would enable all speeds, whether high or low, to be put on without unclutching the engine and without shock. I believe the idea has been attempted, but the large amount of space required in the suggested arrangement precluded the idea being satisfactorily carried out, but I confidently believe this will be the plan ultimately adopted.

The steering mechanism is a vital portion of a carriage, as you must fully recognise. The methods at present adopted may be divided under four heads:—

- (1) The system of lever bars.
- (2) The system of lever bars actuated by means of a rotary motion with an intermediate chain.
- (3) By levers actuated by rackwork or cog-wheels.
- (4) Levers actuated by worm-wheel and endless screw.

The latter is the one now adopted in the majority of Messrs. Panhard and Levassor's carriages. No. 2 system is that adopted on the cars of Messrs. Peugeot. Speaking for myself, I prefer Messrs. Peugeot's system. There is less vibration, and guiding is far easier. Against this system it is contended that impediments on the roads react on the handle-bar and give shocks to the driver. Also that there is a risk of the wheels being moved from their course by the obstruction unless the handle-bar is held fairly tightly, but I can most positively assert that these objections are purely imaginary. In the early days, when less attention was given to details, there was some truth in the allegation, because the pivot on which the wheels turn did not plumb with the tread of the wheel on the ground. This is a most important point, and if the steering wheels are dished so that the points which touch the road plumb with the pivots, there is no tendency whatever for the wheels to be shifted by impediments on the highway.

A gentleman mentioned to me that he was riding a Peugeot car when the driver hit the kerbstone, causing the handle-bar to be sharply turned. This, of course, would naturally happen, but then it must be remembered that had the steering been on the endless screw principle the chances are that the wheel would have been injured or smashed. I have driven carriages which have been steered by other methods, and in all cases I find that there was disagreeable vibration on the handles, which rendered steering tiring after a time. With the endless screw this vibration is not noticeable until after the carriage has been in use a short time. Then it makes itself apparent in consequence of the wear and tear.

I am ready to admit that for racing purposes the endless screw is the best system, as the course can be altered very slowly by this means, so that a less experienced driver can race more safely. Anyone who has driven carriages with the various steering types mentioned discovers, almost at once, the extraordinary ease with which it is possible to wind in and out of traffic, however dense, with the system adopted in Messrs. Peugeot's vehicles—viz., intermediate chain system.

There is a question whether it is better to place the motor in connection with the back or the front wheels. Theoretically it is better to have the front wheels driven because it is better to start the carriage with these wheels placed at any angle. Except for this, there is not much to be said in favour of or against adopting this method. There is always a controversy as to whether one chain, two chains, or no chain is the best way of transmitting the motion to the driving wheels. Many methods exist for driving without a chain, and it is curious to note that some manufacturers claim that patents are good in connection with methods, the whole of which have been known and published as far back as the year 1820, mainly in connection with steam road carriages which first made their appearance about that time.

There is no objection to the use of driving chains if they are properly made. In some respects they have an advantage from the constructional point of view as well as convenience for making repairs. The only drawback to their use is that manufacturers appear to forget that the chain is nothing more or less than a flexible cogwheel, and although they take every care to protect other gear from dirt and dust, no measures are adopted to ensure these benefits for the chain, which is quite as complex as the other mechanism. The questions whether steering by means of the fore or rear wheels, whether four, six, or more wheels should be employed, whether the motor being placed in front or in the rear tends to skidding, etc., more or less, are matters too lengthy to discuss here.

We have at the present time advocates for the electric ignition and for the ignition tube. The whole of the manufacturers as well as users are gradually coming round to the use of electric ignition. The chief advantage to be obtained by this method is that a source of danger is eliminated, for the reason that no naked flame exists in proximity to any possible leakage of benzine, also that by the timing arrangement the maximum power can be got out of the engine, and a governing arrangement exists outside the governor. As an electrician, I naturally favour this method, but my experience has shown many drawbacks to its adoption which are exceedingly difficult to overcome, and although long journeys have been made depending on electric ignition alone I would not, where certainty is demanded, trust only to the electric spark. The magneto system of Bosch, improved by Mr. Simms, appears to be a step in advance, but more time with extended use is still required to prove reliability on all occasions and in the hands of all users. The objections to electric ignition are the following:—The source of the electric supply, the wear at the points where the spark appears, and the keeping up of proper insulation. The last-named difficulty is one that can be overcome. The first one is the most troublesome to cope with. Accumulators and primary cells are not satisfactory. You are never sure when the electric energy may give out. Neither the

accumulators nor the primary cells improve by being placed upon a shelf, so that if the carriage is put away for a considerable period, it is very doubtful what is the condition of the batteries. Some makers have adopted a small supplementary dynamo to keep up the charge of the accumulator or use the energy from the dynamo direct when the vehicle is running. This adds complication to the carriage, but is really the best solution outside the magneto system. The wear and tear and carbonisation of the points where the spark takes place is not a matter of great importance since the sparking plug can easily be replaced. In new carriages being constructed for me, I am having both systems installed, so that in the event of the electricity failing me on the journey the burners could in a short time be installed.

Engines to employ heavy petroleum which can be stored without danger have appeared from time to time. The systems adopted by Mr. Koch and others have met with considerable success, and it is probable that in the future heavy oil may be largely used when simple and satisfactory engines make their appearance and the smell produced by the exhaust can be suppressed to a considerable degree.

There are a vast number of other points which should be dealt with in a paper on Self-Propelled Traction, but on this occasion I will not do more than mention what they are—the various types of brakes, methods for cooling the cylinders, special forms of suspension springs, best methods for connecting the springs to the wheel axles in order to prevent the carriage sliding on the springs which has occurred in so many instances, wheel construction, methods which are or may be employed to enable vehicles to run round sharp corners at high velocities, lubrication, and possible methods of reducing air resistance.

I will say but a few words on the last point. The idea prevails that if the front of a carriage is made wedge, or boat, or conical shape, this is sufficient, but it is not so. The back of the carriage must be formed in precisely the same manner as the front, in order that the air rushing back after the passage of the carriage shall help to push the vehicle. The only cars I have seen in which this principle has been introduced are the racing cars of Bollée and the electric torpedo of Jenatzy, but even their methods are capable of some improvement. It is by the principle indicated that the fish moves in water with such ease; and has been copied for ships, though in this case, since half the vessel is in the water and one half out, the full advantages cannot be obtained. Since the motor carriage is entirely in the medium in which it moves that disadvantage vanishes.

For the moment, electrical carriages are not in the running. They have a use in level towns where charging terminals can be found and the distances to be traversed during the day are not great. In ordinary hands their maintenance must be considerable, since the batteries cannot be carefully examined, and after a few months use troubles begin, so that probably in the majority of instances the battery has to be renewed once a year, or more often according to the care which is taken with the plates of the accumulator. In the hands of an expert the battery should last two years or even longer. This means a large amount of care and attention.

As far back as 1874 or 1875 I constructed for myself an electric tricycle by combining a strong tricycle with a 1-h.p. motor and a number of Bunsen cells, secondary batteries not being known at that period. Of course, the tricycle had to be entirely rebuilt to carry the extra weight, and it ran satisfactorily, but the trouble of re-charging the battery led to the vehicle being put on one side. I regret that it was broken up soon afterwards and its component parts used for other purposes, so that what was possibly the first electric vehicle is no longer in existence. Some time after this an electric tricycle or quadricycle was made somewhat in the form of a skeleton voiturette by the E.P.S. Company about the year 1883 or 1884. I am not aware that any attempt at electric locomotion on roads was made between these two periods.

I have always had certain pet ideas for the future of locomotion, and by degrees they are being realised. The first step towards 200 miles an hour on rails has been taken. A Bill is now before Parliament for the construction of an electric railway between Liverpool and Manchester with a speed of 110 miles an hour. The idea of overhead wires along streets and highways capable of supplying power to electric carriages running on the common road without rails, which is quite possible, is now being realised on an experimental scale at the present Paris Exhibition. My notion was that carriages with motors should be built to hook themselves on by some suitable method to the overhead wires running along the highways. The motor could then be set in motion at pleasure by a switch on the vehicle and start in the usual manner. The current could be paid for by meter placed in the carriage, and all vehicles intended to run in this manner would have to be registered by the company supplying the current. The details of the electrical methods I need not trouble you with.

The question of moving roads has also obtained partial solution in the moving platform to be seen at the Paris Exhibition. All these ideas were published many years ago in various papers and articles, and I hope to live long enough to see them fully realised. I am ready to admit that in this paper a great many points have been overlooked, and on many matters which ought to have dealt with silence has been maintained, but I have said sufficient on the subject for this evening and many opportunities will arise in the future for discussing the various subjects left unmentioned this evening.

I conclude with the expression of the hope that the healthy rivalry which is about to commence, if it has not already started, between France and this country in regard to the automobile industry may continue, and instead of raising petty jealousies and political bugbears, a cordial and lasting friendship may result.

ALLEGED BREACH OF CONTRACT.



A CASE in which Mr. A. H. Barkworth, of Tranby House, Hesse, Yorkshire, sued the Automobile Association, Limited, for damages for breach of a contract to deliver to him a motor-tricycle, was heard on Tuesday before Mr. Justice Ridley and a common jury. The defence was that there had been no breach of contract.

Mr. Scott Fox, Q.C., and Mr. H. S. Moss-Blundell appeared for the plaintiff; and Mr. Shee, Q.C., and Mr. W. H. Stevenson for the defendants.

Mr. Scott Fox said that the plaintiff's case was that in November, 1898, he ordered from the defendants an Orient Express car at a price of £201 12s. The plaintiff paid £75 on account, and the order was to be subject to a satisfactory trial of the machine. Instead of a trial being made of the machine which was being built for the plaintiff, a car of a similar kind was used, with the performance of which the plaintiff was not satisfied, and he accordingly wrote cancelling his order and asking for a return of the £75. This the defendants declined to do, and after some correspondence the matter was amicably arranged by the defendants agreeing to supply the plaintiff with a Barrière motor-tricycle for the £75. This agreement was made on February 7, 1899, and the tricycle was to be delivered within a month. The machine was not delivered until April 4, and it was not painted according to the plaintiff's requirement. It was tried on April 8 by a Mr. Hayter, an electrician, who was advising the plaintiff in the matter, and after it had proceeded for about three miles something went wrong, and although the motor went all right the tricycle would not move. The damaged parts were sent back for repair on April 13, and were not returned until May 10. The machine broke down continually, and eventually the plaintiff wrote saying that he was convinced that the machine was not a new one. It was sent back to the defendants, and the plaintiff informed them that he expected them to give him a new machine. The defendants declined to do this, but offered to put the tricycle in working order. The plaintiff met the defendants' manager at the Automobile Show on July 7th, and the upshot of the interview was that the defendants promised to give the plaintiff a new Barrière tricycle. After this the plaintiff repeatedly wrote asking when the machine would be ready, and the defendants wrote making various excuses for the delay. At length the plaintiff placed the matter in the hands of his solicitor, who wrote on October 17th asking for a return of the plaintiff's money or else the delivery of a motor-tricycle. Obtaining no reply to this, the plaintiff's solicitor on November 4th wrote again, saying he was instructed to take proceedings for the recovery of the money. On November 7th the defendants replied that the tricycle was ready and could be seen at the Stanley Show. The plaintiff replied that he would go and see it without prejudice. He went to the show and saw a machine bearing a card stating that it had been made to his order. There was no one to show the machine, and the plaintiff, disapproving of it, tore the card off and threw it on the floor. His solicitor wrote saying that he was absolutely disgusted with the tricycle and asked for a return of the money, which was refused. The plaintiff claimed £89 5s. 6d., being the £75 in question and money paid for extras and repairs to the first machine.

The plaintiff was called, and bore out his counsel's opening statement. In cross-examination by Mr. Shee he said he took the card off the machine at the Stanley Show because he did not wish the London public to think he had been such a flat as to buy it. Mr. Shee: Do you know that tricycles of exactly similar pattern have won the hill-climbing competition and the long-distance competition? Witness: Well, one horse will jump a fence, you know, and another will not. Mr. Hayter said he was an engineer of thirty years' experience, and had taken special interest in motor-cars. A month would be a reasonable time in which to deliver a machine. The second tricycle, which he saw at the Stanley Show, was identically the same as the first. It was a second-hand machine.

On behalf of the defendants, Dr. E. E. Lehwess, a director of the company, said that he had tried the first machine supplied to the plaintiff himself. It ran splendidly, and he wrote to the plaintiff and informed him of the fact. If the machine had been properly driven and properly lubricated there was no reason why it should have broken down. It was not an obsolete machine; on the contrary, it was of the very latest pattern. The second machine, which was exhibited at the Stanley Show, was absolutely up to date. It was, in fact, a 1900 model. He had tried it, and it ran very well. There was no later improvement which could have been introduced into it. From the state of business in Paris it was impossible to get the machine sooner than the date on which it arrived. Further evidence was given for the defendants to prove the tricycle shown at the Stanley Show ran very well, that there was nothing the matter with it, and that four months was not a long time to wait for the delivery of a machine, one of the witnesses saying that five months would be a reasonable time, and that he had taken eighteen months in some cases.

On behalf of the defendants Mr. Shee submitted that when the plaintiff asked the defendants to give him a new machine instead of the first, what he wanted was the very latest fashion with all improvements, and that in the circumstances the time taken by the defendants to supply it was not unreasonable. Mr. Scott Fox, having replied for the plaintiff, his Lordship summed up the case to the jury, who returned a verdict for the plaintiff for £89 5s. 6d. Judgment was given accordingly, with costs.

RENAULT FRERES v. THE MOTOR-CAR COMPANY, LTD.

IN the Chancery Division of the High Court of Justice, before Mr. Justice Kekewich, this motion was heard on Friday last week. It was by the plaintiffs, Messrs. Renault Frères, manufacturers in France of motor-cars, to restrain the defendant company from passing off, selling, or attempting to pass off and sell motor-cars as motor-cars of the plaintiffs which were not manufactured by the plaintiffs; from making use of the character and reputation of the plaintiffs; and from advertising themselves as the sole agents in the United Kingdom for the sale of the plaintiffs' cars. The plaintiffs sold two cars to a third party, who in turn sold them to the defendant company. The plaintiffs found that the defendant company were exhibiting these two cars and another unfinished car of similar pattern, but not manufactured by the plaintiffs, as M.C.C. Triumph Cars. They also alleged that the defendants advertised themselves as the sole agents in the United Kingdom for the sale of the cars. Mr. Warrington, Q.C., and Mr. Israel Davis appeared for the plaintiffs; Mr. J. C. Graham for the defendants. Mr. Justice Kekewich said that on the evidence as it stood he could not doubt that the defendants were acting wrongly. First, he must conclude that the agent of the defendants had stated that the unfinished car, not manufactured by the plaintiffs, was the same as those made by the plaintiffs. Another point was that the defendants advertised themselves as the sole agents in the United Kingdom of a particular car. He did not doubt that that meant to tell the public that if they wanted a car of that kind they must come to the defendants. He was not sure whether, though wrong, that was actionable, because it could do no harm to the plaintiffs, though it might do harm to their agents. Another question was that, if the company put forward these cars as their cars, and so made a reputation for themselves, the result might be to form a market for their cars and oust the plaintiffs. His lordship said he was not in a position to deal with this question. It was not suggested that the defendants purchased more than two cars of the plaintiffs and labelled them M.C.C. Triumph, and it was not suggested that they intended to buy any more. The urgency of the case was small, and no serious injury could be done. On the whole, he should refuse the motion, and make the costs costs in the action.

THE CHARGE AGAINST A DIRECTOR.

At the Central Criminal Court, on Thursday last week, before the Recorder (Sir Forrest Fulton, Q.C.), Mr. Sydney Fredk. Atkins surrendered to his bail to answer an indictment charging him that he, being a director of the Automobile Association (Limited), had fraudulently misappropriated its funds. Mr. J. R. Grain and Mr. Peter Grain appeared to prosecute, and Mr. Charles Matthews defended. The case was tried at the previous sessions before the Common Serjeant (Mr. Bosanquet, Q.C.), when the jury failed to agree. At the previous trial Mr. Matthews submitted that the accused must be acquitted, on the ground that he had never been properly appointed a director under the Companies Acts. Mr. Grain replied that there was evidence to show that the accused acted as a director, and was consequently amenable to the charge. The Common Serjeant upheld that view, and said that, the accused having acted as a director, whether he was properly appointed under the Companies Acts did not matter, and he was liable to be indicted and tried. The jury at the previous trial having disagreed, the case came before the Recorder; and Mr. Charles Matthews then took the same objection to the indictment.

After argument, the Recorder held that, inasmuch as the accused was not in his opinion properly appointed as a director under the Companies Acts and articles of association of the company in question, he could not be indicted, as he was, as a director, notwithstanding even that he may have discharged directorial duties. Mr. Grain: Then if a man knows that his election is irregular and acquiesces in it, and then at a convenient moment goes away with the whole of the property of the shareholders, he cannot be prosecuted. I understand that that is what your lordship rules? The Recorder: Yes, it is. The law may be defective and require amendment, but that is the law. The indictment was, therefore, in his opinion, bad.

MOTOR-CAR ACCIDENT.

THE daily papers on Thursday reported that a serious motor-car accident took place at Lyndhurst, near Southampton, the previous day. Mr. and Mrs. Orris, St. John's-wood-park, London, and Mr. and Mrs. Rucker, who reside near Woking, left Bournemouth in the morning for London. On passing through Lyndhurst a pair of horses attached to a timber wagon shied at the motor-car, which, on being steered into the side of the road, overturned, severely injuring the occupants.

FURIOUS DRIVING CASES.

AT the Cambridge Police Court last week Mr. P. K. Smiley, undergraduate of Trinity Hall, was summoned for driving a motor-car at an unreasonable speed in St. Andrew Street, on the 9th December last.—He pleaded not guilty. P.C. Merry said that at five o'clock on the afternoon of Saturday, the 9th December last, he was in St. Andrew's Street, when he saw the defendant driving a three-wheeled motor-cycle from the direction of the Market Place towards Regent Street. He was

driving at a furious pace having regard to the large amount of traffic in the street at the time. Witness stepped into the middle of the road and called upon him to stop, but defendant appeared to take no notice of what he said. The defendant was fined £1 including costs.

At the Marlborough Petty Sessions on Saturday, Mr. D. M. Weigel was fined £10 and costs for furiously driving a motor-tricycle. Defendant, who was going at a speed estimated at twenty miles an hour, is said to have passed a doctor's trap on the wrong side of the road, causing the horse to bolt.

MR. ARTHUR COLLINS, of Drury Lane Theatre, has ordered an electric automobile from an American firm. He regards motoring as, next to steam launching and houseboating, the best recreation he can enjoy.

MR. W. WILLIAMSON, who has been traveller to Messrs. Allard and Co., Limited, of Earlsdon, Coventry, for a number of years, has been appointed to the position of sales manager to the International Motor-Car Company, of Great Portland Street, London, W.

THE Automobile Trust, Limited, has been registered by Mr. S. S. Ramskill, 40, Holborn Viaduct, E.C., with a capital of £100, to carry on the business of manufacturers of and dealers in all kinds of vehicles, whether drawn or propelled by animal, steam, oil, electrical, or other power, bicycle, cycle, and velocipede manufacturers, etc. Registered without articles of association.

It may be useful to automobilists in town to know that they will be able to obtain miscellaneous accessories as usual during the Whitsuntide holidays, the London Autocar Co., Ltd., of Gray's Inn Road, W.C., having arranged to keep their premises open as usual. The Motor-Car Company, Ltd., of Shaftesbury Avenue, W.C., have also decided to keep their depot open from 8 a.m. to 10 p.m. during the summer months. No doubt this will be of great convenience to gentlemen whose time is so fully occupied during the day that they have not the time to spare to inspect cars, etc.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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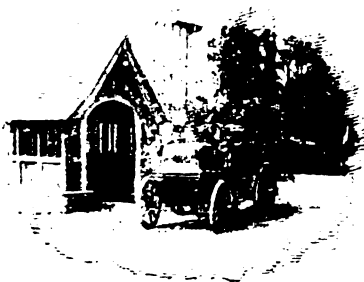
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COMMENTS.



scenery like the Lake country or the Peak district of Derbyshire ; but, quiet and restful as they are, the lanes and roads of the localities traversed at Whitsuntide are admirable from the automobilist's point of view.

Motor-Driving Competitions at Sheen House Club.

which is to take place at Sheen House Club on Saturday, July 28th. Members of the club who would be willing to take part in these driving competitions are asked to communicate with the secretary at once, as the meeting will be abandoned unless it is clear that there will be sufficient entries.

Motor-Cars for Southampton.

For some time the Southampton Corporation has been considering the question of establishing services of motor-cars to act as feeders for the electric tramcars, and also of replacing the present horse-drawn omnibuses which are now, it is said, being run at a somewhat heavy cost. Before arriving at a decision the Council is enquiring closely into the subject, and one day last week a deputation from the Corporation proceeded in a motor-car to Bournemouth to enquire into the motor-bus service in the latter town. The result of the visit will, no doubt, be made public in due course, and as the opinion is strongly held that a quick service of motor-wagonettes at popular rates would possess distinct advantages over the present system of omnibuses, it is to be expected that their introduction at Southampton will not long be delayed.

Narrow Escapes in Ireland.

SOME Irish folks have been taking unkindly to automobiles, and writing to the papers to call attention to the furious pace at which motor-carriages travel. It is, according to some of these correspondents, no longer safe to ride or drive along the roads—especially that between Dublin and Bray—and one writer tells how a lady of his acquaintance “has already had three narrow escapes of being run down.” Instead of writing to

the Press in a sorrowful mood she ought to be happy at having thrice escaped the process of “running down.” For, according to general accounts, the roads in Ireland do not generally respond to a high rate of speed.

Looking for Better Things.

JUST before the Motor-Car Exhibition some people were heard to remark that they thought well of automobiles but would wait till the exhibition before purchasing. And so they waited awhile. At the exhibition they heard of the 1,000-mile Trial and waited again. This is a habit of mind which, while useful in some cases, does not always answer. For if everyone waited till something better turned up, inventors would have a very poor prospect. In fact, this attitude is perhaps best described in the following paragraph.

He waited too long.

ONCE upon a time a man saw a bicycle for the first time. “Ah,” said he, “I will have one of those when they are improved.” Long years elapsed, and when the pneumatic tires and other improvements came, he said: “They will be better yet,” but when motors came in he said, “This is better, and when they are perfect I will have one.” Poor man, he waited patiently for a “perfect” means of travel, but last week he was carried in a horse-drawn hearse to his last resting place. Thus, by waiting for the perfect article, he got nothing. There are many like him.

In the Dukeries.

VERY delightful was the recent trip of the automobilists through the Dukeries, and the beauties of Welbeck and Clumber were as keenly appreciated as was the permission to indulge in good speeds through those pleasant places. Doubtless many motorists will be seen in these delightful places during the coming summer, and they should make a note of the fact that the “open days” for the present year are Mondays, Thursdays, and Saturdays for the seats of the Dukes of Newcastle and Portland, and of Earl Manvers. Clumber, Welbeck, and Thoresby are a trio of pleasant associations and beautiful scenery without rival elsewhere in the kingdom.

Experiences Wanted.

THOSE who wish to get all the pleasure that is possible out of automobilism must become acquainted with its details, and by horizontal posing or other means know the “internals” of their car as well as its merits when running. Those who purchase motor-vehicles have much to learn after they have been shown how to steer and how to drive. After a man has “handled” a car for some little time he naturally begins to feel a pride in the mechanism, and much mutual benefit can be obtained by motorists exchanging notes of their experiences through the columns of this *Journal*, or in conversation. If breakdowns occur, as breakdowns will, drivers take pride in

telling just how they tided over the difficulty; how they disconnected a cylinder, patched the driving chain together, traced a short-circuit, or tied on a tire. Doubtless they soon learn, but unquestionably they would be better prepared for the emergencies as yet unencountered if each had the benefit of the other's experience. And in giving publicity to such practical points we shall be glad to assist automobilists to become more thoroughly acquainted with the ways of their cars.

Traction Engines at the Front.

A CORRESPONDENT of the *Times* writes:—"Some interesting figures are just to hand as to the work of the steam sappers with Lord Roberts. Seven of them have been at work for some time hauling stores across the bare veldt. Between them they do 5,000 ton miles of profit work per day, which is equivalent to each engine hauling 35 tons 20 miles daily. The cost of carriage by bullock train is 3s. 3d. per ton mile, so each engine is earning £114 per day. Its working cost cannot amount to the odd £14 even at war prices, so that the traction engine must pay for itself in ten days, or for itself and train and carriage out twice in each month."

Accidents in France.

Le Velo's statistical table of accidents caused by the principal means of transport during the month of April differs in no wise from its predecessors in establishing the fact that the employer of animal traction is subject to many dangers quite unknown to the user of mechanical means of transport. Commencing with the horse we find that he produced during the month 714 accidents, and that the consequent loss of life amounted to seventy. In the case of the automobile forty-six mishaps occurred, resulting in the deaths of three persons; while to the use of the bicycle can be traced sixty-three accidents, in which eight people lost their lives. On the railway the monthly record was forty-five accidents and ten fatalities. Thus one sees that whereas the noble steed is held responsible for 714 accidents during the month the united efforts of the three great mechanical means of transport were productive of but 154 mishaps, the number of deaths brought about being seventy and twenty-one respectively. From the end of April, too, writes our Paris correspondent, I fully anticipate seeing a marked reduction in the number of automobile accidents, for the rigorous measures adopted by the police have undoubtedly curbed the reckless propensities of the dare-devil class of driver, while the absolute necessity of securing a *permis de circulation* has temporarily deprived many *chauffeurs* of their mounts.

Railways and Automobiles.

MANY times have we emphasised the important part that the motor-car is likely to play with regard to railway development in the future. Of course, English railway companies are traditionally conservative and require much discussion before conversion; but that they will have to utilise the motor-vehicle as an adjunct to their lines in the near future is a belief in which every automobilist has faith. In America the Baltimore and Ohio Railroad Company has recently established a service of electric motor-vehicles, and these are now successfully running in Philadelphia. The extension of the idea to other railways will probably not be long delayed.

One Effect of the War!

THOSE American journals again! When will they cease to imagine strange things, and to give publicity to those of unconfirmed report? Here is an item culled from the news paragraph in an American automobile contemporary. "The heavy demand for horses for use in South Africa has caused an increase in the number of automobile delivery wagons on English streets. A correspondent of a London paper says these automobiles have been found much more economical by the tradesmen using them." Really!

Ladies and Motor-Cars.

Two years ago the only French lady automobilists who had attracted attention in the world were the actress, Madame Réjane, and Mme. Rothschild. Now, it is computed, there are more than five hundred ladies in Paris driving their own automobiles, and many of the drivers are ladies of eminence in the social life of the city. The vehicles are upholstered in every conceivable hue—blue, green, red, yellow, black, mauve, purple, white, and grey; and the fittings indicate a high standard of luxury. There is no doubt that ladies of every country are among the most enthusiastic of motorists, and, after a while, when the novelty has somewhat abated, English ladies will be found driving motor-vehicles in country districts—and occasionally in town.

An Inquisitive Equine.

FROM one of those voracious newspapers published in the United States comes a story which may be regarded as accurate or otherwise according to the scepticism of the reader. A citizen of Cincinnati—a great many stories of this class come from that town—left his horse and buggy outside the Grand Opera House, an electric automobile also standing by the kerb. The horse, it is alleged, began nosing about and in doing so turned on the current, with the result that the vehicle made a dash at the horse and threw him to the ground with dire results. The automobile rushed on its way until a bystander having a knowledge of its mechanism was able to mount it and bring it to a standstill.

In Police Service.

MORE believable than the above is the following account of an experience of the cycle trade of Cambridge. The other day one of their number suspected a client, who had hired a bicycle, of felonious intentions, and thereupon converted himself into a private detective. He shadowed his customer, and presently obtained evidence that an attempt had been made to dispose of the bicycle to a pawnbroker. Then the hunt commenced. A group of cycle agents made up the pack, and "nosed" in every quarter to pick up the scent, whilst a motor-car, with a real live detective as one of its crew, formed the field. The scent became hot about Milton, and the quarry was run to earth engaged upon his tea. He was brought back in triumph upon the motor-car, all concerned, except the prisoner, appearing to be well pleased with themselves and the demonstration they had given of the value of cycles and motor-cars as thief-catching appliances.

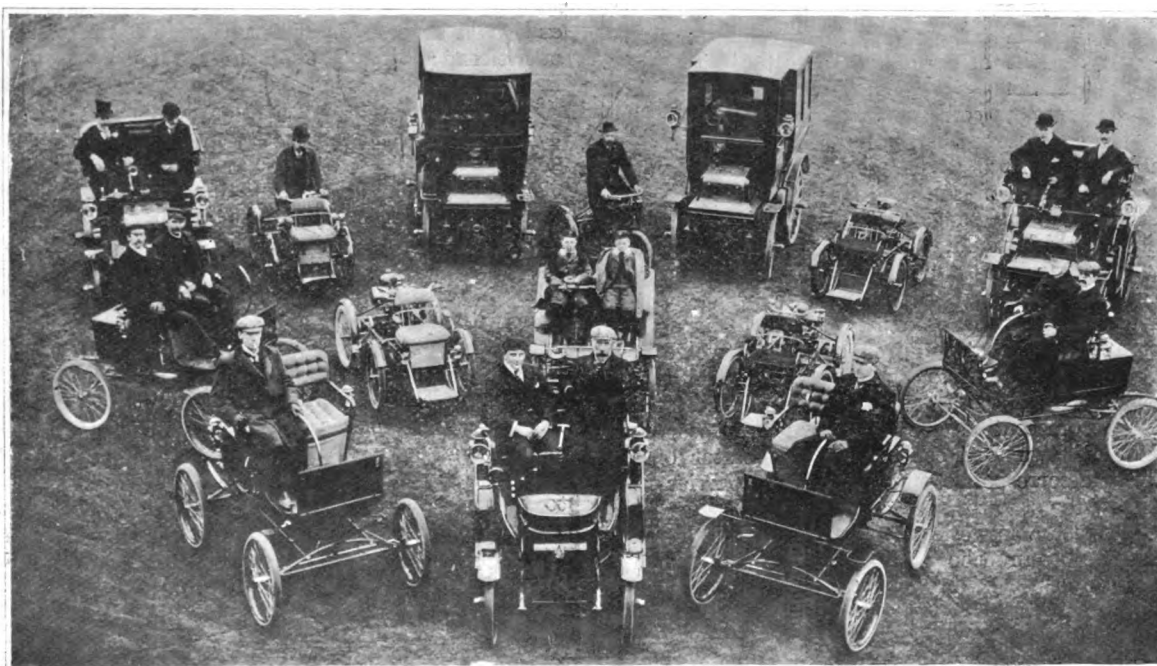
A Motor-Car as a Surgical Dressing Box.

FROM a French contemporary the *British Medical Journal* culls a remarkable instance of how Dr. Klein, while riding his motor-car in the neighbourhood of Sablé, was able to be of assistance to a road-mender who was found writhing by the wayside. On dismounting he at first sight diagnosed an epileptic fit, but after having had the sufferer carried to a neighbouring farmstead, he discovered a strangulated hernia. The symptoms having existed for some eighteen hours, and every ordinary method of reducing the rupture having failed, there was no resource but operation. The patient could not be removed on account of his weakness, and as his condition was becoming critical there was no time to return for anaesthetics and antiseptics. On looking at his motor-car, it suddenly occurred to the surgeon that in it lay the solution of the difficulty. He took from it some "essence" (probably the "petrol"), and washed the field of operation; he drew off some water that had been condensed in the cylinders of the automobile, and was therefore presumably sterile; he took some of the alcohol carried for the lamps, with which he disinfected his hand, and in the flame of which he sterilised his instruments and commenced the operation. After making an incision over the abdominal ring just large enough to

admit the tip of his finger, he cautiously passed along it the blade of a bistoury, with which he made a few small cuts, and dilated the parts with the other finger; the hernia was then successfully reduced. The wound was closed with an ordinary needle and thread sterilised in alcohol. He then took some of the cardboard and cloth which was carried to repair the joints of the water-pipes of the motor-car, made these into a pad which he boiled in the "essence," and, after it had cooled, applied to the wound and kept in position with a towel. Two days later he returned to his patient to find the wound healed.

The Mystery of the Motor.

SOME of the new humourists are finding in the motor-car a subject for fun and frolic with their pen. It is just as well that they can see the humorous side of the matter, for to the driver struggling with an obstinate engine in a market square there is nothing but a serious aspect. Mr. Barry Pain has, of course, been able to write pleasantly on the mystery of the motor, and in the midst of his tomfooling makes a point that



A MOTOR-CAR MEET AT SOUTHPORT.

deserves some consideration. "What is the use," he asks, "of talking rank engineering to a man who does not know a cam from a cog, or either from a cocoanut?" It is impossible to describe a motor-vehicle without descending into technicalities; but there are also parts of an ordinary carriage the designation of which is *caviare* to the man in the street.

A Hint to Business Firms.

THEN the humourist proceeds: "If a new bicycle or part of a bicycle is produced you are pretty certain to get a pamphlet about it which will interest you and make you understand it—which is put so clearly that it would make a canary understand it." That is, to a certain extent, true, but it is to be remembered that motor-vehicles are not of purchasable interest to everyone; and although the "new humourists" may be in the class who are on the look-out for motor-vehicles, there are thousands finding pleasure in cycling to whom motoring is a luxury afar off. At the same time, those in the motor trade might well do something in the direction suggested, and by a more liberal use of sectional drawings and sketches and photographs of parts, render the mechanics of the motor more generally known. For the diffusion of such knowledge would enlarge the circle of those who can comprehend the principles of automobilism; and an acquaintance with principles will, material matters considered, do something to persuade towards purchase.

A Motor-Car Meet at Southport.

ONE of the most enthusiastic *chauffeurs* in the Lancashire district is Mr. L. Williamson, of Southport, who has kindly sent us photographs of the two illustrations given this week of a motor meet recently held at this popular seaside resort. In sending us the photographs Mr. Williamson, who is seen in his Daimler car in one picture and on an Orient Express in the other, writes regarding the meet, "It was merely organised at my invitation for the purpose of obtaining photos of our locally-owned cars, and that the owners might indulge in a few hours' 'petrol talk.' The cars, after the photos were taken, had a short run in company in order to impress upon the horse-loving persons that they are not the only users of our highways." The example set by Mr. Williamson might be followed with advantage in many other provincial districts. It is surprising what a bond of friendship springs up under the action of "petrol talk," and many pleasant little runs might, as a result, be made in company if only someone will take the initiative in getting local automobilists together.

A Well-known Southport Automobilist.

MR. WILLIAMSON has quite a large stud of automobiles, to which he is now adding a 12-h.p. twin Daimler, with which he hopes "to have good luck." This is the result of the success he has had with his 6-h.p. Daimler which he drove during a part of the recent 1,000-mile Trial. Mr. Williamson regretfully left the route at Bradford, and arrived safely at Southport after having covered a distance of 500 miles without experiencing a single hitch.

An Interesting Lecture.

THE members of the Automobile Club of America recently listened to a very interesting address by Professor Thurston, of Cornell University, one of the leading American authorities on the steam engine. The author reviewed the early history of the automobile, and gave an idea of the perfection attained in the early thirties in the construction of steam vehicles that was probably new to many of his hearers. He pointed out that the line of steam automobiles had not been broken from that day to this, and recalled a ride he took in a steam automobile about 1860, going out from Boston for a half day's trip; also the vehicle built by Roper and the steam

fire engine built by Ericson, which was propelled by its own power, and even made the trip from New York to Philadelphia. The different kinds of power now receiving attention were considered, and steam, electricity, and petrol each given a place. Compressed air could not at the present time compete with the heat motors in economy, while liquid air could compete to an even less extent. He gave some interesting facts regarding the construction of automobiles and the properties of the metals used in their construction. In conclusion he said that the automobile can now be operated with no more danger than the horse-drawn vehicle; a greater range of speed is obtained, and the length of the route is unlimited with certain kinds of power; it operates equally well on all kinds of roads with the horse-drawn vehicle; in construction there is less liability to derangement and breakdowns; its cost and maintenance is less than the horse-drawn vehicle; it is to be preferred from a sanitary point of view; its tires will improve the road where the hoofs of the horse injure, and the automobile has also the advantage of more quiet running.

Restricting Invention.

ALONE among the London evening journals the *Echo* finds room for the growls of grumblers and the views of faddists of every variety. One of its recent correspondents signing himself "Cyclist" has written to the effect that many of our main roads have "a tragic record of motor-car accidents," and such a declaration is printed without contradiction or even a note of interrogation. Then this wiseacre makes a suggestion the adoption of which would, he considers, render the roads safe for pedestrians and carriages. "I would suggest," he says, "as the surest remedy that could perhaps be devised that every motor-car constructed should be fitted with an engine of maximum speed—power not exceeding that required to travel twelve or fourteen miles an hour—or the limit allowed by law; and that the provision of any power beyond this limit should render the manufacturers liable to prosecution." Just fancy; here we are within six months of the twentieth century and the editor of a London journal allows a correspondent to advocate a barrier to mechanical invention and a stop to engineering enterprise. We can hardly credit that such a suggestion would have been allowed in anything but an *Echo*—an echo of the dim light in which invention groped ages ago.

Motor-Cars and the Mails.

EXPERIMENTS that have been made in conveying mails by motor-vehicles should have convinced the postal authorities of the economy, efficiency, and regularity of such a method of performing their work. But tradition still rules, and every now and again some mail-cart driver is summoned for cruelty to his horse. A typical case has just been heard at Tunbridge Wells, where a driver has been convicted. He urged that the Post Office authorities did not allow the drivers sufficient time in which to do the journey. They had sometimes to drive very hard to reach various points at the appointed times. He admitted driving his horse, which had previously fallen and cut its leg badly, four and a half miles in thirty-five minutes. Were motor-vehicles employed such instances of cruelty to horses performing public services would be unknown, and a great saving of time and expense would result.

At Skipton, on Saturday last, Mr. T. Scaife, engineer, of Leeds, was charged with not giving "audible warning" of his approach. Defendant was in charge of an 8-h.p. motor-car, containing seven passengers, in the neighbourhood of Bolton Abbey, and was, it is stated, the cause of two horses bolting. The motor-car also ran into another carriage, breaking one of the shafts and a spoke. Defendant, who did not appear, was fined 20s. and costs.

THE SPLIT IN THE A.C.F.

(From our Paris Correspondent.)

THE annual general meeting of the members of the Automobile Club of France has been held at last; and what a truly pitiful affair it proved to be! There was a party—a strong party—in opposition to the club committee, but it lacked organisation, and the result was unhappy in the extreme. Everyone was shouting, talking, and gesticulating violently at the same time, and no one single subject received ten minutes' consecutive consideration. While one speaker was criticising the balance-sheet, another was condemning the budget, and a third objecting to the proposed changes in the club rules, the whole to the accompaniment of a confused babel of cries. Anything more lacking in dignity cannot well be imagined. And what was done? Nothing—absolutely nothing, after an hour and a half's tumultuous confusion, at the end of which time the president declared the meeting to be closed without taking any actual vote upon the hotly-discussed question of the budget. What a farce! To my mind, it is well to have an opposition party in every society, provided they work for the society and not for their own ends, as it keeps the administration up to the mark, if only by fear of criticism; but such an opposition must be organised and not a rabble. The dissatisfied members of the "A. C. F." had every right to discuss the budget item by item as they desired to do; but they did not go about the business in a proper manner, and it is not surprising that they missed their object. A provision of £200 on a budget of £14,440 is hardly an adequate allowance for a Société d'Encouragement to make to the industry which it is expected to foster, and this was the point in the budget to which the strongest exception was taken. But surely a little calm, cool-headed discussion would readily have put this matter right without having recourse to any such extreme measures as a wholesale secession from the club, and the corresponding amount of public criticism, which can have but one result—the weakening of automobilism. I do not say that the secessionists are entirely to blame, for the administration did not at the meeting give one the impression of welcoming criticism; indeed, they adopted a very high-handed tone with regard to the proposals thrown out by the opposition, albeit that those proposals were not put, perhaps, in the most acceptable form. Anyhow, it appears to be too late in the day to mend matters now, and perhaps, after all, the formation of the Moto-Club de France will prove to be a blessing in disguise to the "A.C.F." Speaking with one of the founder members of the new society, he told me that many of the promoters had no intention of resigning from the "A.C.F.," as the new club, not being a club at all, would in no wise clash with the interests of the older society; but to what extent this feeling prevails I am unable to say. In any case, I believe that the members of the Moto-Club will find that they have a hard up-hill fight before them, and that it will be a long time before they can render any really material assistance to the industry—much longer, indeed, than it would have taken to induce the administration of the "A.C.F." to amplify their provision for the current year had the representation been properly put forward. Of the twenty-five members, which the new society has decided shall constitute the committee, the following fifteen have already been elected:—MM. Serpollet, René Varennes, Pierre Giffard, Paul Meyan, Berlier, Cadier, Paul Rousseau, Delannay, Du Laurens de la Barre, Hérard, Riguelle, Trouette, Vignat, R. Lemoine, and Corlin. The movements of the Moto-Club will be watched with interest, as will also the "A.C.F.," in regard to the industrial side of automobilism. The industry should benefit from both sides, and let us hope that it will.

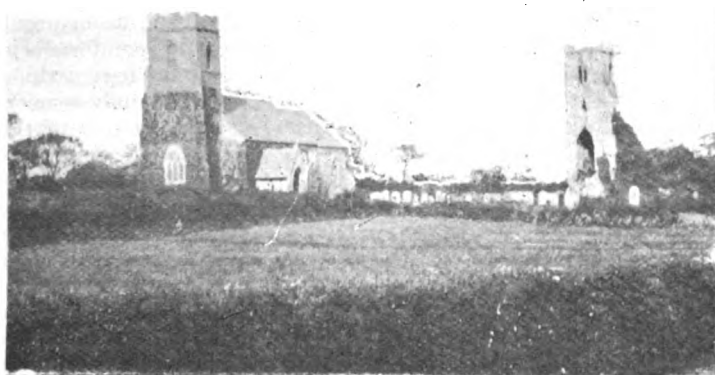
Is *Punch* also among the automobilists? Last week's issue contained a drawing of a gentleman going to Epsom on a Peugeot Voiturette. "To make sure of arriving there," remarked our contemporary, "he thought it only wise to bring his horses as well, in case anything 'went wrong with the works.'" Behind the car the two carriage horses were represented as trotting gaily along.

The Automobile Club's Whitsuntide Tour.



LAST year the Whitsuntide tour of the Automobile Club was through Shakespeare's country, and this year a route through the Eastern Counties was chosen. As already announced in these columns, the way was through Peterborough, Norwich, and Cambridge, thus giving participants a goodly view of the Fen country. With such a course good weather was the only remaining factor required to attract a large gathering, and all anticipated a pleasant time.

But alas! the weather on the morning of Friday, June 1st, was not good in London; and as those who had intended taking part in the tour looked out from their windows in the early morning, their hopes became depressed and their spirits were



A VIEW NEAR NORTH WALSHAM.

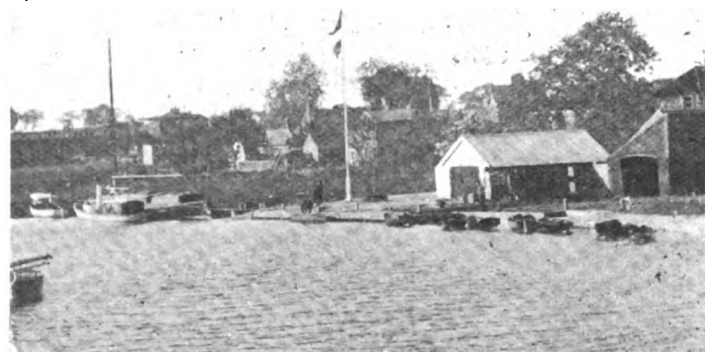
dampened. It rained. Not a showery, fitful summer drizzle; but a steady and substantial downpour that might have been regarded as characteristic of April, but was certainly out of place in June—and certainly very objectionable at the commencement of a tour, the success of which was so dependent on King Sol and his smiles. But such was not to be at the start, and we did not anticipate many cars would be standing on Horse Guards Avenue as we went to the headquarters of the Automobile Club. Not only did the rain descend, but the wind blew coldly, deterring many from entering upon the journey. We got to the club-house just before ten a.m.—only one car, that of the secretary, being there before us. With praiseworthy punctuality Mr. Johnson mounted his car at ten o'clock, and with Mr. Bruce as passenger went off on his Whitsuntide pilgrimage. Several other motorists were waiting and watching for signs indicating a change in the weather. But no manifestations came and even the weather-wise were unpropitious. Messrs. Butler and Sturmev were of the number, as were Mr. Stanton and Mr. Pedley on Daimlers and Mr. Edge on a De Dion voiturette. Then came Mr. Mark Mayhew on his 8-h.p. Panhard, with Mr. Cohen aboard, and Mr. and Mrs. Buttemer following on a Benz car.

Despite the watery outlook these were duly started, and at a quarter past ten our party—the writer, Mrs. Cordingley, and Miss Pursehouse—decided to go by train to Bedford and there to commence travelling by motor—should the weather not prove too unkind. So in a commonplace cab we went to the station and by one o'clock had reached the Swan Hotel, Bedford—the rendezvous for lunch—53 miles from town. No car had yet arrived, but twenty minutes later Mr. Mark Mayhew was the first who had motored from Whitehall to appear at Bedford.

The weather was as delightful in Bedford as it had been depressing in London, not a drop of rain having fallen. We learned, too, that after leaving St. Albans—23 miles from London—the road had proved to be in splendid condition, and that there had been no rain to lay the dust. That was apparent from the aspect

presented by the automobilists as they appeared. At the same time there had been a strong head wind, almost sufficient to bring the cars to a standstill. Very satisfactory was the report that our own car was coming along in good style, and was only a few miles behind. It arrived at 1.38, having been delayed nearly an hour owing to a stoppage to grind the valves. Twelve minutes after two Mr. Johnson appeared, having made a long stay in St. Albans, where he spent some time with the telephone. As the motorists arrived they all told similar tales of trouble with restless horses, and in some instances, exceptionally bad-tempered animals had been met, requiring the stoppage of motors, the backing of cars, and other careful manipulation by their drivers. One or two Shire horses seemed to be particularly vicious, reeling and careering wildly in the air, to the dismay of passengers by motor-car. At Bedford, Mr. Grimshaw, on a tricycle, joined the party for luncheon, and Mr. White also drove into the courtyard of the hotel, having driven down from London on a twin Daimler.

About half-past three we left Bedford on our car to complete the rest of the day's journey—38½ miles—and arrived at the Great Northern Railway at Peterborough at a quarter to six, having had a good run on capital roads and with a strong head wind. But there were no stoppages and no incidents to chronicle. Between the sixty-fifth and sixty-sixth milestone on the Great North Road, at 4.27 p.m., Mr. Edge on his new 6 h.p. motor-tricycle came up with us. He had left London at two o'clock and had seen none of the party on the way. He turned his machine back to look for them, but evidently gave up the quest after awhile, for at the seventy-fifth milestone he passed us, having failed to see any other car. At Norman Cross we saw a very handsome Daimler wagonette, painted yellow, and being used to advertise someone's choir and a scenorama, while two miles before reaching the Cathedral city, whither we were going, we came up to Mr. Hutton's four-cylindrical Panhard. Mr. Hutton had Mr. Cartis with him and was waiting for the cars. He had



ON THE BURE AT WROXHAM.

driven over from York, his car "going great guns," and the wind behind blowing in equally strong fashion.

Having reached Peterborough we were able to await the coming of the others. About seven o'clock Messrs. Butler and Sturmev arrived, having had a long stay at Biggleswade. From them we learned that Mr. Mayhew was not far behind contemplating a punctured tire, and Mr. Johnson had kindly stayed with him to assist in the repair. News also came that Mr. R. E. Phillips, who was accompanied by Mr. Thwaites, was having trouble with his Petit Duc. About 9.30 p.m., Mr. Simms, who had left the club-house just before eleven in the morning, reached Peterborough. Early the

next morning Mr. Hankinson came over from St. Neots on a tricycle in time for breakfast. Both that gentleman and Mr. Simms left Peterborough on Saturday, and neither were seen again on the tour. The roads from Bedford to Alconbury Hill were flat, but afterwards they were of a switchback description, with easy gradients up and down. Unfortunately the weather was bitterly cold, and the fires in the various rooms of the hotel were much appreciated.

THE SECOND DAY.

Saturday opened dull and gloomy, with every prospect of rain. Unfortunately for the tourists, appearances were not deceptive, as was quickly discovered. We started just after ten o'clock for King's Lynn—a distance of 34½ miles—and arrived at the hotel at 12.30, after having been sent in a wrong direction round the back of the town over some execrable *pavé*. The roads were beautiful, except for about a mile or more of newly laid metal just outside of Thorne, but it rained continuously and hard all the way. Through Wisbech a wrong turn was taken, but this being soon discovered, we were again by the waterside where, by the way, a body was being recovered as some of the motorists passed. Horses were again very troublesome, and numerous flocks of sheep were passed, it being market day at Wisbech. In the hotel yard at King's Lynn we first saw Mrs. Kennard on her quad, which she was driving and steering, her lad occupying the comfortable front seat. The Hon. C. S. Rolls, with Dr. Hutchinson as passenger, was also met for the first time, both being smothered in mud. Mr. Hutton's car being minus a mud guard to one of the front wheels, was in an even worse state, and had to have the thick deposit scraped off. Mr. Frank Morris, of King's Lynn, was well *en evidence*, riding a new Parisian Daimler, and he afforded every assistance, being good enough to pilot several of the cars out of the town.

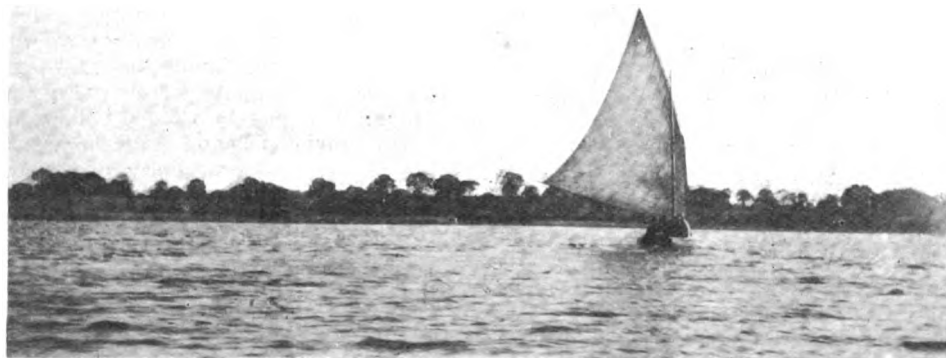
Having arrived first at the hotel, we left early for Norwich, the end of the day's journey—distance 43½ miles. Just before entering Swaffham Mr. Hutton passed, and afterwards Mr. Butler; but later on we passed Mr. Hutton by the wayside, a burst tire causing the stoppage. By invitation of Mr. and Mrs. H. Egerton a halt was made at Weston Rectory for tea, and some considerable time was spent in admiring the grounds, photographing, etc., by the owners and passengers of the seven or eight cars present. We here learnt of a painful incident which happened to Mr. Rolls. It appears he was riding along at his usual pace, wearing close French glasses, when by some means or other a bee got underneath and stung him by the side of the eye, which immediately began to swell. Fortunately, Mr. Rolls' passenger was a doctor, who adopted heroic means of removing the sting. A nasty scar was left, but the swelling subsided.

The latter part of the day was fine but dull, and the roads were good. Several punctures happened to the pneumatics, while Mr. Phillips still had trouble with his chains. Messrs. Lord and Swindley joined the party at Norwich, and Mr. Estcourt, on his new Daimler, made his appearance in the evening, and then we did not see him again till he was entering London on Tuesday. Most unaccountably the horses were still troublesome, and in fact the restive horses on any one day caused more fuss than the whole of the horses met in the Thousand-Mile Trial.

The Maids Inn at Norwich proved a pleasant enough place, the hotel being one of the oldest in the kingdom—yet, withal, up

to date with its sanitary arrangements and electric light. The landlord and landlady both ride motor-tricycles, and the former holds high positions in the National Cyclists' Union and Cyclists' Touring Club (besides which he was known to many of the party), therefore it follows we were made comfortable, the only jarring note being the extortionate charge of 3s. per night for stabling motor-cars. Sunday was an off day, but by common consent Cromer was fixed upon for a short run, and as the day was as bright and warm as Friday was cold and wet, the whole party made their way by different routes to that beautiful seaside place. The roads here, as elsewhere, were in an ideal condition, and the scenery passed through was most beautiful—the country being at its best just now. Our way to Cromer lay through North Walsham and the Broads, and as we reached the entrance to the Links Hotel, just immediately in front of us, coming from the opposite entrance, was a party of motor cyclists, consisting of Mr. and Mrs. Edge, Mrs. Kennard, Mr. Jarrott, Mrs. Clarke, etc. Here we heard that Mr. Roger Wallace was on his way on a motor-tricycle, but we did not meet him till night at Norwich. A long stay was made at Cromer, and then a move was made for Wroxham Broads, where some wherries had been chartered. The Norfolk lanes are many and winding, and although signposts are plentiful, we managed to lose our way. Asking a cyclist for the direction, he informed us we had come over six miles out of our way, and on our remarking that this meant a loss of ten minutes (!), he could only remark, "By gosh!" The missing of our way did not matter in the

least. The lanes were leafy and sweet, the roads good, and the motor—with its heavy body on and four passengers—pulling grandly, seeking, we suppose to make amends for its unruly behaviour on the thousand miles. We met Messrs. Butler, Bruce, Johnson, and Sturmeay at Wroxham, and after waiting some time, embarked on two wherries, and had an enjoyable two hours' sail. Norwich was reached at eight o'clock, and dinner partaken, as arranged, half an hour



MOTORISTS ON THE BROADS.

later. The opinion of those participating seemed to be that the present Sunday was a red-letter day in the history of the Club's many pleasant tours, and amply compensated all for the previous two days' wet and cold.

Certainly the contrast between the ancient old city of Norwich and the modern resort of Cromer was very striking, and without the motor-car it would have been impossible to have travelled over such roads and through such lanes in the time at our disposal. For not only were we able to enjoy the ride, but, in the boating on the Broads, were able to add to our pleasures to no inconsiderable extent.

Norwich looked well on Monday morning, and there was plenty of sunshine, which, coupled with the fact that the day's trip was not to be anything great, inclined us to delay the start. Mr. Johnson was the first to go, Mr. Wallace, on his tricycle, starting off with him. In Thetford we went to the Suffolk Hotel, at the sleepy old town of Bury St. Edmunds—forty-one miles from Norwich—where we arrived at five minutes past one. We had left Norwich at a quarter to eleven, and had gone through without a single stop—a typical instance of the good behaviour of our car throughout the trip. As was the case all through the eastern counties the roads were of first class description—a remark that does not apply, however, to those in the city of Norwich. The journey was practically devoid of incident, except that at one point a crowd of

small boys shouted lustily as we passed, and held up something which looked like a motor screw. On stopping to investigate it proved to be a thumbscrew for holding in the oil at the base of the crank chamber of a motor-tricycle. Proceeding a mile or two on our journey, we saw Mr. Wallace retracing his way, and we had the pleasure of handing that gentleman the missing screw.

At Thetford we passed Mr. Johnson repairing a puncture, but as the work was just finished we were soon passed in our turn. A pleasant time was spent in visiting the churches and abbey, and no other cars appearing we proceeded to have luncheon. At Bury Mr. Johnson returned to Thetford to find out what had happened to the missing cars, and discovered that a wrong turning had been taken at Thetford. We proceeded to Cambridge, arriving at the Bull Hotel about five o'clock, afterwards visiting Dr. Hutchinson in his charming house at Woodlands Avenue. Several punctures happened, one occurring to Mr. Hargreaves right in Cambridge, while the news of a smash up of a trike by collision with a lamppost was received. As far as Norwich we had been troubled by restless horses, but from that place to Cambridge we did not meet half a dozen horses, and these were of the most docile kind.

Tuesday saw the break up of our party at Cambridge. Two or three cars left early in the morning; one returned *via* Oxford, and we came back *via* Ware and Barnet, where we lunched. Mr. Hutton was the first to report himself at the club, and that was between one and two o'clock. Regarding our car, we may mention that, excepting the single stoppage for valves on Friday, it ran through on every occasion from point to point without hindrance.

THE POPULARISATION OF THE MOTOR-CAR.

BY TRADE-VIEW.



MANY cycle firms are now developing an interest in motor-vehicles, and recent Trials and annual runs have shown how the new form of locomotion on roads is becoming a practical and permanent institution. The attention of the public has been called to the subject in a general way; but the interest is cursory and often transient. They have seen the cars, have heard them, have—in some cases—smelt them, and their impressions have varied according to the condition when seen. The village blacksmith who has helped to repair a vehicle in distress naturally regards it in a different light to the people of Welbeck, who were able to see the speed trials in which a dozen motor-vehicles whizzed by at thirty and more miles an hour.

What is now required is that the general distracted interest should be particularised. The vehicles having been seen is one thing; the next step should be to secure that people should ride on them. A trip of a few miles on a motor-vehicle is better than writing and conversation to establish the fact that automobilism is not connected with nerve troubles. Having conceded that motor-cars can go and do go, there are sceptical persons inclined to believe that a ride on a motor-vehicle is a long series of vibrations, and a very uncomfortable method of travel. They can only be assured to the contrary by actual experience.

In this work agents and others in the provinces and the suburbs can do much, and a systematic education of certain classes of people in every locality throughout the country would be of great value in the popularisation of the automobile. A few elementary hints will suggest others. Roughly, the people to be interested in automobilism are of four varieties—viz., (1) the official classes, in which I would include magistrates, town and urban councillors, borough and county surveyors—and coroners; (2) professional men, such as clergymen, lawyers, doctors, and journalists; (3) local gentry, including manufacturers and others who spend spare hours in various pastimes; (4) the commercial class, embracing smaller manufacturers and the better class of retail tradesman. So far as prospective motorists are concerned the world can thus be quad-divided and attention concentrated on these classes of people.

For purposes of practical utility the order in which they are set out will suffice for the firm opening up a local connection for the automobile industry. An invitation should be specially

addressed to individual members of the local authorities inviting them to take a trial run. The acceptance of such an invitation would afford opportunity for demonstrating to magistrates and councillors the absolute reliability of the vehicles and the stern control that the drivers can exercise. These points cannot be too widely enforced or reiterated for there is still considerable latent opposition to the development of the industry in some of the sleepier towns. When applications for licences to ply motor-vehicles in sea-side towns come before the local authorities a far more favourable hearing can be expected when those in power have some acquaintance, however slight, with the running powers of motor-cars. If every agent throughout the country would carry out this suggestion we should have considerably less opposition than is now the case.

The second class—viz., professional men, such as doctors, clergy, and lawyers—should be similarly invited to ride motor-vehicles, not so much with the idea of securing a friendly consideration with regard to speed regulations, etc., as with a view to securing actual purchasers. Within the last few months the medical press has given much attention to the advantages of motor-vehicles for country practitioners, and at the Agricultural Hall Exhibition doctors formed a large proportion of the public attendance. Hence opinion in the medical profession is being inclined towards automobilism, and many a halting view might be turned into purchasing acquiescence by actual experience. Here, then, is every hope for business—and a few days devoted to giving every professional man in the neighbourhood a ride on a motor-vehicle should prove a valuable advertisement, giving results not long delayed.

With regard to the press every agent should quickly recognise the value of devoting a few hours to taking local journalists for short trips. They may get into confusion when describing vehicles, as was freely shown during April and May; but the publicity they give is valuable in helping the progress of automobilism. Just as public men frequently depend on the press for their reputations, so our motor cars can secure fame and favour by the notice of the press. Journalists are the public educators, and in giving them an interest in automobilism agents in the provinces can do much to help forward the general progress.

Among the gentry automobilism is making great headway—as could be seen by the appearance of most of the people at the Automobile Club's provincial exhibitions. They recognise the social value of the motor-car in enabling them to visit distant friends and return during the same day, while enjoying all the healthy conditions secured by driving. The advantages of the motor-car for station work can be easily shown by agents offering to send vehicles to meet visitors and take them direct to their hosts from the station. A few such trial trips in many country districts would secure the motor-vehicle being made the subject of conversation in scores of places where likely customers were to be found, and trade should be much helped thereby.

So far as the fourth section of the community is concerned, its conversion will probably follow, and certainly not lead the other. A general invitation such as I urge with regard to persons in authority, professional people, and country families would be wasted on the main body of smaller commercial folk; but in every town there are scores of such people, who, by a solitary motor-car ride, might be tempted to indulge in occasional hirings for the day or for certain specified business runs. They should not be ignored, and every reasonable means adopted to secure their attention to the main advantages of automobiles.

Agents taking up the motor-car business in the provinces must be prepared to strike out new lines. If they are coach-builders they must not merely introduce the subject to old clients; and the same is even more true of cycle agents becoming interested in motoring. They must look at the matter from two points of view—the general advance of automobilism as well as their own individual prosperity. These two ideas can be combined for the advantage of the whole industry. Certainly the methods I have indicated appear more likely to achieve the result desired without loss of time, and far more efficiently than could be done by the indiscriminate circulation of pamphlets and leaflets. It directly appeals to the people by giving them a practical acquaintance with the automobile, thus revealing all the advantages in the most impressive way.

AUTOMOBILE RACING IN AMERICA.

IN our issue of May 4th last we gave the result of the 50-mile race promoted by the Automobile Club of America, from Springfield to Babylon and back. It will be remembered that the race was won by Mr. A. L. Riker, who drove an electrical vehicle. In connection with the race the following letter by Mr. Riker, sent to the *New York Automobile*, is not without interest:—

There have been so many erroneous statements made concerning the victory of my carriage in the recent fifty-mile road race that in order to do the electrical vehicle justice I consider it my duty to refute them by giving the facts in the case. The carriage that I drove in the competition has been called a racing machine, and I have been criticised for entering a speed contest with a fast vehicle. Again it has been stated that the batteries were ruined; also that I changed them en route, replacing the exhausted cells with fresh ones, and other such statements about as sensible. For sake of argument let us assume that they are true. There was no stipulation that the carriage should be slow, or that competitors

should not stop to replenish their power during the run. Therefore, such statements as the above are foolish, and can be dismissed without further comment; but before leaving them I will say that the batteries were not ruined, and that I did not change them; and further, after making the fifty-mile run with the same cells and without re-charging, I drove the carriage twenty miles further, making a total run of seventy miles, fifty of this being at almost twenty-five miles per

hour. This, you must remember, was made with a carriage whose weight was a little over 2,000 lbs. complete. Of this amount 960 lbs. were due to the battery, and I consider it a most remarkable performance for such weight of cells.

As a short description of the carriage may be of interest, the following are some of the principal features: The vehicle is of the piano box type of body, carried on a flexible running gear; two motors of three horse-power each are connected by spur gearing to the rear wheels, and steering is accomplished by swivelling the front wheel over the line of tread. These wheels are in turn connected to the steering bar, which resembles the handle-bar of a bicycle, by a system of levers. The wire wheels are 32-inch front, 36-inch rear, with 3-inch pneumatic tires pumped to 125 pounds per square inch. A controller with a number of speeds is operated by the central lever. A hand-brake which can be operated by either occupant, as well as the foot-brake, was found necessary to check the carriage.

The course, as will be remembered, was over the famous Merrick Road from Springfield to Babylon and return, making a course of fifty miles, all but twelve being over very good roads. The twelve mile stretch was miserable, being sandy and very heavy

from the fact that they were mending it, so that we had to slow down to about eighteen miles per hour while going through it.

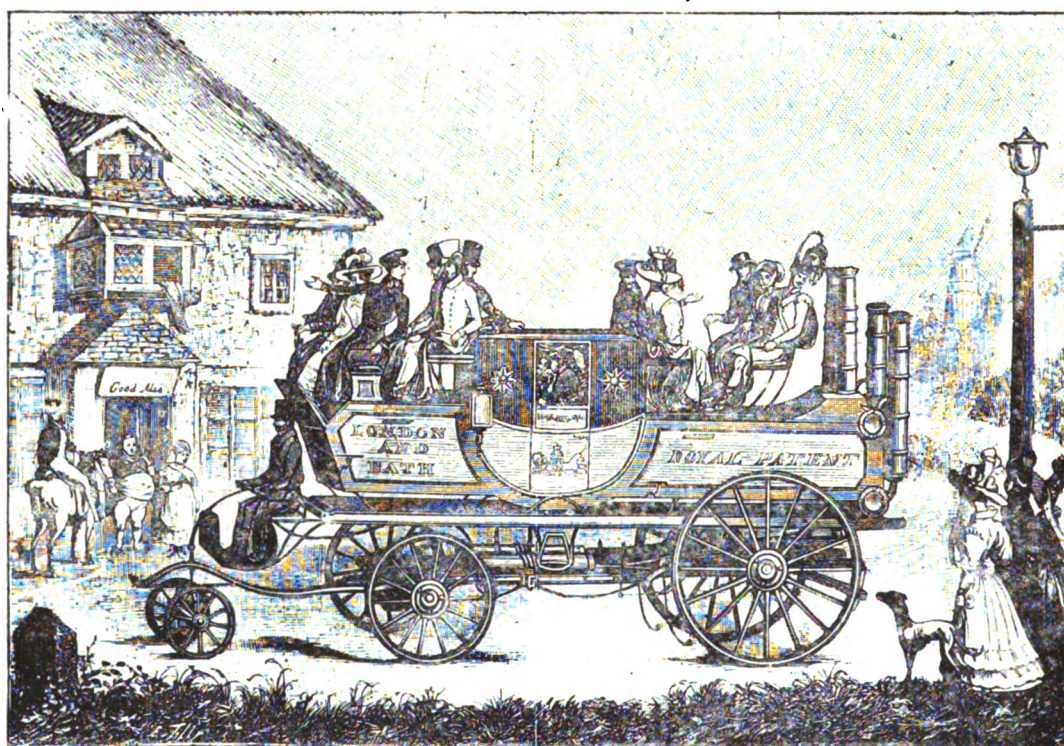
As I started first, and turned the mark at Babylon in this same position in one hour and thirty-eight seconds, I was quite anxious to know whether I had gained or lost on the road out. As I started on the home stretch I met the other contestants coming out, and found that I had lost two minutes to Mr. Davis, but as the run out had been made before a twenty-mile an hour wind, and as we had been running less than half speed, I was not greatly worried as to the outcome unless I had some accident. Into the head wind we raced at about the same speed as on the journey out, but to accomplish this we had to develop fifty per cent. more power. The run back was made without incident in one hour and three minutes, having gained some twenty minutes over the second carriage. Within a couple of hundred yards of the finish I gave the carriage the full power and crossed the line at a speed of about forty-five miles per hour. And then what an ovation! Those who had scoffed at an electric carriage running fifty miles, let alone winning such a contest, were dumbfounded,

and changed their minds as to the chances of the electric against steam and petrol for a race of this distance.

In conclusion, I trust that there will be other opportunities offered to again try conclusions with steam and petrol against the electric carriage.

In less than a year Glasgow's second International Exhibition will be opened at Kelvingrove Park, and will cover an area of almost seventy acres, of which the buildings alone will occupy

about twenty. Apart from the permanent Art Gallery, there will be three main groups of buildings—the industrial section, the machinery annexe, and the grand concert hall—all connected together by means of bridges and avenues. The work of erecting the principal buildings was begun on the 22nd April, 1899, when the Lord Provost cut the first sod. Of the eight classes into which the exhibits are divided, the principal are: industrial design and manufactures; machinery, motive power, electricity, and labour-saving appliances in motion; locomotion and transport; marine engineering and shipbuilding. In each class representative and comprehensive exhibits are certain to be found, and those desirous of obtaining space should apply to the general manager, Mr. H. A. Hedley at once. Scientific congresses promise to be a feature of the exhibition, quite a number of scientific bodies, including the Institution of Mechanical Engineers and the Society of Engineers and Shipbuilders, having decided to hold their annual meetings in connection with it. Even twelve months before the official opening there are sufficient indications to justify the belief that the exhibition of 1901 will be a great attraction for all interested in art and industry.



SIR GOLDSWORTHY GURNEY'S STEAM COACH, WHICH RAN FOR SOME TIME, ABOUT 1830, BETWEEN LONDON AND BATH.

THE NEW MORS RACING CAR.

(From Our Paris Correspondent.)

THE accompanying photograph of M. Levegh's new Mors racing car is of special interest, as it depicts not only the first of the new series of *voitures de course* which has issued this season from the Grenelle factory, but it also illustrates what is assuredly the fastest French petrol car now on the road; and when one says the fastest French car, it is equivalent to saying the fastest car, for no performances have been made outside France which warrant one to believe that there are any speedier vehicles than those existent in this land of automobiles. Generally speaking, one does not expect to see the new types of French racing cars before May, but this year Mors have been very energetic, and the first of their new stud was finished in time for the Nice week, which took place at the end of April. Its initial performance was not a conspicuous success, for in the Nice-Marseilles race the mounts of René de Knyff, Hourgières, Charron, and Pinson all finished ahead of the Mors champion, which, however, had had the worst of luck in the matter of tire troubles. That this form was too bad to be true was conclusively proved four days later, when in the Nice-La Turbie race M. Levegh steered his car over the seventeen kilomètres of hill, most of it with a ten per cent. gradient, in 19min. 2sec., no less than 17sec. faster than the time made by any other competitor, and 6sec. faster than M. Lemaitre's record. The following day this victory was confirmed by M. Levegh's performances in the time trial he made over a kilomètre and a mile, the former distance being taken from a flying start. In both he was accorded a walk over as none of the other big cars competed. His times were—one kilomètre from a flying start, 48½sec.; one mile from stationary start, 1min. 32½sec. The only other occasion on which the vehicle has had an opportunity of showing its capabilities was the hill-climbing contest at Cannes, known as "L'Esterel," and here again it came in first of the cars. The time made for the 13 kilomètres 600 mètres was 14min. 41sec. an altogether exceptional performance when the severity of the grade and the sharp turnings of the course are considered. And what is the horse-power of the motor? one naturally asks. Well, I would just like, first of all, to point out a great change that has come over automobile constructors in the matter of quoting horse-powers. One or two years ago makers and owners alike exaggerated the actual power of their motors in about the same proportion as they now diminish it, and the reason for the change is this. Frenchmen became educated in the question of horse-power and received with an incredulous smile the constructor's assurance that the motor was of such and such a force. Accordingly the maker went on the other tack, and to-day he says, "See how my 12-h.p. motor beats those of 16-h.p. made by other firms." It is very confusing and misleading, but under existing circumstances what can be done. If a man likes to call his motor, which develops 30-h.p. on the brake, a 10-h.p. engine what is to prevent him? The car illustrated is known at the Grenelle factory as the

"1900 type," and this is, perhaps, the fairest way of designating a racing car. I have every reason to believe that the motor develops 31 to 32 h.p. on the brake. The car itself is entirely similar in appearance to the last year's type of Mors racer, and gives one the impression of being a veritable "flyer." The owner and driver is M. Velghe, a well-known member of the Automobile Club of France, who races under the name of Levegh, and who is undoubtedly one of the very few automobilists capable of driving such a car for all she is worth. It is probable that in addition to MM. Levegh and Antony, both of whom have achieved so many successes on Mors cars, M. Maurice Farman will this year be seen racing with a similarly powered vehicle of Grenelle construction.

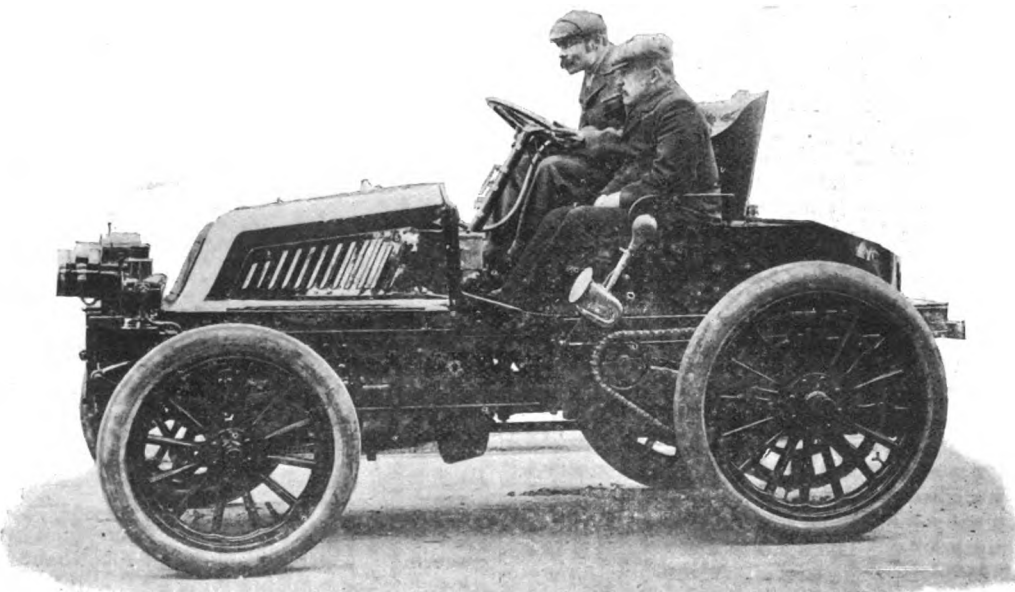
ABOUT 200 automobile licences have been granted in Chicago, and the ordinance requiring them is being strictly enforced.

ONE of the biggest fires that has occurred in Reading for a long period took place on Thursday last week, when the premises of the Speedwell Electrical Motor Car and Cycle Company were destroyed. The outbreak occurred in the rear of the premises. The workshop is built of wood, and contained oil and other inflammable substances, and consequently the fire burnt rapidly.

The enamel vats quickly took fire, and despite the efforts of the brigade they were unable to prevent the fire from extending to the front of the premises. A few of the bicycles were got out, some in a more or less damaged condition, but over 100 machines were destroyed, including five motor-cars, three of which belonged to customers. The Speedwell Company have already opened temporary offices at the Queen's Hall, Valpy Street, Reading.

THE Century Motor-Vehicle Co., of Syracuse, N.Y., have lately constructed

an electric vehicle in which the method of power transmission is, for this class of vehicle, said to be something of an innovation. Instead of driving the rear axle by single-reduction spur gearing the motor is suspended from the forward part of the body, with its shaft in line with the carriage, but sloping downward and back in the direction of the rear axle. A spur pinion and gear connect the motor with a shaft running back to the rear axle and a bevel gear on the differential drum. The battery consists of forty two cells, arranged in six trays, and the connections to the controller allow of three speeds forward and three backward. The same method of transmission is also used in both the steam and the petrol vehicles built by this company. The steam motor is of the usual two-cylinder type, reversible and double-acting, and it is suspended from the body on pivotal bearings on a similar plan to the electric motor, with the engine shaft coupled direct to the gear shaft which drives the rear axle. The driving mechanism and engine are entirely enclosed and dust-proof. The petrol vehicles have the engine arranged inside the rear of the body, and the change speed gear is pivoted to the body, transmitting the power to the rear axle by means of a gear shaft and bevel gears, similar to that used in the other two styles of vehicles. The frame of all the vehicles is constructed of seamless steel tubing, and is made flexible to allow for inequalities in the road. All the vehicles are steered and the speed controlled by means of one lever.



THE NEW MORS RACING CAR.

WHITSUNTIDE JOTTINGS.

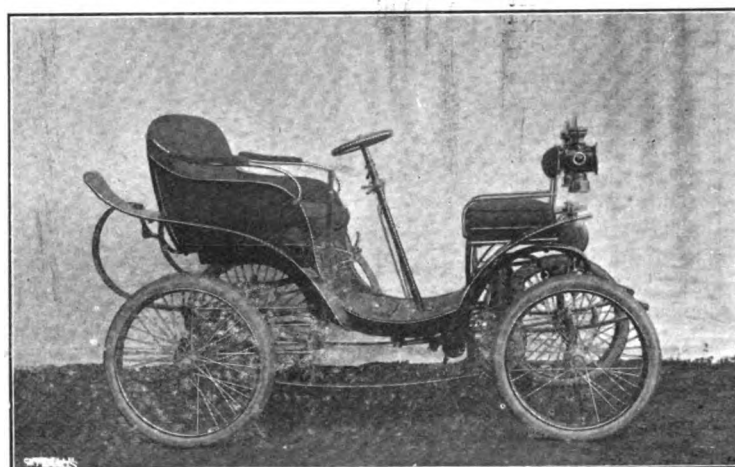
THE first two days of the Whitsuntide tour were marred by the weather. So persistent was the rain, so boisterous the wind, and so mud-adorned were the streets of London, that comparatively few vehicles turned up at the start in Horse Guards Avenue. Personally, I heaved a heavy sigh of regret, unpacked my bag, and decided to wait and see what the morrow would bring forth. But for once the Fates were kind. About one o'clock Mr. Rolls most kindly called round and asked if I would go with him on his flying 12-h.p. Panhard of 1,000-mile fame. I jumped at the offer, sending our boy on in advance with the quadricycle we proposed driving throughout the tour. At ten minutes to two Mr. Rolls left London, steering the car splendidly through the greasy streets, and with a master in the art of motoring at the helm, even the fear of sideslip soon vanished. Such a consummate driver inspires his passengers with absolute confidence, even when travelling at a rate of something over 40 miles an hour. The car herself was a revelation—so smooth, so steady, so speedy, and vibrationless. She romped up the steepest hills in a fashion which made one positively scornful of gradients, apt to inspire apprehension on an ordinary vehicle. But, alas! the puncture fiend pursued us, and twice were we brought to a standstill, owing to cruel nails over an inch in length. Then a terrible jolt necessitated a repair to the brake rod. Off with his mackintosh, on with his boiler suit, and in a second Mr. Rolls was lying flat on his back under the car, his head reposing gracefully in the mud. At this juncture a dear old white-haired dame came tottering by. For a few seconds she eyed the prostrate motorist with undisguised concern, then, unable to restrain her sympathy, she turned to me. "Dear, oh, dear!" she said, "is that poor thing lying crushed there beneath the wheels?" I tried to calm her by the assurance that the "poor thing" was not quite in the plight she imagined, and murmured something about brake repairs. But she was not content, and shaking her hoary head asked with kind solicitude if a cup of tea would be of any service. It was difficult to see the connection between the tea and the brake, but we were much touched by her offer. The rural population seem everywhere kindly disposed towards motoring. Steady rain and furious wind accompanied us both to and from Peterborough. But if the elements were unkind, the exceeding beauty of the country did much to atone. Nature had showered golden buttercups over the fields with a prodigal hand. The may was abloom and scented the air with its fragrance. The delicate lilac clustered in bunches round the cottage doors, and the yellow laburnum hung its tasselled head with gorgeous liberality. Even a patch of common rhubarb had caught the spirit of beauty everywhere apparent, and thrust up great seedy spikelets. And when, towards noon, the sun forced its way through a sickly sky, and illuminated the wide, luxuriant country with pale rays, the motorist could not but feel rewarded for his courage in having ventured forth from London under such unfavourable conditions. And lo! on the following day, as if ashamed of his lack of generosity, Phœbus shone out resplendently, and shed both warmth and sunshine on the land. How beautiful it was, bowling along the leafy lanes, every common ablaze with gorse, and the may emitting its sweet, pure fragrance! Absurd to say the motorist cares only for the drum, drum, drum of his engine and is deaf and blind to pleasing sounds and sights. They intensify his enjoyment a thousand fold. We drove the good quadricycle along at a steady pace, and did not neglect levers or advance ignition, but at the same time we had eyes wherewith to admire Mother Nature in a rarely genial mood. And so ended a very happy day. If any of my own sex contemplate the purchase of a quadricycle or tricycle, and are trembling in the balance, I can recommend either from personal experience. Mrs. Clarke, of Norwich, proved how graceful a lady can look upon the latter, and with what ease it may be manipulated. A good Ariel or De Dion will give the purchaser many happy moments, and they have the advantage of being less expensive than a car, and more economical as regards petrol. Moreover, their speed is undeniable. A divided skirt gets over the difficulty of a diamond frame and if properly made, is

almost precisely similar to an ordinary one. Many ladies, who find cycling fatiguing, will derive infinite pleasure from either a quadricycle or tricycle. A distinguishing mark of the automobile tours is the spirit of satisfaction which prevails amongst its members. They are as a bird of brothers inspired by a common enthusiasm. And yet the general public still stand aloof, and view the pastime with suspicion. Foolish public! They little know what they lose.

MARY G. KENNARD.

THE WILFORD PETROLEUM-SPIRIT MOTOR-VOITURETTE.

WE are now able to give an illustration of the petroleum-spirit motor-voiturette exhibited at the recent show in Brussels by Messrs. C. L. Wilford and Fils, Ingénieurs-Constructeurs, of Tamise, near Antwerp, Belgium. The car, which has seating accommodation for three persons, is propelled by means of a vertical engine located in the fore part of the frame. The motor, which is of 3 h.p., is provided with electric ignition and a water-jacketed cylinder. Belt driving is adopted, there being two speeds—10 and 35 kilometres per hour—available. The body of the car is well suspended, it being carried by plate springs at the front and C-springs at the rear, the road



wheels being of the cycle type shod with pneumatic tires. Steering is controlled by an inclined hand wheel, while there are three brakes available—one on the differential shaft and one on each of the hubs of the rear wheels. The car complete weighs 240 kilogrammes or 4½ cwt.

THE Manchester Automobile Club is arranging another run for its members for Saturday, the 23rd inst.

THE next quarterly 100-mile and hill climbing trial of the Automobile Club is fixed for Wednesday, the 27th inst. Entries will be received up to the 20th inst.

THE 60-mile run of the members of the Liverpool Self-Propelled Traffic Association takes place to-day (Saturday). The route was given in our issue of the 26th ult.

OUR Paris correspondent last week referred at length to a sale by auction of motor-cars which was recently held in Paris. The example thus set is now to be followed in this country, for we learn that Mr. Ernest Owers, auctioneer, of West Hampstead will hold a sale by auction of several motor-cars and tricycles during the course of the present month.

AT a meeting of the Pontefract Rural Council, on Saturday last, a complaint was made against the fast rate of speed at which motor-cars ran along the roads. One up-to-date member said the party who were engaged in the recent 1,000-mile Trial dashed along the roads, while another alleged the people could not see themselves for steam! He thought motor-cars ought to have a signalman in front like traction engines, which were not nearly so dangerous. It was decided to ask the County Council to seek legislation in the matter for the better protection of the public.

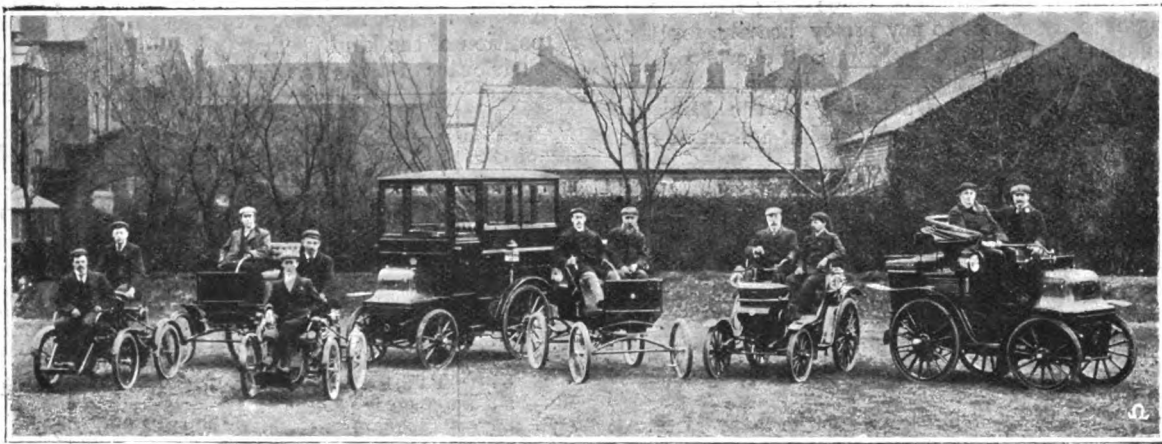
MOTOR-CARS ON THE CONTINENT.

—8—

A
Heavy
Sentence.

ONE of the severest sentences yet passed upon a *chauffeur* since the commencement of the war was delivered by the judges of the Tenth Correctional Court of Paris on Thursday, the 31st ultimo, and although he would appear to be somewhat blameworthy in the matter it is open to doubt whether the unfortunate recipient entirely merited the harsh punishment accorded to him. From the evidence given it would appear that the accused man, Gedda, who, by the bye, is one of the Phébus foremen, was riding a motor-cycle down the Avenue Marceau at a speed of fully 40 kilometres per hour and had perched up behind him a fellow workman. This latter, no doubt, hampered Gedda's movements somewhat, for, in endeavouring to pass between a carriage travelling in the opposite direction and an open drain, he collided with the former and more or less injured the occupant, a certain Madame Gilbert. This lady promptly commenced the legal proceedings which have now terminated so unhappily for Gedda; indeed, she was in court on the 31st ultimo, and apparently in good health. It took the judges but a very few minutes' deliberation to decide that Gedda was to blame, and they then condemned him to two months' imprisonment, £4 fine, and £80 damages, at the same

skillfully executed by this innocent-looking little machine! I do not deny that a run on a motor-bicycle over country roads is a delightful experience, but if one has to descend and push a seventy or eighty-pound machine through the more crowded streets of every town encountered *en route*, I for one do not think that it is good enough, and would prefer to pay another £40 and buy a tricycle. Such as it is, however, some progress has been made in the machine's construction, and the motor-bicycle of to-day is a long way ahead of that in use a couple of years ago. Not one of the least important factors in this improvement has been the annual race organised by *Le Vélo* expressly for this class of automobile, and in the regulations of which the limit of the competing machines' weight has been yearly cut down, so obliging those manufacturers desirous of being represented to devise all manner of ways and means to economise weight. In 1898, Osmont, riding a machine weighing no less than 80 kilogrammes, covered the hundred kilometres of route in 2 h. 29 min. 37½ sec., while a year later G. Labitte made the same distance in 2 h. 38 min. 56 sec., but on a bicycle weighing only 43 kilos. 600. This year the promoters reduced the weight to 40 kilogrammes, and as the *course* comprised three turns instead of one, as formerly, the performances of the leading men were of exceptional merit. The *course* attracted a total entry of seventeen competitors, and these presented themselves at the *pesage* before the race. The weights recorded were as follows:—1, Bonnard



A MOTOR-CAR MEET AT SOUTHPORT (see page 247).

time-declaring that the Phébus Company was civilly responsible for the accident. This is dreadfully out of proportion to the merits of the case. But then it is the war!

The "Velo's"
Motor-bicycle
Race.

THE third and last of the three races organised annually over the Etampes-Chartres road by *Le Vélo*, and known as "Les Trois Critériums," took place on Thursday, May 31st, in fine but very windy weather. A fair number of people assembled at Etampes to witness the race, but not the crowd one sees when cars, voiturettes, or motor-tricycles are competing, for in France the motor-bicycle, comparatively speaking, commands but little attention either from a racing or touring point of view. Here in Paris, where one sees daily some hundreds of automobiles, it is quite an event when a motor-bicycle passes, unless, of course, one is in the immediate vicinity of a firm manufacturing or trading in this class of machine. If people interested in their sale are to be believed, there are thousands of motor-bicycles ridden regularly in France, but these machines must be very rurally disposed, for one sees them seldom in inhabited spots. Personally, I am not surprised at this condition of things, which I account for rather by the timidity of the rider than the bashful modesty of the machine. But perhaps I should not say timidity, for it requires more than an ordinary stock of courage to ride a motor-bicycle through crowded streets after a shower of rain. Oh! those side slips, so cunningly conceived and

38 kilos. 500; 2, Cousin, 38 kilos. 500; 3, Rémy, 39 kilos.; 4, Garreau, 37 kilos.; 5, Rivierre, 38 kilos. 500; 6, Lesaint, 33 kilos.; 7, Léonard, 38 kilos. 500; 8, Léa Lemoine, 38 kilos. 500; 9, G. Labitte, 38 kilos. 500; 10, Arnault, 31 kilos. 900; 12, Eugène Buquet, 39 kilos.; 13, Auguste Buquet, 38 kilos.; 14, Robin, 38 kilos.; 15, Durey, 39 kilos.; 16, Fournier, 38 kilos.; 17, Quitte, 32 kilos. 500. Unfortunately neither Mlle. Léa Lemoine, M. Arnault, nor M. Quitte were able to actually participate in the race, the former by reason of the accumulators of her machine having run out, and the other two on account of their being unprovided with the necessary *permis de conduire*. The fourteen other competitors were duly despatched at one-minute intervals, some pushing, while others pedalled their cycles until the motor commenced to work. Upon the completion of the first outward run of 25 kilometres to Ablis, Cousin was holding a three minute lead from Bonnard, Rivierre lying third, the last named being the famous long-distance rider of the ordinary bicycle, whose name was a household word in the cycling world some few years ago. The termination of the first half of the journey witnessed Cousin leading the way, followed by Rivierre and A. Buquet, their respective times for the 50 kilometres being 64min. 52½sec., 65min. 24sec., and 65min. 50sec.—excellent going, especially when the strong wind is taken into account. Shortly after this point both Rivierre and Cousin experienced driving-belt troubles, and at the end of the second outward journey Bonnard had secured the lead, Cousin being second, and Rivierre only

sixth. During the last twenty-five kilomètres Bonnard maintained his lead, but upon the classification being made it was ascertained that he took but second place, the actual winner being found in A. Buquet. The official return was as follows:—1, A. Buquet, in 2h. 17min. 11sec.; 2, Bonnard, in 2h. 18min. 38½sec.; 3, Cousin, in 2h. 21min. 19sec.; 4, Léonard, in 2h. 22min. 3sec.; 5, Garreau, in 2h. 33min. 51½sec.; 6, Rivierre, in 2h. 54min. 44sec.; 7, Lesaint, in 2h. 55min. 3sec.; 8, E. Buquet, in 3h. 19min. For one cause or another G. Labitte, Rémy, Robin, Durey, and Fournier were compelled to abandon. The winner's average per hour was forty-four kilomètres, or, say, twenty-seven and a half miles per hour, and he rode a Lamaudière and Labre machine, which carries its motor at the bottom of the frame and drives on to the back wheel. It is certainly good travelling, and would undoubtedly have been better but for the wind, which hampered the competitors throughout the race.

Taxation of Automobiles.

THE troubles of the automobilist would appear to be on the increase, for, not satisfied with persecuting them and their vehicles in the matter of police regulations it appears that the Government have the idea of adding to the treasury by increasing the tax upon self-propelled vehicles. At any rate, in the proposed Budget of the Minister of Finance a proposition is made whereby a sliding scale of taxes following the horse-power of the motors will be adopted, and if M. Caillaux's suggestion is authorised by the Government some of our racing friends with their 30-h.p. engines may expect to pay pretty heavily for their mounts. I do not see any great objection to the proposal, for those men who own high-powered cars can well afford to pay any tax that may be levied, so that the adoption of the Minister's suggestion is not likely to have any disturbing influence upon the industry.

A Level Crossing Accident.

THE dangers of the railway level crossing were again manifested on the evening of May 30th at Bar-sur-Aube, where an accident occurred which might well have had a fatal issue. It appears that upon arriving at this level crossing a certain M. Tissot, who with a mechanic was mounted upon a voiturette, found the gate closed to permit of the passage of a train. Becoming somewhat impatient at the delay M. Tissot appealed to the railway official in charge, and this latter threw open the gates for him to pass, without remarking the near approach of a train. The car and its occupants had not quite got clear of the line when they were struck by the locomotive and overturned violently. But even in the case of M. Tissot and his companion the now well-known saying, "*Il y a un Dieu pour les chauffeurs*," held good, and whereas the voiturette was completely smashed the occupants escaped with but a few bruises. But they will take precautions in future when passing over level crossings, and not trust too implicitly upon the guardian.

Public-Service Vehicles Wanted in Germany.

A PROPOSAL to establish a motor-car service between Riegelsburg and St. Johann-Saarbrücken, Germany, a distance of about 5½ miles, has for some time been receiving the consideration of the municipal authorities of the former place. At last they have decided to give the scheme a trial, and are calling for offers for the supply of two eight-seated cars for a period of six months. Should the service prove successful the authorities will either retain the cars or order larger vehicles, but if a failure will return them to the makers. Offers are to be sent to Herr Burgermeister Speicher, Riegelsburg, near Saarbrücken, from whom full particulars of the projected service can be obtained.

AUTOMOBILES, chiefly steam-driven, are, it is stated, now being largely used between home and office by a number of New York business men.

CORRESPONDENCE.

THE FIRST MOTOR-CAR COMPETITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Now that the 1,000-mile Trial has been brought to a successful close, it may be interesting to know something about the first automobile competition ever organised. This was promoted by the *Petit Journal*, and took place on 22nd July, 1894, on the Paris-Rouen road. The first notice of the trials was issued on 19th December, 1893, the programme being as follows: "International competition; mechanical propulsion of any system; cars of any shape; number of seats *ad libitum*, with a minimum of two seats; cars to be safe, well under control, and not to cost too much when running. Preliminary trials over a distance of 30 miles, average speed 8 miles an hour, any higher speed not being taken into consideration; final trial on the Paris-Rouen road, a distance of about 73 miles. Entries accepted from 29th December, 1893, to 3rd April, 1894. Manufacturers and inventors only are allowed to compete." The staff of the *Petit Journal* acted as judges, aided by a few engineers as advisers. There were five prizes offered of respectively £200, £80, £60, £40, and £20. The number of entries amounted to the remarkable total of 102. When the time for the trials arrived, however, only 47 cars turned up.

The first day of the trials twenty-three cars entered, and seventeen took part in the run; twenty-one cars were admitted to the final run; fifteen went through all the tests successfully. This was very satisfactory, considering that it was the first competition of the kind. The following is a list of fourteen cars in their order of arrival at Rouen; they left Paris at 8 a.m.

Number of Car.	—	Number of Seats.	System.	Time of Arrival at Rouen.
				P. M.
4	De Dion-Bouton	4*	Steam	5.40
65	Peugeot	4	Petrol	5.45
28	Peugeot	4	"	5.50
13	Panhard and Levassor	4	"	6.30
31	Peugeot	5	"	6.7
42	Le Brun	4	"	6.24
15	Panhard and Levassor	2	"	6.30
64	Panhard and Levassor	4	"	7.1
30	Peugeot	3	"	7.2
24	Vacheron	2	Gasoline	7.3
27	Peugeot	2	"	7.5
14	Panhard and Levassor	4	Petrol	7.10
85	Roger	4	"	8.9
60	Le Blant	8	Steam	8.50

* This car being only a tractor carries only two seats, but can pull anything from a cab to an omnibus, according to its size.

Appended is a brief description of some of the cars:—Nos. 13 and 64, Panhard cars, did the 73 miles in less than 11 hours; they were fitted with two-cylinder Daimler motors; the engines were of 2½ and 3½ h.p. respectively; capacity of water tank 8 gallons, amount of water evaporated per hour ranged from 10½ to 15 pints; petrol was ¼ pint per mile.

No. 4, De Dion steam tractor, fitted with a 20 h.p. compound engine, but high-pressure steam could be used in both cylinders if necessary; weight in full working order about 2 tons; it could haul a load of 1 ton at a speed of 17 miles an hour, or on grades of 8 to 10 per cent. at about half the speed. More powerful tractors were built to haul loads of 8 to 9 tons at 4½ miles an hour.

No. 60, Le Blant steam brake; steam was generated in a Serpollet flash boiler; 12 pints of water and 6 lbs. of coke were consumed per mile.

No. 24, Vacheron car, petrol. This car was on the same principle as the Panhard, but was fitted with wheel steering, being in this respect in advance of the Panhard cars at the time.

No. 85, Roger car, fitted with 3 h.p. Benz motor, electric ignition, speed up to 17 miles an hour, could run up grades of 10 per cent. at a moderate speed; weight, 11½ cwt.

No. 10, Scotte steam brake, Field boiler, 5 h.p. engine

running at 300 to 500 revolutions per minute, feed water was heated to 30 deg. C. before entering boiler, total weight with passengers 2 tons 8 cwt., consumption of water per mile 10 to 13 pints according to the road, 3 to 5 lbs. of coke being used for the same distance. An accident to a boiler tube near Vernon stopped the car from continuing the trial.

No. 61. Steam car, M. Roger de Montais. The boiler measured 17 by 17 in., had twenty-six copper tubes, and was heated by twenty-six petrol burners, the regulation of the fuel was automatic, the consumption of petrol 3 pints per hour, 45 pints of water being evaporated per hour. The water tank held sufficient water for a run of 2 hours. The two cylinders were $2\frac{1}{2}$ by $3\frac{1}{4}$ in., speed up to about 13 miles an hour; the car could mount grades of 13 per cent. at 4 miles an hour. This car was the work of an amateur, and is rather interesting.

No. 18. Steam omnibus. This car, which had a Serpollet boiler placed at the rear, although fairly well designed for the work it was to do, did not quite answer to the conditions of the programme.

The last two cars arrived late at Rouen through some mishap.

London, June 2nd.

Yours truly,

L. CHEFDEVILLE.

THE AUTOMOBILE CLUB 1,000-MILE TRIAL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I trust that you will permit me, through the medium of your columns, to publicly express the thanks of the committee of this Club, and of those who participated in the recent 1,000-mile Trial, to the officers of the county and borough police forces for the arrangements made by them to facilitate the Trial; to the men of those forces for the assistance they rendered in directing the drivers of motor-vehicles; to the county and borough surveyors for their ready response to the suggestion that new stones should not be laid over the whole of the width of the roads over which the Trial vehicles were to pass; to the gentlemen who acted as honorary timekeepers and who assisted by erecting flags of direction; to the local committees who guaranteed the expenses of and provided exhibition buildings, and carried out other local arrangements; and to the public generally for the support given to the Club in their undertaking.

The object of the Trial was to endeavour to improve the position of the automobile industry in this country, the opinion of the committee of the Club (which has no commercial connection with the industry) being that this country should not be behindhand in an industry in which many thousands of men are at the present time employed in France at high wages, and which has there and elsewhere assumed very considerable proportions.

The Club has highly appreciated the assistance received from the Press in their endeavours to further the movement.

Yours truly,

ROGER W. WALLACE,

Chairman of the Club Committee.

Automobile Club of Great Britain and Ireland,

4, Whitehall Court, London, S.W.

June 1st, 1900.

CHANGE SPEED GEARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I see in the paper by Sir David Salomons that mention is made of what would be a satisfactory change-speed gear, viz., mounting each speed ring on a clutch so that the wheels could always be in mesh and connected up with the axle when required. The chief objection, however, appears to be room. Is there not a contrivance of this sort in the De Dion voiturette? Personally I have never looked into the gear of this car, and should be glad for information. I believe in Iden's Princess car the gear wheels are always in mesh, but I am not sure how the engagement with the axle is effected. Anyhow, I believe it is satisfactorily effected. Hoping that some reader will enlighten me on these points.

Yours truly,

R. A. COBB.

2, The College, Malvern, June 3rd, 1900.

THE PROPOSED MOTOR TRACK.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As one interested in the development of the automobile for practical service I was sorry to see the suggestion made for a track whereon races for motor-cars were to be instituted. From the time this is done the decadence of the industry may commence. At present the tours organised by the Automobile Club and the races arranged at the Crystal Palace from time to time supply all that is necessary in this way, and we do not want the sportive element too closely identified with automobilism. The professional element in racing would assuredly creep in, and, in addition to the prejudice against companies which the public now seems to entertain, the antipathy to professionalism in sport would also have to be encountered. Therefore, I trust, nothing more will be heard of the idea.

Yours truly,

Plymouth, June 5th, 1900.

A CAUTIOUS SCOT.

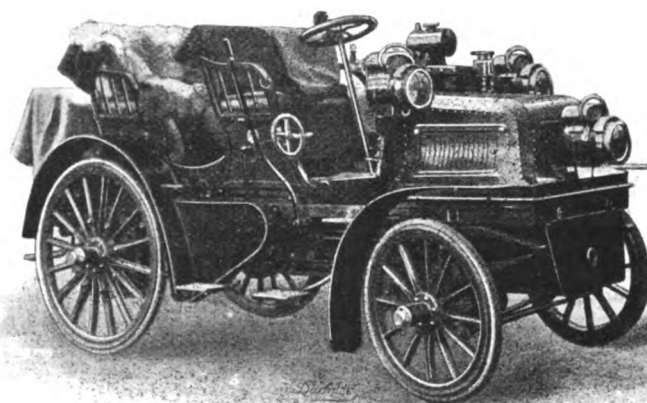
SIR,—Whether the proposed motor track would do much to popularise the motor-car is a matter that only time and experience can prove, but it could do no harm. That it would give pleasure to thousands is almost certain, judging from the interest taken in the recent tour of the Automobile Club.

Could not the project be made a subject for discussion at the Automobile Club next winter, with a view to eliciting the opinions of all sections of motorists in the suggestion? Such a track would not only give the public a new excitement and increased facilities for the enjoyment of the pastime, but would furnish manufacturers with a splendid means of testing their vehicles before putting them on the market.

Yours, etc.,

Ipswich, June 2nd, 1900.

H. F. W.



A 12 H.P. DAIMLER CAR.

THE directors of the Banchory and Strachan Autocar Company, Limited, expect to inaugurate a service to Birse and Finzean on the 11th inst. The cars are to be run in connection with the morning trains at Banchory Station.

A FEW days ago a new light motor-car, built at the works of the Adler Fahrradwerke Gesellschaft, at Frankfort-am-Main, Germany, was taken out for a trial trip with, it is stated, successful results. The car is fitted with a 3 h.p. water-cooled motor and weighs about 7 cwt.

IN connection with Sir David Salomons' reference to variable-speed gears in the course of his paper read before the Anglo-French Association recently, the S. S. Motor Co., of 59, Holborn Viaduct, London, E.C., write to say that in the S. S. car there are three speeds forward and one reverse, each of which has its own set of cog-wheels always in mesh, mounted over a friction clutch. These friction clutches are controlled by a rack and pinion, and the levers so controlling them are small, and mounted beneath the steering wheel. They will be pleased to show the car at any time by appointment.

HORSE-POWER TESTS OF MOTOR-CARS.

—8—

SOME attention was given in a previous article to the testing of small petroleum-spirit motors. The results arrived at by these tests are of value mostly between manufacturers of motors and manufacturers of vehicles. It enables them to decide what size of motor to build and install in a carriage to obtain certain results. However, after the motor is built and installed, when the whole has become one machine and it is desired to give a prospective purchaser some idea as to the capacity and economy of the vehicle, it is of little value to state the horse-power of the motor, as this conveys to him no idea as to what the carriage will do on the road—in fact, very few who are not engineers have any idea as to the meaning of the term "horse-power." There should consequently be at hand information concerning the motor-carriage in terms which are intelligible to such a person—information expressed in miles per hour under certain conditions, maximum hill-climbing capacity and fuel consumption per mile, under given conditions of road and grade. Although the speed and climbing capacity of the carriage depend primarily on the brake horse-power of the motor, yet with carriages of varying design it is possible that the same brake horse-power may produce varying results. The transmission or the running gear of the vehicle may absorb more power in one case than in another, leaving less power available for propelling purposes, which fact may materially alter the road capacity and economy of the machine. To obtain results, therefore, which shall be of value to the manufacturer and user of vehicles, information is required concerning the performance of the carriage on the road.

Results of tests of this kind, to be of value, should be comparative—that is, a method of testing should be adopted which would permit of the results from one carriage being compared with the results from another. Actual road tests, however, are acknowledged to be unsatisfactory for this purpose, because the conditions of the road, wind, and weather cannot be controlled, and are different for each trial conducted, regardless of the care which may be taken in conducting the trials. In the following discussion a method of conducting such trials will be considered, by means of which all the conditions of road, grade, wind, and weather may be kept constant for any number of trials, and the results from which will be comparable with absolutely no modifications or corrections. Although a similar method has not been used for testing automobiles, a modification is being used at the present

time for testing locomotives, three or four plants being equipped for that purpose in America; and very valuable results have been obtained therefrom. Similar apparatus has been used successfully for testing tricycles, and it is fair to suppose that it would prove even more successful for trials of horseless carriages.

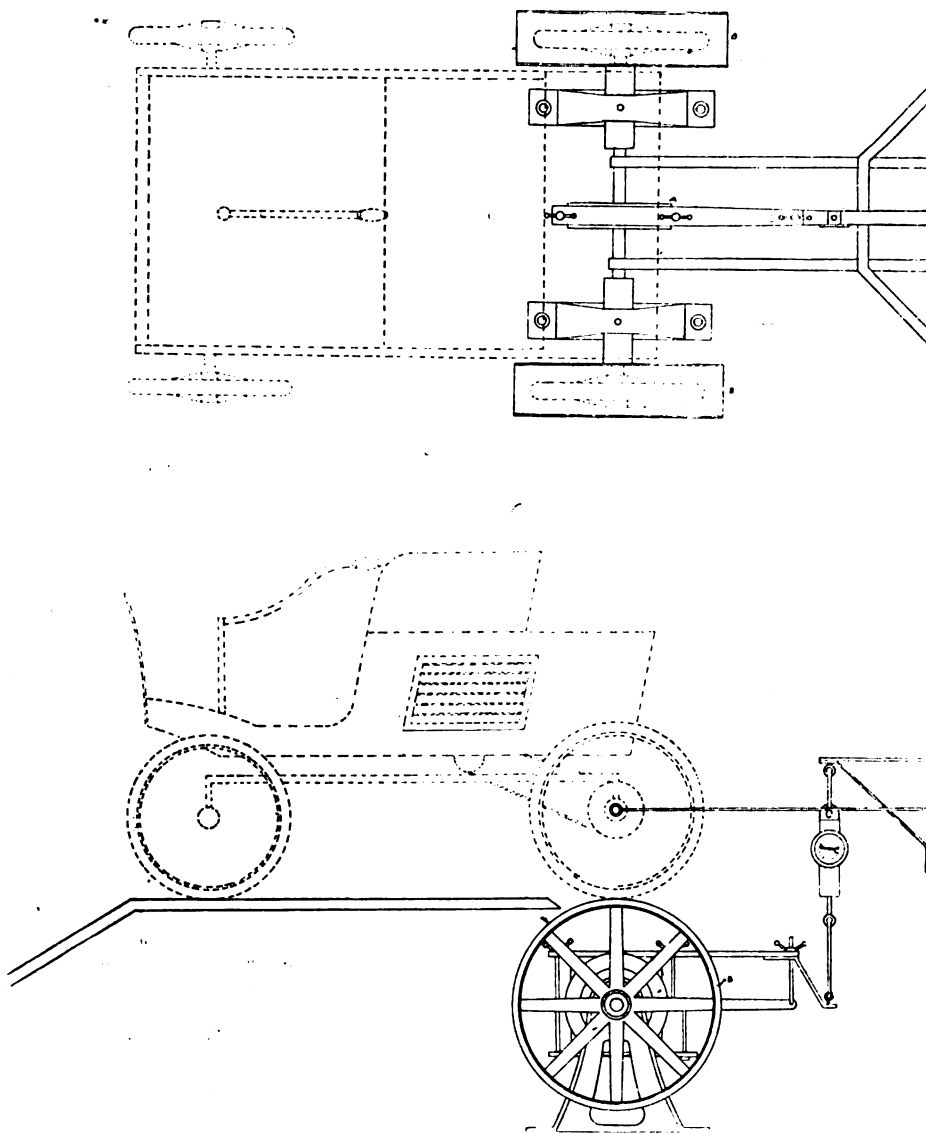
The apparatus necessary, which will be explained in detail, while not expensive, would be of value more to manufacturers or persons having a number of vehicles to test, and especially valuable in comparative trials of various makes of vehicles. The apparatus or machine shown in Figs. 1 and 2 consists in the main of a shaft of suitable length mounted in bearings and carrying at its centre a brake wheel *A*, and on each end a supporting wheel *B*. The vehicle is placed with its front wheels resting on a platform, the height of which is equal to that of the top of the

supporting wheels, and with its driving wheels resting on the supporting wheels, the centres of the driving and supporting wheels being in line vertically. The carriage is held in this position by means of an iron brace attached to the rear axle and connected to some support in the rear of the carriage. This brace allows a vertical motion of the carriage in order that it may rest with the full weight on the driving wheels, but does not permit transverse or longitudinal motion to take place.

It is evident now that if the motor is started the carriage cannot move forward; consequently the supporting wheels will revolve backward, with a peripheral speed exactly equal to the forward motion of the carriage were it on the road. If we apply a brake to this shaft the backward motion of the supporting wheel will be retarded, and a load will be thrown on the motor in proportion to the resistance. Let us follow out the construction of the machine, and ascertain how nearly we may arrive at road conditions, and how nearly

we may maintain these conditions. The resistance which a carriage meets on the road may be classified as follows: the friction of the transmission gear, the friction due to the condition of the road, the resistance of grades, and the resistance of the wind or air. The first two are always positive, the last two may be negative, zero, or positive. In regard to the friction of the transmission gear, it is evident that all parts are in motion except the front wheels, and the friction in these wheels may be replaced by the friction of the shaft supporting the rear wheels. Although there is a greater weight on these wheels than on the front wheels, if the bearings are nicely made the difference in friction will be slight, and may be neglected without appreciable error.

The kind and condition of the road may be reproduced by constructing the supporting wheels as shown in Fig. 4. This



FIGS. 1 AND 2.—PLAN AND ELEVATION OF TESTING APPARATUS.

wheel may be a standard pulley of light construction provided with a false removable rim of sheet steel attached to the pulley rim by short cap screws, and on which a layer of material may be attached to represent a given kind or quality of road. Supposing that we desire to represent an asphalt pavement, we would build into this rim a layer of the actual pavement, anchoring it by such means as may be found necessary, and finishing the surface as is done in practice. With this construction there should be the same action between the driving wheel and the supporting wheel as will occur in actual travel over this pavement. This rim may be constructed to represent block pavement, turnpike or any other form of standard road of any degree of smoothness or roughness desired by arranging the coating to correspond.

The size of these pulleys should be such that a given number of revolutions would represent a mile travelled by the carriage. For instance, if the outer coating were 38 3/16 in. in diameter, one revolution would represent 10 ft., and 528 revolutions would be one mile travelled.

In climbing a grade the motor must overcome the road friction of the carriage, and in addition do the work of raising the weight of the carriage through a given height in a given time, depending on the degree of steepness of the grade. This work is manifest in a back pull on the carriage in the direction of motion equal to the component of the weight of the carriage down the grade, which resistance is overcome through a distance equal to the length of the grade.

The amount of this back pull of the force necessary, to sustain the carriage on the incline may be computed as follows (see Fig. 4):—

Let W be the weight of the carriage.

Let L be the base of the grade.

Let H be the height of the grade.

Let P be the pressure to sustain the weight or the component of the weight down the grade.

Then

$$P = W \sin a \text{ or } W \frac{H}{L^2 + H^2} = W \frac{H}{\sqrt{L^2 + H^2}}$$

Now, if L be taken such that $H = 1$, or, in other words, if the grade be 1 ft. in L ft., or 1 in L , we have

$$P = \frac{W}{\sqrt{L^2 + 1}}$$

For grades varying from 1 in 5 in 100 this component is given in the following table for each 100 lbs. weight, or when $W = 100$.

Grade.	P in Pounds.	Grade.	P in Pounds.	Grade.	P in Pounds.
1 in 5	19.61	1 in 30	3.33	1 in 60	1.67
1 in 10	9.95	1 in 35	2.85	1 in 70	1.43
1 in 15	6.95	1 in 40	2.50	1 in 80	1.25
1 in 20	4.99	1 in 45	2.22	1 in 90	1.11
1 in 25	4.00	1 in 50	2.00	1 in 100	1.00
		1 in 55	1.82		

If then we wish to ascertain the performance of the vehicle on grades we must apply a resistance at the point of contact of the driving and supporting wheels of such an amount as will represent the desired grade. This is accomplished by means of a friction wheel and brake attached to the supporting shaft. A convenient brake for this purpose is shown in Fig. 3. It is

easily adjusted, very sensitive and smooth running, and is capable of absorbing the power of any vehicle which it may be desired to test. The brake wheel is cast with two flanges projecting outward to act as a guide for the brake, and two others extending inward to form a trough for cooling the water.

The brake is made of maple or other close-grained hard wood, the friction pieces are made of material 1/2 in. thick, with a 1/4 in. space between each piece, as shown in the sketch, and the rubbing surfaces are finished to fit the wheel nicely. The two screws A and B are for adjusting the brake to the wheel to obtain the proper pressure, and the third screw C is for making fine adjustments while running. A counterweight may be placed on the opposite end of the arm, of sufficient weight to balance the brake when resting on a knife edge placed directly over the centre of the brake wheel. The reading of the scale will indicate the net load on the brake; otherwise it would be necessary to correct the scale reading for the weight of the arm.

If the brake arm be of a length equal to the radius of the supporting wheel, the reading of the scale will be the retarding force applied; but this arm would be too short, and it would probably be more satisfactory to have the arm twice the length or equal to the diameter of the supporting wheel, and to multiply the scale reading by two to obtain the retarding force. To illustrate, suppose we desire to represent a grade of 1 in 15 with

a carriage weighing 700 lbs. From the table the resistance due to grade for that inclination is 6.55 lbs. per 100 lbs. weight, which would amount to 46 1/2 lbs. total resistance. If now we tighten the brake until the scale shows a reading of 23 1/2 lbs. we will have a tractive effort of 46 1/2 lbs. between the driving and supporting wheels, and the carriage will be doing work equivalent to propelling itself up a grade of 1 in 15. Any grade may be thus produced, and the limiting grade for the vehicle will be found by tightening

the brake until the motor is just able to carry the load. Take the reading of the scale and divide by the weight of the carriage, multiply by 100, and find the corresponding number in the table in the column marked P . Opposite it will be found the grade.

We have yet to represent the wind resistance of the vehicle, which, we have said, may be negative, zero, or positive, and which may strike the vehicle at any angle, according to the relative courses of the wind and carriage. These facts make it exceedingly hard to take account of this resistance; but if we may be able to obtain constant conditions for two tests much will be accomplished over that which is possible on the road, and it would probably be simplest to consider this resistance zero. It is evident that for the same type of vehicle it would be practically the same for like speeds, and the results from these tests would be comparable. At low speeds the wind resistance is negligible in any case. Amounting at four miles per hour to a pressure of but .08 lb. per square foot against a plane, at fifteen miles per hour this pressure is 1.125 lb. per square foot. This would probably be increased in vehicles, owing to the irregular form of the surface exposed, and these results might be doubled.

If considered necessary, however, to ascertain positively the retardation due to wind, it could be accomplished without any great trouble in the following manner:—A level platform should be provided on which the vehicle could be placed and revolved so as to always face the wind, and fastened in position longitudinally.

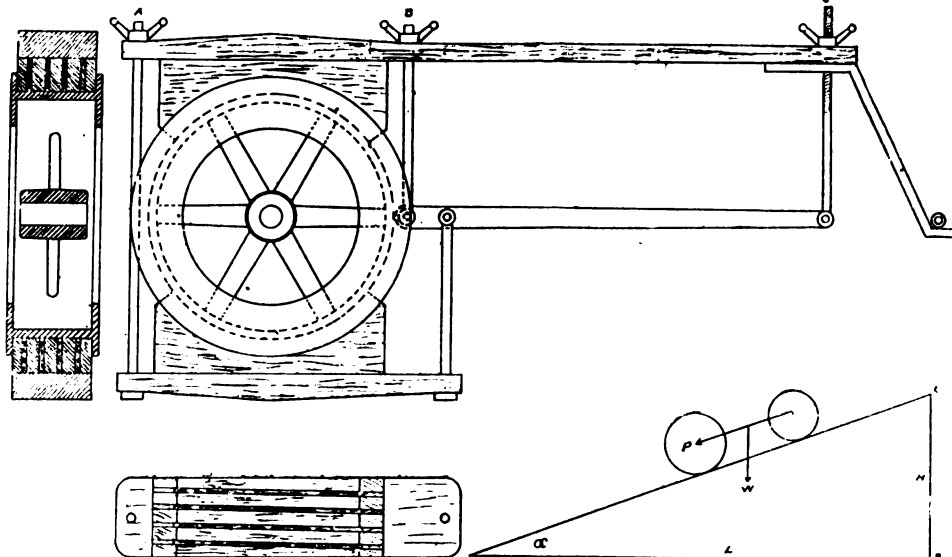


FIG. 3.

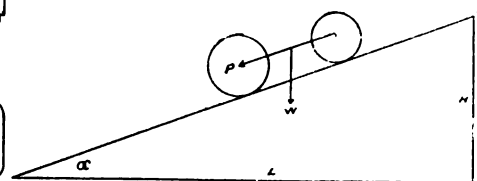


FIG. 4.

dinally by means of a cord with a spring balance interposed. Now, if simultaneous readings be taken of the spring balance and an anemometer, we will have a series of results showing the back pull due to the wind resistance for all the velocities which may have been recorded. Since the wind is liable to be variable, our readings will cover the necessary ground, and these resistances may be represented by adding to the friction load of the brake the necessary amount. This might also be done more accurately, but at greater expense and trouble, by constructing a duct from a large centrifugal ventilating fan of sufficient size to admit a vehicle, there fastening it in the same manner as before, and forcing air past it by means of the fan, the pull being indicated by the balance. The velocity could then be maintained constant for any length of time and more accurate results obtained. This method has already been used with success in studying the wind resistance of trains.

We have now been able to represent all the most important conditions existing on the road in a manner which would make the tests reliable, and in a manner which could be copied any number of times with security. For the trial of a vehicle a course could be laid out to represent as nearly as possible an actual trip of, say, twenty miles, consisting of a given kind or quality of road and certain distances having given grades, etc. The vehicle should be weighed and the proper brake reading computed for these grades and conditions. The load could then be varied at the proper time by noting the distance travelled, as

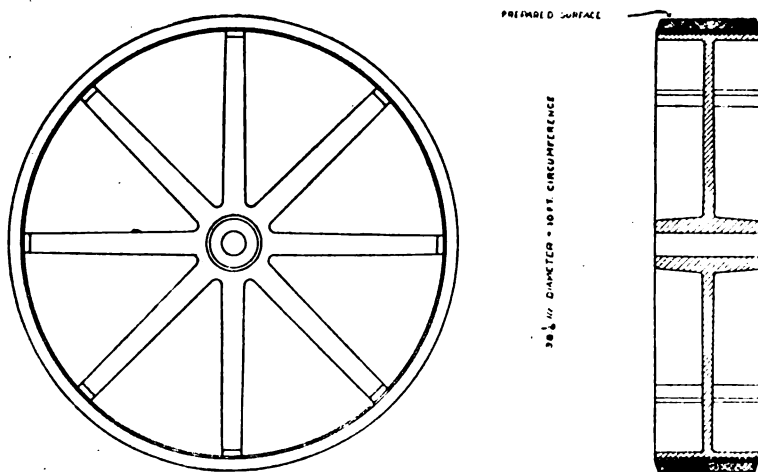


FIG. 5.

indicated by a cyclometer attached to the supporting wheel. In conducting tests the carriage tank (in case of petrol and steam vehicles) should be replaced by a graduated tank, from which the petrol used is drawn, and which would afford a means of measuring the amount used. Readings should be taken at frequent intervals throughout the test of the height of the petrol level and the distance travelled, and a description added of the conditions under which the carriage has been running for the preceding period.

Also in computing the brake load for any condition of grade the weight of the passengers should be included in the gross weight carried up the incline, and passengers or weights to represent them should occupy the seat or seats of the vehicle under test. — BY E. C. OLIVER IN THE *Horseless Age*.

It is stated that a number of steam road engines on the Scotte system, as well as a number of automobiles, will take part in the manoeuvres in the east of France this year. The General Staff propose to experiment with automobiles on a large scale.

MR. F. S. PUSEY, of the General Electric Automobile Company, recently made a run from Philadelphia to Atlantic City, a distance of sixty miles, in an electric automobile on one charge of the battery. The battery used is said to be of the standard type, not a special one.

CLOTHING FOR AUTOMOBILISTS.

IF proof were wanted of the progress that is being made with the automobile movement it is to be found in the increased attention which is being paid to it by other branches in the way of providing necessary accessories. Particularly is this noticeable in the tailoring trade, in which quite a number of concerns have already laid themselves out to meet the requirements of automobilists. Prominent among these are Messrs. Holding and Son, of 7, Maddox Street, London, W., in whose establishment we had an opportunity the other day of inspecting several of their latest productions for *chauffeurs*. Messrs. Holding do not confine their attention to any one special article, but are turning out coats with either leather on the inside or the outside, and even with leather as an intermediary lining. Furthermore they are making long and short coats, coats for lady and gentlemen automobilists, while they are also turning out special coats and suits suitable for drivers and servants. Having briefly outlined the scope of Messrs. Holding's productions, we may refer to a few of the articles of apparel we were able to examine. First came a long brown coat lined with thin leather, over which was a second lining of a check pattern woollen material, a coat which appears to be not only wind and water proof but in which special attention has been paid to the method of ventilation. Another attractive coat we were shown was made of a special West of England grey melton, of sufficient length to fully protect the knees. The coat is leather lined and provided with a good high collar fitted with double tabs. This coat has no visible buttons, and is fitted with wind tabs to the ends of the sleeves. In the way of leather coats, Messrs. Holding can furnish them of genuine kid or mock kid, both wool lined. We were shown a short light brown genuine kid leather coat that had been made for a lady and were struck with both its softness and lightness.

As already mentioned, Messrs. Holding also devote attention to the sartorial wants of drivers and servants, and for these are making a leading line of suits or coats of a close blue pilot. The jackets are leather lined and have the appearance of being both durable and of affording the necessary protection from the weather. The firm have already supplied a number of well-known automobilists with wearing apparel suitable for use when motoring, and in view of the attention that Mr. Holding is paying to this department other *chauffeurs* may be recommended to inquire for themselves into the merits of the Holding productions.

A LARGE steam omnibus has just been delivered by Messrs. De Dion to the Société Méridionale de Transports Automobiles for service in the Alais district.

IN answer to several inquiries we may mention that the name and address of the maker of the Sanciome motor-tricycle recently illustrated in these columns is M. Sanciome, Avenue des Salins, Clermont-Ferrand, France.

THE Daimler Motoren Gesellschaft, of Cannstadt are, according to our contemporary *La France Automobile*, constructing a motor in which a new metal is being extensively employed. Although developing 32 h.p. the weight will, it is stated, only be about 300lbs.

THE Thomson Motor-Car Syndicate, a concern recently formed in Victoria, write us that they would be glad to act as agents for motor-cars, accessories, tires, etc., in the Australian colonies. We shall be glad to give the address of the syndicate to any firm desiring such assistance.

THE Automobile Club is arranging a motor-cycle race meeting for Saturday, the 30th inst., to be held at the Crystal Palace. Those who wish to compete in this meeting are reminded that it is necessary that they should register themselves and their vehicles under the rules of the Automobile Club.

DR. Alfred Sternberg of the Protos Motorenfabrik, Berlin, W., has lately turned out a light three-seated motor-car fitted with a 3½ h.p. water-cooled motor known as the "Protos." The engine, which is very much on the lines of the De Dion, is provided with electric ignition. The little car is fitted with a variable-speed gear, giving a maximum of 30 kilometres per hour and reverse motion.

THE BORDEAUX-PERIGUEUX RACE.

(From our Own Correspondent.)

VERY great interest was manifested in this race, for it is long since a *course* for the big cars has been held; and, furthermore, it was known that several of the new types of racers would be making their maiden trials in this event. For a week or two prior to the race motor-men had keenly discussed the possibilities of exceptional performances, and the opinion universally expressed was that something altogether extraordinary might safely be anticipated. And this surmise has proved absolutely correct, for the times made by the leading cars on the first day, when the race was contested over 116 kilomètres of ideal road, were truly wonderful. First of all we had Levegh, who, mounted on his new Mors racer,* actually covered the 116 kilomètres in 84min. 35sec., or at an average speed per hour of 82½ kilomètres (51½ miles). Then came Giraud, driving this year's racing Panhard, of the type which will be employed in the Gordon-Bennett contest next week, and his time was but 2½min. slower than that of Levegh. Bostwick, who was third, was mounted on De Knyff's "Tour de France" car, which, as reported in these columns some few weeks ago, he bought at a very high figure. This was the American's maiden race in Europe, and it speaks volumes for his pluck and skill to have secured such an excellent place in the official list. His time for the distance was 91min. 43sec., showing an even better average than that made by De Knyff with the same car at Pau, which hitherto has been regarded as the fastest average made in a race. It is true the Pau course was considerably longer, but Bostwick's performance was certainly an eye-opener for those critics who had left the car out of their calculations on the supposition that the new owner had not had sufficient experience to be well placed. Maurice Farman, who was next on the list, drove a new Mors, but the third Mors representative, Antony, did not succeed in finishing. The times on the second day were not nearly so fast, for the hills of Périgueux at Angoulême had to be negotiated, in addition to a long stretch of *parvé* extending from Montlieu to Saint-André-de-Cubzac. Still, the foremost cars averaged somewhere in the vicinity of 70 kilomètres per hour for the 202 kilomètres of route!

The official classification for the two days was as follows, the total distance being 318 kilomètres:—

Two-seated cars:—1, Levegh, 4h. 9min. 45sec.; 2, Giraud, 4h. 12min. 36sec.; 3, Bostwick, 4h. 20min. 6sec.; 4, Farman, 4h. 44min. 7sec.; 5, Secrestat, 5h. 23min. 34sec.; 6, Barrow, 5h. 36min. 54sec.; 7, Champrobert, 6h. 31min. 23sec.; 8, Versein, 6h. 38min. 52sec.

Four-seated cars:—1, Maurel, 6h. 22min. 22sec.

Two-seated cars (8 h.p.):—1, Gondoin, 7h. 26min.

The official classification of the categories following the shorter route of 260 kilomètres was as follows:—

Cars (6-h.p.)—

	h.	min.	sec.
1. Lafitte...	6	9	17
2. Mauzan...	6	10	12
3. Gateuil...	6	50	51

Cars (5-h.p.)—

1. Lefebvre...	6	6	—
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Voitures—

1. Théry...	4	40	17
2. Camus...	6	16	—
3. Schmidt...	7	5	49
4. Cornilleau...	7	19	29
5. Bord...	8	37	—

Tricycles—

1. Cormier...	4	26	39
2. Jourde...	4	31	—
3. Joyeux...	4	33	—
4. Chrétien...	4	34	36

Quadracycles (two seats)—

1. Lafargue...	5	44	46
2. Barreau...	6	14	14

* This car is illustrated on another page of the present issue.

FURIOUS DRIVING CASES.

At Stratford, on Saturday last, the Earl of Carnarvon, of Berkeley Square, W., was summoned for furiously driving a motor-car to the danger of the public at Epping New Road, Woodford, on May 17. The defendant, who did not appear, was represented by Mr. Frere. Constable Tyler, 204 J, said that on the day in question he saw a motor-car coming towards him at the "flying rate" of twenty miles an hour. He and another constable stepped into the roadway and put up their arms for the car to stop. The defendant pulled up the car about thirty yards away, and, when told he was going too fast, he asked, "At what pace was I going?" witness said, "Twenty miles," and the defendant answered, "I did not think it was as fast as that—it was about twelve miles." In answer to Mr. Frere, the constable said he did not admit to the defendant that it was about fourteen miles an hour, or that the pace was not dangerous. Constable 585 J corroborated, giving his opinion that the pace was twenty miles an hour. A cyclist named Scott, of Woodford, deposed that he was riding along at about ten miles an hour and the defendant's car passed him "like a flash," going twice as fast as he was. Another witness deposed that the car passed him "like an express train." Mr. Frere, for the defence, said Lord Carnarvon was only driving at the rate of about twelve miles an hour. The defendant was summoned at Newbury about a month ago for a similar offence, but the case was dismissed. He had no witness in this case. The Bench, making no comment, imposed a fine of 40s. and 11s. costs.

At the Halifax Borough Court last week, Mr. J. S. Stafford, of Bell Hall, was charged with furiously riding a motor-cycle in Skircoat Moor Road on Saturday, the 19th ult. Police-constable J. Greenwood and another officer deposed that on the evening in question the defendant was riding at a very excessive pace. The defendant on the other hand denied at any time exceeding the maximum regulation speed of twelve miles an hour. The Chairman (Mr. J. Shoesmith): I have latterly seen the driving and riding of motor-cars and cycles on the Moor with very great regret, and it is high time it was stopped. A penalty of 8s., including costs, was imposed.

At Coleshill, last week, Mr. Sydney Letzar and Mr. Arthur Drake, in the employ of the Daimler Motor Company, Ltd., Coventry, were charged with furiously driving two motor-cars at Fillongley. Police-constable Price informed the Bench that the cars were travelling at the rate of about 30 miles an hour through the village. Thomas Hughes, farmer, said he saw the motor-cars coming down Hob Golling Hill at "railway speed," leaving behind them clouds of dust. John Townsend, another farmer, said the pace was 25 to 30 miles an hour. The defence was that the speed was 18 miles an hour.—Defendants were fined £3 and 21s. 6d. costs each.

BEFORE the Guildford Borough Bench last week Mr. R. Dennis, 94a, High Street, was summoned for furiously driving a motor-car in High Street on May 18th.—Defendant denied that he was going at a pace to the danger of the public.—P.C. Arnold stated that about 10.25 p.m. on Friday, the 18th ult.—the night of the receipt of the news of the relief of Mafeking—he saw the defendant driving a motor-car down the High Street. He was going at a very fast rate. The streets were crowded with people, and as there was a lot of shouting and horns blowing, it was impossible for people to hear defendant's warning. Witness shouted to him to go steady. People had great difficulty in getting out of the way, and on passing the Lion Hotel he considered the motor was travelling at fourteen miles an hour. Defendant said he thought witness had exaggerated the case. It was absolutely impossible to get through a crowd, such as there was on the night in question, at the rate of fourteen miles an hour. He had come in from the country that evening, and had no idea that the news of the relief of Mafeking had been received, otherwise he should have gone by way of North Street. He had perfect control over the motor, and could have pulled up in two yards. Of course, it was difficult to get people to realise the fact that those who drove motors had far more control over them than people who rode bicycles or drove. The Mayor said the Bench acknowledged that defendant had a perfect right to a proper use of the road, but at the same time the safety of the public must be considered, and they were unanimously of opinion that defendant was doing very wrong in driving at the fast rate he evidently did through a crowd. He would be fined £1 and 13s. costs.

At Wigton (Cumberland) Police Court, on Tuesday, Mr. Clarence Knight Gregson, St. Edmund's Terrace, Regent's Park, London, and his driver, Verey Braman, who took part in the Automobile Club's 1,000-Mile Trial, were summoned for furiously driving a motor-car at Lowood Nook, near Wigton, on May 1st. Lord Gillford, of Snittlegarth, said the defendants descended a dangerous hill at over twenty miles an hour. Defendants, through their solicitor, to save the cost of the journey from London, pleaded guilty. Superintendent Ross said the chief constable of Cumberland had received many complaints of furious driving during the club's Trial, and wanted the public to be protected. A fine of £1 each and costs was imposed.

THEODORE CARL, a Dalston gentleman, was also fined £1 for a similar offence. A police constable said defendant covered a mile in two minutes, and stated that the speed was thirty or forty miles an hour. Defendant contended it was impossible to negotiate corners at that speed.

FIRE AT A MOTOR-CAR DEPOT IN ABERDEEN.

A FIRE of an alarming and destructive nature completely destroyed the workshop and motor store of the Caledonian Motor-Car and Cycle

Company, Limited, to the rear of their premises at 285, Union Street, Aberdeen, on Tuesday. The fire broke out shortly before three o'clock, and in less than ten minutes the interior of the building was one mass of flame. It appears that the young man whose duty it is to take the *Daily Free Press* motor-car from the depot to the office for the despatch of the early edition of the paper, had neglected to procure oil for the car the previous night. He proceeded in the dark to obtain oil from another motor, and, to facilitate matters, lit a match, with disastrous results. The moment he flung down the match the oil that had dripped on the floor was ablaze, and though he endeavoured to run the car out of danger, the flames followed, the tap of the reservoir being loose. Running to Campbells, Limited, the messenger informed the employees there of the catastrophe, but the men, who were quickly on the spot, were driven back by the overpowering smoke which was pouring through the door in Langstane Place in suffocating volumes. Meantime, however, the Fire Brigade had been summoned, and with characteristic promptitude soon had the hose reel and steamer playing upon the burning building. The roof, which was of glass, rendered their work difficult and dangerous, but in a short time, despite the highly inflammable nature of the petroleum oil and indiarubber solution, which was stored in considerable quantities, the fire was got under. It is satisfactory to note that the front showrooms and stock were not touched to any extent, but the rear part of the building was completely wrecked. Five motor-cars and a large number of cycles were destroyed, while the machinery and tools for repairing were greatly damaged. The total damage cannot be far short of £2,000. The driver of the motor was burned rather severely about the hands. — *The Aberdeen Free Press*.

A MOTOR-CAR ACCIDENT IN SCOTLAND.

ISSUES were ordered in the First Division of the Court of Session last week in an action by William M'iver, coachman, 9 Hope Street, North Leith, against the Edinburgh Autocar Company, Limited, London Road, Abbeyhill, in which £100 is claimed for personal injuries. On 27th March last a collision occurred in Lothian Road between a carriage driven by the pursuer and an autocar belonging to the defenders. Pursuer avers the car was on the wrong side of the street, and that as a result of the collision he was confined to bed for a fortnight. The defenders deny that the accident occurred through the fault of their driver, and plead that, in any case, the sum sued for is excessive. The defenders have, they state, offered the pursuer reasonable compensation.

NEGLECTING TO STOP.

ON Tuesday last week, at the Atherstone Petty Sessions, Mr. Walter Macfarlane, electrical engineer in the employ of the Daimler Motor Company, was summoned for being in charge of a motor-car and neglecting to stop when requested to do so by the driver of a restive horse in Coleshill Road, Atherstone, on April 14th. Defendant pleaded not guilty, and was represented by Mr. Alfred Sale. A coal carter, named John Wilson, stated that he was standing with his horse and dray in the road named when the defendant came behind him with his motor-car. The "jiggering" noise made by the car frightened his horse, and witness only just succeeded in quieting it when the motor horn sounded, and the animal again became restive. He held up his hand as a signal to defendant to stop the car, but this was not done. Witness lost control of the horse, which bolted, and several children narrowly escaped being knocked down. Defendant said that when he first saw the horse and dray they were unattended, and he sounded his horn. Complainant came out of a yard, and he did not then see him hold up his hand as a signal to stop. He was certainly not going at more than two miles an hour at that time. When the horse became restive, complainant held up his hand, and he (defendant) immediately stopped the car. If complainant had exercised proper control over the horse, it would never have bolted. Defendant added that he had charge of four Daimler motor-cars in the recent 1,000-mile Trial, and had never then nor previously had a charge brought against him. Mr. Sale said the whole question was whether the defendant stopped the motor-car, as required by the bye-laws, when he saw complainant's hand held up, and he submitted that he did. The Bench, however, considered the case proved, and imposed a fine of £2 and £1 9s. costs.

INJURIES TO A HORSE.

In the Falkirk Sheriff Court last week Sheriff Bell was engaged hearing evidence in an action at the instance of M'Laren Brothers, carriage hirers, Stenhousemuir, against the Falkirk District Motor Company, Limited, in which the pursuers sue for £26 in name of damages for injuries sustained to a horse belonging to them through a motor-car belonging to defenders having been run into it on 21st October last, on the road between Stenhousemuir and Carron. Pursuers led evidence to show that on the date mentioned one of their omnibuses was proceeding along the road on its run from Stenhousemuir to Falkirk when one of the defenders's motor-cars overtook it and in passing struck one of the outside horses first on the hip and then on the fore-leg, bringing it to the ground and injuring it to such an extent that it was in the stable under veterinary treatment for six weeks, and was now of little use as a horse for the road. The pursuers put the value of the horse at £30 before the accident and £7 or £8 since the accident. Defenders, who denied liability, brought expert

evidence to show that the value of the horse was over-stated by pursuers while the driver of the motor-car denied having injured the horse in any way. After hearing parties' agents the Sheriff made *avizandum*.

MOTOR-CYCLE RACING AT THE CRYSTAL PALACE.

THE fine weather attracted many thousands of onlookers to witness the motor and cycle races at the Crystal Palace on Monday last. Principal interest was centred in the hour motor race for the Crystal Palace Brassard and the Century Cup Race. The Brassard proved an easy win for M. Rigal, whose machine was more powerful than those ridden by his opponents. The following are the results of the various races:—

Five-mile Race for Roadster Machines.—J. Cusins, scratch, 1; A. McCormack, half a lap start, 2; M. Moyle, three laps, 3. Won easily by over a lap. Time, 8min. 40sec. Cusins, who finished first, was disqualified for wrongful description of machine.

Ten-mile Handicap (any machine).—C. Machin, scratch, 1; Rigal, scratch, 2; J. Cusins, six laps start, disqualified. Rigal's machine went wrong when he had covered seven miles, and Cusins, with his two miles start, won easily by a mile and a half. An objection was raised against the winner, and after an inspection of the machine this was upheld, and Cusins was disqualified. Time, 12min. 45sec. Rigal's time for the full distance was 15min. 47sec.

Mile Time Trials (flying start).—M. Rigal, 1min. 27 4-5sec.; C. Machin, 1min. 31sec.

One Hour Race for the £110 Crystal Palace Brassard (holder, C. Jarrott).—The following riders competed: V. Lee, C. Machin, F. F. Wellington, and M. Rigal. After the first two miles had been covered Wellington and Machin were practically out of the race, and at three miles Rigal took a definite lead. At twenty-one miles Rigal was leading Lee by a couple of laps, when the last-named had to change machines. Lee persevered in a plucky manner, but was unable to hold Rigal, who won easily by nearly four miles. Rigal covered 19 miles 590 yards in the half-hour, and 38 miles 1,372 yards in the hour. The previous British record by C. Jarrott was 38 miles 360 yards. The following are Rigal's times:—

Mls.	Leader	Time.	Mls.	Leader	Time.
1	Rigal ...	1 35½	20	Rigal...	31 9½
5	Rigal ...	7 39	30	Rigal...	45 33½
10	Rigal ...	15 22½	35	Rigal...	54 13
15	Rigal ...	23 14			

THE BEESTON MOTOR COMPANY, LTD.

MR. JUSTICE WRIGHT had before him last week the petition of Mr. H. Osbaldeston Duncan for the winding-up of the Beeston Motor Company, Ltd.—Mr. Clare said he believed the petition was about to be withdrawn, and if the case was not again mentioned the Court might conclude that that had been done. Later in the day Mr. Clare said it was preferred that the petition should be dismissed instead of withdrawn.—The petition was accordingly dismissed.

AN American contemporary reports that the lack of carriages for hire at Buffalo, N. Y., owing to the cabmen's strike, resulted the other day in the spectacle of a funeral procession, including the hearse, made up of electric vehicles. As the undertakers in charge of the funeral had agreed with the Cabmen's Union not to use carriages driven by non-union men, they had to have recourse to an electric vehicle transportation company for carriages to convey the funeral party to the cemetery. Fifteen electric carriages were in line, the hearse being also self-propelling.

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COMMENTS.



AUTOMOBILISM has reached the altitude of Society, and with the Prince of Wales as the owner of a car, which he intends ultimately to drive himself, the industry has received a recognition that must have a great effect. We are glad that the Prince has waited for his car until a British concern could make a vehicle equal to the best cars of French production—thus showing his interest in the British industry, as well as his appreciation of modern inventive skill. Last week he drove about Sandringham for the first time on a motor-car, and on Wednesday at Ascot he took his first trip on his own car, driven by his own mechanician. Elsewhere

we reproduce photographs of the car, the mechanician (Mr. S. Letzer), and the instructor (Mr. Oliver Stanton), with whom the Prince has already taken lessons; and doubtless the time is not far distant when the Prince himself will be photographed on the car.

The 1,000-Mile Trial.

Meanwhile we are able to give on another page the first official tables with regard to the daily performances of the various vehicles, and the results of the hill-climbing and speed competitions. These, with the remarks appended, afford a comparison of the performances of the various cars, but intending purchasers should remember that further observations will shortly be issued by the judges, and that they should also be taken into consideration as well as the reports published this week.

Motor-Cycle Race Meeting.

On Saturday, June 30th, a motor-cycle race meeting will be held at the Crystal Palace under the auspices of the Automobile Club, when there will be a handicap for members of the Club only, and three open events—viz., one hour scratch race, ten mile handicap, and a five mile race for roadsters. In each contest at least ten entries must be received a week before the date of the projected meeting, or the race will not take place. All competitors will have to register themselves and their vehicles with the A.C.G.B.I., under whose rules the competitions will be held. It is believed that cups will be offered for the winner and second in each of the first three races and medals for the winner and second in the last race. Mr. Campbell Muir has already promised a silver cup in connection with one of the races. The handicapping will be undertaken by the Competitions Committee of the Club.

Hill-Climbing Contest.

On the same day that the above meeting is contemplated the Catford Cycling Club will hold a hill-climbing competition for cycles on Westerham Hill, and it is possible that a hill-climbing competition for motor-cycles and motor vehicles may be held, under the A.G.C.B.I. rules, in conjunction with that event. As the meeting at the Crystal Palace will be from three to six p.m. on the 30th it might suit the convenience of competitors who desire to go in for the hill climbing trials if the Catford Club could arrange to commence the motor-cycle and motor-vehicle contests at seven p.m. This, we hope, will be considered so that the suggested trials might be participated in by the largest possible number of contestants.

A Trip from Liverpool.

MAINLY interested in heavy traffic vehicles, the Liverpool Self-Propelled Traffic Association adopted a lighter mood on Saturday, when a pleasant run of about sixty miles was enjoyed by some of its members and friends. A start was made at Woodside, on the Mersey, shortly after noon, and lunch was taken at the Grosvenor Hotel, Chester. After the interval the journey was resumed to Knutsford, at which interesting Cheshire town a halt was made for tea and conversation. From thence the return trip to Liverpool was made, all having thoroughly enjoyed themselves.

Those who Participated.

UNFORTUNATELY the threatening weather caused several who had decided to go to withdraw, and in some places the roads were rather heavy. But those who did venture had a pleasant time, and the success of the day should warrant the institution of similar runs at other places where several residents own automobiles. The participants in Saturday's trip included: Professor Hele-Shaw and Mrs. Hele-Shaw (New Orleans voiturette), Mr. John A. Brodie and Mrs. Brodie (Stanley steam car), Mr. F. E. Baron, Mr. J. Walwyn White and Mrs. White, and Mr. O. H. White (Daimler phaeton); and Mr. Walter Featherstone and Mrs. Featherstone, Mr. Johnson, Mr. H. Wardle Rush-ton and Mr. Dawson Kimpton (Daimler wagonette). Mr. Shrapnell Smith, the hon. secretary of the Association, was on a Perfecta tricycle. Two members of the staff of Messrs. Souvestre and Company, Ltd., accompanied the party on a quadricycle to provide for contingencies, but, happily, their services were not required.

Photographic Competition.

MR. EDMUNDS has made a splendid offer in connection with the photographs taken during the 1,000-mile Trial which should result in a fine collection being obtained by the Automobile Club. As the time for sending in photographs has been extended to July 15th, those who have not yet sent in photographs have still ample opportunity to do so. Three prizes,



of five, two, and one guinea respectively, have been offered by Mr. Edmunds for the best twelve photographs taken of the Trial, and the competition is open not only to the participants but also to any member of the public who photographed anything of interest connected with the run. The judges are Messrs. Edmunds, Kennard, Sturmey, Cordingley, and Johnson, and, if thought desirable, they will retain any of the photographs entered for the competition so that the Club's pictorial record may be made complete.

A Non-Stop Run of 400 Miles.

MR. T. E. OUTHWAITE, of Edinburgh, is well known as a motorist who enjoys long non-stop runs. In April he went from Edinburgh to Selby, a distance of 221 miles, before stopping, making an average of fourteen miles per hour. He is now anxious to come from the modern Athens to the modern Babylon—a trip of 400 miles—without stopping; and has also designs upon the record made by Mr. J. W. Stocks, who rode from Edinburgh to London on a motor-tricycle. The latter feat he proposes to accomplish on a 2½-h.p. De Dion tricycle; the former on a 6-h.p. Daimler car.

Trial of Heavy Traffic Vehicles.

ON another page we give particulars of the trials which are being organised for June of next year by the Liverpool Self-Propelled Traffic Association. These are intended to provide a means of making a preliminary test of types of heavy motor-wagons suitable for haulage operations in Lancashire prior to their being taken over by a Lancashire syndicate which is to be formed to conduct road transport between Liverpool and the manufacturing towns of Lancashire. Loads of general merchandise will be collected and delivered during the tests, thus giving practical demonstrations, and the trials will be from Liverpool to Manchester *via* Warrington, from Manchester to Liverpool *via* Bolton, from Liverpool to Blackburn *via* Chorley, from Blackburn to Liverpool *via* Preston, each journey to take place on one day in the first week of June. There will also be hill-climbing at Everton Brow and manoeuvring at Prince's Dock. The vehicles will be tried in three classes, and the judges, in making the awards, will consider (a) cost, (b) control, (c) working, (d) construction, (e) special points with regard to vehicles propelled by steam, oil or electricity respectively. The competition will be of an international character, and the results should have an important bearing on the future of the industry.

Presentation to Mr. Critchley.

AFTER four years' loyal service with the Daimler Company Mr. J. S. Critchley, M.I.M.E., has left that concern to become the manager of the British Electrical Traction Company, and on Friday last those who had been associated with him at Coventry made a presentation. This consisted of an illuminated address and a silver tea service, the former being the work of Mr. Grahame White and testifying to the high appreciation in which Mr. Critchley is held by the staff, foremen, and employees of the Daimler Motor Company, who gave the most hearty good wishes for his future welfare. The presentation was made during a smoking concert at the King's Hall, Coventry, by Mr. A. G. Drake, and in returning thanks Mr. Critchley said the success of the company had been due not only to him, but to those around him. Taking the same power cars the Daimlers were equal to any of the French cars—a fact that had not been appreciated by many people in England. After thanking those present for their kindness in making the presentation, he said he should always look back with pleasure to the time he had been with the Daimler Company. Several others with whom he had been associated also spoke, all voicing the general regret at Mr. Critchley's departure, and expressing good wishes for his future.

Motor-Vehicles among Agriculturists.

TO-DAY (Saturday) the implement section of the annual show of the Royal Agricultural Society opens at York, and the opportunity of introducing automobiles to the notice of the several thousand people visiting that meeting will not be lost, for we hear that the Motor-Car Company, Ltd., will have a Decauville and a M.C.C. Triumph car on exhibition at their stand. The Lancashire Steam Motor Company, of Leyland, will show a steam motor-lorry constructed to carry loads up to four tons. They have also entered for exhibition a steam motor tip wagon to carry loads up to four tons. Its capacity is six cubic yards, and it can be easily tilted by one man when fully loaded. Mann's Patent Steam Cart and Wagon Co., of Leeds, are to show a patent steam lorry to carry a five-ton load, burning ordinary coke, and a patent steam tipping cart which will climb hills as steep as 1 in 5. An 8-h.p. motor-wagon engine is also entered by Messrs. H. P. Saunderson and Co., Ltd., Bedford. We may add that the Lancashire Steam Motor Co. have entered their motor tip wagon for one of the Royal Agricultural Society's silver medals.

Motor-Cars at the Seaside.

WE shall be pleased to have news of the various motor-car services at seaside towns, and to chronicle incidents during their summer runs. Although the opposition to such public conveniences is still keen in many interested quarters, it is declining in strength in several districts where automobiles were formerly regarded as nuisances, and some new services will be inaugurated this year. At the last meeting of the Bexhill District Council four licences for motor-cars to ply for hire in that charming district were granted to Mr. J. Byrne, whose enterprise should meet with encouragement from the many visitors likely to be attracted to Bexhill-on-Sea during the season.

Motoring in Hyde Park.

HYDE Park is being appreciated by motorists, and any day numbers can be seen in the line of traffic encircling the park. On Saturday two ladies were seen driving a Marshall car, and very charming they looked, attracting much attention; while on Sunday a Twin Daimler was also being driven at a nice steady pace by a lady. Some carriage horses are still not comfortable when motor-cars are about, while the policemen in the park certainly look upon automobiles as matter out of place, and woe betide the automobilist who does not pull up *instantly* when called upon to do so! Frequently comes the exclamation, "You are going too fast!" The ladies on the Marshall car had been so warned on Saturday, and were kind enough to inform us of the close watch being kept on automobilists. Not only are the police abnormally active, but we notice several correspondents in the daily papers are wasting their time in writing against the presence of motor-cars in Hyde Park. Surely such a public place was never intended as a monopoly for horses and obstinate men who go on foot and write letters to the papers.

A "Star" Performance.

ONE of the steepest hills in the country is at Birdlip, near Gloucester, and there, on Saturday, a 3½-h.p. Star car, fitted with a two-speed gear, distinguished itself. It had been driven from Wolverhampton to Gloucester by Mr. E. H. Lisle, of the Star Motor Co., performing the journey in about four hours. At the latter city Mr. Lisle was met by Mr. Clarke (of the firm of Clarke and Morgan) on his 3-h.p. Benz car, fitted with three speeds, who went half way up Birdlip Hill and waited for the Star car, which soon afterwards came along in capital style at six miles an hour, but she could not at the first attempt get so far as the Benz. A second trial was made, however, and the top of the hill would undoubtedly have been reached but for the fact that one of the chains, being loose, came off. This necessitated a third trial, which the Star accomplished in good style, not drawing up until she stood outside the George Hotel.

Mr. Lisle was delighted with what the vehicle had done, and confidently expressed the opinion that there was not another two-speed car in existence which could do the same thing. The perfect control which the driver has over the car was shown on the journey from Birdlip to Cheltenham, for the several sharp descents were made in perfect safety at a good pace, and even the Leckhampton pitch presented no difficulties. The journey back to Wolverhampton was made in remarkably good time.

Smoke Room Chat.

Not the least enjoyable feature of the Automobile Club Tours is the after dinner chat in the smoke room of the hotel, when the incidents of the day are talked over. It would need a Pepys to record the many good things said. These, we may mention, turn largely on the Hippomobile question. At Cambridge a racy raconteur was in good form, and had the ear of the room for some time; his experiences of what can even now be termed the early days of automobilism being especially rich. The horsey tales and the *suaviter in modo* of dealing with angry drivers by presenting them with a leaflet containing extracts from the Light Locomotives on Roads Act, especially appealed to the listeners, to say nothing of an account of an early run out on a Bollée with a friend. Neither knew anything of the car, and it was not surprising the venturesome spirits were soon in trouble. However, they persevered, until at last the whole of the motor tumbled into the road. There were hundreds of little pieces and parts, screws and nuts—said the narrator. These were carefully scraped together and gathered up and the car pushed to the nearest hostelry. The landlord came out, looked at the wreckage, and demurred to stabling it. At last he said he would take it in if they would leave some security that they would fetch the “thing” away again. The only security they had was the fur-lined overcoat which one of them was wearing, and this the landlord condescendingly took. Of course, the car was sent for, and when the fitter had possession he was handed the fur-lined coat, with the remark: “Here’s the security!” Knowing the cost of the vehicle, the fitter—well, nearly dropped the latter end of his trade.

Southampton to Bournemouth.

LAST week we referred to the deputation that went from Southampton to Bournemouth to inquire into the possibility of running motor-cars in place of buses. Not only was inquiry made at Bournemouth, but a trip on one of the Motor Manufacturing Company’s wagonettes was also enjoyed from Southampton to the fashionable watering-place—a distance of thirty miles. Starting from the Tramway Junction at three o’clock the car reached the Crown Hotel at Lyndhurst in three-quarters of an hour, and after a short stay the journey was resumed at four o’clock. Plunging into the heart of the New Forest a halt was made so that the deputation might visit the famous Knightwood Oak, and then the Motor-Car Dépôt at Boscombe was reached at 5.50 p.m., the actual running time having been two hours and fifteen minutes with seven passengers aboard. It is understood that the Southampton deputation was very favourably impressed with the ten motor-cars which Mr. Bell has in the public service at Bournemouth. Three other cars are now being delivered to him.

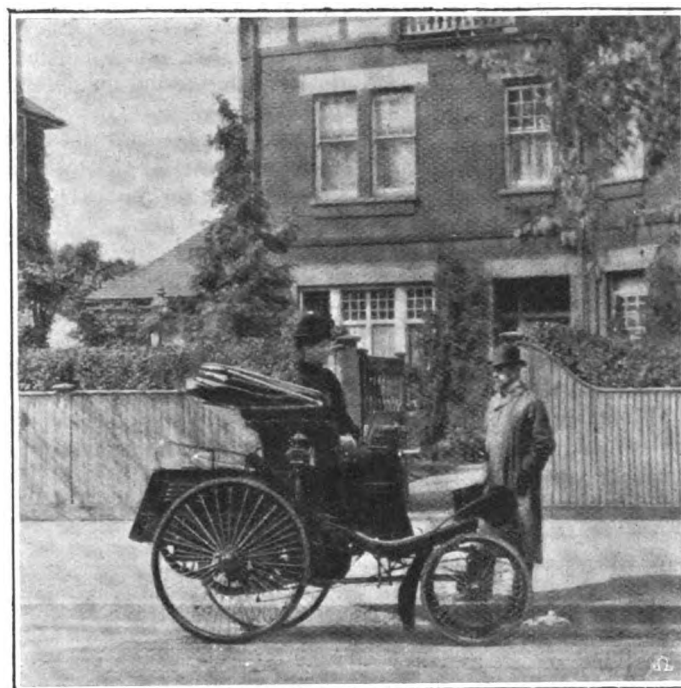
Progress in Belgium.

THE Belgian automobile industry is bound to benefit considerably by the interest manifested in the movement by Prince Albert of Belgium, who is himself an enthusiastic *chauffeur*, and who quite recently was to be seen driving in an electromobile through the streets of Antwerp. The Prince’s fiancée, the Duchess Elizabeth, is also a firm believer in the self-propelled vehicle, upon which she frequently makes long drives. Favoured with royal patronage, automobilism should march apace in Belgium, and one learns with regret that its progress is likely to be retarded by reason of dissensions in the Automobile Club of Belgium. If reports are to be believed, a serious split is likely

to take place in the camp, and a repetition of the Automobile Club of France affair is by no means unlikely.

A Doctor’s Car.

AMONG medical men who are doing much to popularise the use of the motor-car by members of the profession is Dr. Hardwicke, of East Moulsey, near Hampton Court. In September last he bought a Benz car, and since then has never had occasion to use a horse, even for a single day. The accompanying photo shows the doctor ready for a drive, with Mrs. Hardwicke as a passenger. The car has done the work of



his practice throughout the winter, and during the floods went through more than two feet of water without difficulty or damage. Dr. Hardwicke drives the car frequently over Oxshott Heath, one part of which has a very steep gradient. The hood is a movable one, and when removed the car can be used as a dog-cart. This is further confirmation of the suitability of motor-cars for doctors, securing economy of time and money, and thus adding to the pleasures of life in the country.

Getting Reasonable.

THE Borough Bench at Eastbourne has shown a reasonableness that might not only be usefully imitated on other Benches throughout the country, but also by other bodies in the town of Eastbourne itself. Two licensed motor-car drivers were summoned for alleged furious driving. There was the usual conflict of evidence—the police not only asserting that a speed of twelve miles an hour was being reached, but that the defendants were racing, and other witnesses confirming the evidence of the drivers that they did not exceed seven miles an hour. The chairman of the Bench recognised that the public appreciated motor-cars, and imposed a light fine, as the particular case was not an aggravated one.

The Automobile Coach.

QUITE a new departure in Parisian automobilism has been initiated by the Compagnie Routière de France, who last week commenced a regular automobile service between Paris and Fontainebleau. The vehicle used is a 12-h.p. Panhard, and it seats twelve passengers, much on the same lines as an ordinary coach. Standing fairly high, it permits of the

voyagers seeing the country excellently, while its awning and side curtains protect them against the sun. Every Monday, Wednesday, and Friday, the car makes a run, the itinerary being as follows:—Departure from the offices of the *New York Herald* in the Avenue de l'Opéra at 8.30 in the morning; route by way of Choisy-le-Roi, Villeneuve Saint Georges, Montgeron, Lieusaint, and Melun, to Fontainebleau, which is reached in time for a midday "dejeuner" at the Hotel de France et d'Angleterre; departure from Fontainebleau at 3.30 in the afternoon; route by way of Barbizon, Chailly, Melun, and Choisy-le-Roi to Paris, the arrival being timed for seven o'clock. The price of a ticket for the entire trip of some one hundred and thirty kilometres is thirty francs, while a lousis is charged for the outward or return journey alone. The enterprise seems likely to command a big success, for so far the car has regularly carried a full complement of passengers, and performed its duties with ease and punctuality.

Suggested American Competition.

SUGGESTED by the success of the 1,000-mile Trial in Great Britain, a competition to attract attention to the industry is in contemplation in the United States. A race which was arranged in America some time ago was not a success, and the failure of that event has made the leaders of the movement timorous. But improvement has since taken place and the automobiles of the present day are very different to the machines of only a few months ago. The Board of Governors of the Automobile Club of America is anxious that a series of trials or competitive tests should take place—the main points to be considered being the stopping and turning of vehicles, the avoidance of obstacles, etc., on different road surfaces. Acting on this wish a technical committee of the Club is preparing the details, and it is probable that the actual tests will take place in New York during the autumn.



MR. OLIVER STANTON.

Where Education Needs Completion.

A YOUNG gentleman on the staff of the *Norfolk Daily Standard* complains that "the hissing and sputtering, the queer vibrations, the odour of hot grease and other things," which he regards as inevitable in the motor-car, "tend to make us keep the motor-car at arm's length, without taking into question the nervous apprehension of disaster arising out of the high speed some of the more intrepid riders affect." Apart from the curiosities of language shown by the young man the paragraph

contains much of interest. Not only does the car "sputter," but it hisses and smells, and in addition to the usual vibrations has some "queer" vibrations which, in combination with the "odours of hot grease," have alarmed an unoffending journalist. Desiring to warn an unsuspecting public he thus displays a wonderful lack of acquaintance with his subject, and presents one of the instances where the educational efforts suggested by "Trade-View" last week should be made. We hope some owner of a motor-car in Norfolk will give the staff of the *Norwich daily papers* the opportunity for a trip, and so help them to accuracy when writing of automobilism.

An Automobile Highway in the States.

OFTEN have we pointed out the improvement of English roads that will result from the extended adoption of automobilism. This is even more apparent, or rather is likely to be more quickly realised in the United States, where Messrs. John D. Quackenbos, formerly a professor in Columbia University; John Hay, Secretary of State; Gov. Rollins, of New Hampshire; and N. J. Bachelder, Secretary of the New Hampshire Board of Agriculture, are reported to be interested in a project for a 500-mile road for the exclusive use of motor and pleasure vehicles through the most delightful scenery of New Hampshire. The cost of construction, exclusive of the land, will be 3,000,000 dollars. President Chamberlain, of the Automobile Club of America, is deeply interested, and has asked for connections from New York and Philadelphia. These connections will go through the Berkshires and join the main road at Hanover, either by way of Bennington and Brattleboro or by the Rutland Pass. When asked as to the length of time which would be required for the construction of the road, Professor Quackenbos said he expected to see it completed within five years. The road, he said, would be of macadam. Whether the road-bed would be entirely new or partly composed of old roadway worked over, he said, had not been settled. This is considerably more ambitious than the project mooted in these columns for a five-mile motor track near London. The fact that motorists on both sides of the Atlantic are interested in such schemes shows that there is a real need for an automobile highway, and everything tending to help such projects should be encouraged.

A Car in a Dyke.

THIS is how the *Yarmouth Independent* reports the running of a motor-car into a dyke: "Whilst a motor-car was running at a good rate from Yarmouth on the New Acle Road on Tuesday an accident happened to the steering gear, which caused the machine to swerve and fall into the dyke by the side of the road. The occupants were only Mr. Palmer, of the Duke's Head Hotel, Yarmouth, and the driver, both of whom were a good deal shaken. Mr. A. E. Smithdale, engineer, and his man were sent for, and after some time were able to get the car again on the road." We have italicised one word, the effect of which should be studied by the local reporter.

A SUCCESSFUL rallye-papier between St. Germain and Les Mureaux was held by the Rallye Auto Club at Paris, on Whit Monday.

THE long-distance race for motor-cars, from Salzburg to Vienna, promoted by the Austrian Automobile Club, was won by Dr. Richard Stern, of Vienna, on a Daimler car. His time for the journey was 3h. 6m. 2sec.

AMONGST the first automobilists to register themselves and their vehicles under the competition rules of the Automobile Club of Great Britain and Ireland is Mr. S. F. Edge, who has registered two motor-tricycles and his 16 h.p. Napier car.

THE United Motor Industries, Limited, has been registered, with a capital of £1,000 in £1 shares, to carry on business of motor-car, motor cycles, and bicycle, tricycles, velocipede, and carriage manufacturers and agents, motor and cycle accessory manufacturers, etc.

Royalty and Automobilism.



THE PRINCE OF WALES'S FIRST MOTOR-CAR.

[SPECIAL.]

THAT Society will recognise the advantages and delights of automobilism is a fact frequently mentioned in these columns, and the chronicle, from time to time, of new adherents to the new sport has demonstrated its ever-increasing number of devotees in fashionable circles. Practical motorists will readily recognise how well adapted to the requirements of the aristocracy is the automobile, and were glad to learn recently that H.R.H. the Prince of Wales had determined to associate himself with the sport and pastime of motoring. On the Continent and at home he has watched the advances made from year to year, and it afforded infinite satisfaction to those who are hopeful of a great extension of the British automobile industry to know that he had ordered an English-built car, which has just been delivered.

An interview was recently published in the *Motor-Car Journal* with Mr. Oliver Stanton, who was the cycling tutor of the Prince of Wales, and we have pleasure in announcing that that gentleman has initiated the Prince into the mysteries and the mechanism of his car. We understand the Heir-Apparent intends to become thoroughly proficient, and his accession to the ranks of automobilists should do much to give an impetus not only to automobilism in this country, but also to the British motor-car industry.

There have been many reports current during the past few months as to the car which had been ordered, through Mr. Stanton, by the Prince of Wales, but none of them have been of an authoritative character. We ourselves have naturally been cognisant of these rumours, but decided to hold over all reference to the Royal car until it was *un fait accompli*, and until such time as we could give definite details of the actual vehicle.

This we are able to do this week, and by the kindness of Mr. G. Foster Pedley, of the Daimler Motor Company, Limited, we are in a position to publish a couple of illustrations of the car which has just been delivered to His Royal Highness. The vehicle itself, on which we have had the pleasure of a short trip, is one of the Daimler Company's standard type, the frame being that known as Model A. The motor has the usual two cylinders, and is of 6 h.p., an innovation being the fitting of double ignition, both electrical and by means of an incandescent tube. The electrical ignition is normally relied upon, the burners being kept as a reserve. The adoption of double ignition necessitates but a small alteration to the motor; the sparking plugs are located in the top of the

cylinder head; the induction coil adopted is one of Blake's, and so far the arrangement has given complete satisfaction. A new departure in connection with the motor is that the "accelerator" is controlled by a foot pedal in place of the hand lever hitherto employed. In the construction of the motor aluminium has been used as far as possible, the crank chamber, etc., being made of that metal. The transmission gear is of the usual Daimler pattern, giving four speeds ahead and reverse motion, the change of speed being controlled by a hand lever at the side. The car is speeded up to a maximum of about twenty-four miles.

A few details may now be given regarding the "body."

The coach-building part of the work was entrusted to Messrs. Hooper and Co., Limited, of St. James's Street, W., and it is needless to add that they have carried out the same in an eminently satisfactory manner. The "body" takes the form of a mail phaeton, with seating accommodation for four persons. The woodwork is painted in the Royal colours—chocolate and black, picked out in red. The upholstery has been finished in colours to match, and altogether the car has a quiet and stylish appearance. Beyond the painting, the only indication that the car belongs to Royalty is His Royal Highness's small crest affixed to one of the panels behind the lamp on the left side. The front seat is provided with a collapsible



MR. S. LETZER (THE PRINCE OF WALES'S MECHANICIAN) ON H.R.H.'S CAR.

Photo by]

[Messrs. Curzon, Robey & Co.

hood; this is of a new type so far as English motor-cars are concerned, it being constructed on the lines of the American buggy hoods, the back being made to roll up, thus enabling the hood to be used as a canopy in bright sunny weather, such as has been experienced during the past week. The road wheels are of wood, shod with Clipper pneumatic tires; the mudguards or splashboards are of leather, and of a much greater width than usual. Steering is controlled by an inclined hand wheel, the standard of which is pivoted at the bottom, so that it may instantly be placed in a vertical position to facilitate mounting and dismounting.

Having briefly dealt with the leading features of the Royal car, which does credit to all concerned in its production, we may devote a little space to its career during the past few days. His Royal Highness last week spent a good deal of time at Sandringham in learning the mysteries of the motor-car under the guidance of Mr. Stanton, on the latter's new Daimler mail phaeton. The Prince quickly learned how to manage the reins, or rather the steering wheel, and it was not long ere

he was driving the car on second speed in the grounds of his Norfolk residence. So pleased was the Royal *chauffeur* with his experience that he was eager to see his own car, which made its *debut* at Ascot on Monday last. The question of a reliable mechanic was a matter not settled in a day, and, after much deliberation, Mr. Sydney Letzer, who is shown seated on the car in one of the accompanying illustrations, was selected for the responsible position. Mr. Letzer has been with the Daimler Motor Company, Limited, for about two and a half years, and has a thorough acquaintance with the vehicle of which he is now in charge. The car was driven down to Ascot on Monday afternoon, having as passengers Lord Suffield and the Right Hon. Henry Chaplin, the President of the Local Government Board. Its arrival at the Royal stables at Ascot Heath House, where the Prince has this week entertained a large party, naturally attracted much attention, and with the view of gleaningsome additional information, we journeyed down to Ascot on Wednesday evening last on Mr. Stanton's car, having one of the most pleasant runs we have so far enjoyed, and to which we hope to refer again next week. It is satisfactory to be able to record that the motor-car has been graciously received at the Royal stables, not one of those who have had charge of the Prince's horses for many years showing the slightest antipathy to the new-comer. They fully recognise the fact that the motor-car has come, and that the quicker horses and their drivers are taught to pay due respect to it on the road the better, in this respect setting an example which many drivers of horses would do well to quickly follow. When we arrived at Ascot on Wednesday we found the car in process of being washed down, after having conveyed its Royal owner for the first time that morning. The Prince of Wales, who was accompanied by the Duke of York, drove over to Cumberland Lodge, and although the trip only extended to about ten miles, he expressed himself as highly delighted with his experience. It will gratify those who have watched with interest the progressive development of the British automobile industry to learn that the Prince is well satisfied with his car, which is English built throughout. Seeing that such excellent and reliable vehicles can now be constructed in this country, he cannot understand why so many automobilists should show a preference for those of Continental manufacture. Certainly in this he is maintaining the traditions of the Royal Family, who since the example set by the late Prince Consort have done much to set the fashion in promoting the welfare of English trade and industry.

The first trip of the Prince in his own car was not without its amusing side. Seeing that the Prince's mechanic was unacquainted with the roads in and about Ascot, it was deemed advisable to send over to the Royal stables at Windsor for a groom to ride in front of the car. The Royal party duly set out with its pilot on horseback, but not a mile had been

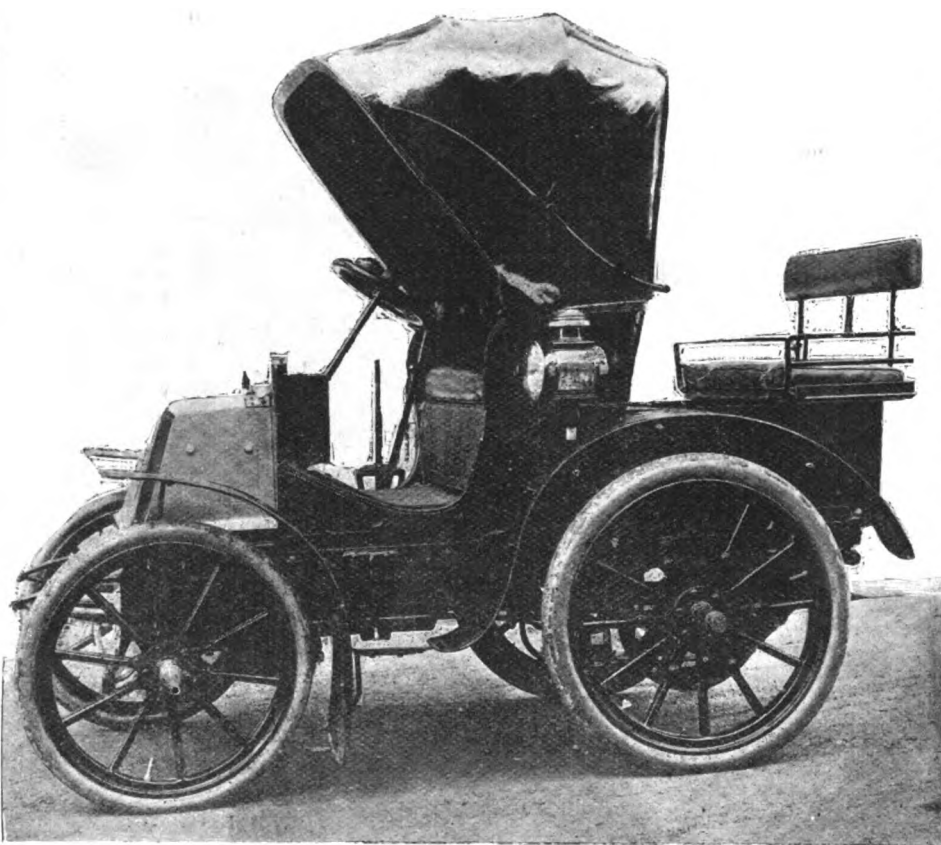
traversed ere it was seen that the pace of the motor-car—although only on third speed—was proving too much for the horse and groom, and with a smile the Prince stopped the car, and considerably sent them home, remarking at the same time that the horse would need a little more fire in it before again attempting to set the pace for the motor-car.

At the completion of the Ascot festivities this week the car will be brought to Marlborough House, and it is not at all improbable that the Prince may be seen on his car at the Royal Agricultural Society's Show at York next week, this being his year of presidency of the society.

The position which the Prince occupies at the head of British Society, and the esteem in which he is held on the Continent, make his adhesion to the ranks of automobilists an event of the greatest importance, and should give an impetus not only to the industry, but also to the popularity of the motor-car as a pastime and sport. Whilst his accession cannot fail to have its effect on the automobile movement throughout Europe, its influence in the United Kingdom will of course be more immediately felt, and society people generally will naturally be less inclined to look

askance at the supersession of the horse by mechanical power. Probably the time is not distant when at festivities connected with automobilism, the toast of the Prince of Wales will be proposed as that of the Royal *chauffeur*, and who knows but that at the first dinner of the Automobile Club in the coming century—not so far ahead, by the way—the personal presence of the Royal motorist may set the seal of official favour on the once despised motor-car.

"PHANOMEN."



H.R.H. THE PRINCE OF WALES'S DAIMLER MAIL PHAETON.

Photo by

[Messrs. Curzon, Robey & Co.]

THE Endurance Motor Company, Ltd., Holbrooke's Lane, Coventry, have sent us a copy of their 1900 list, showing their two patterns of car and the motor which drives them.

A NORTH JERSEY automobile club has been organised at

Paterson, N.J. The club is formed with the same objects as the Automobile Club of America, but expects to make a special feature of weekly club runs.

A COMPANY has just been formed in Berlin with a capital of £12,500, to be known as the Dürr Motoren-gesellschaft, to acquire the patent rights in the Dürr impulse motor and to construct motors and motor-vehicles.

THE U.S. Consul at Leipzig reports that the automobile industry in Germany, though still in its infancy, is being rapidly developed, and before long is destined to become an important factor in the manufacturing circles of the country. The large amount of capital and energy which is being spent upon this branch of industry indicate that German business men have great confidence in the future of automobilism. Last year there were about 1,000 men employed in and around Berlin in the automobile industry, and to judge from the present outlook, this number will be more than doubled during the present year.

TOURING NOTES

BY A WORLDLING.

MY amiable *confrere* who writes on motor-car subjects for that young brilliant daily the *Express* over the pseudonym "Teuf-Teuf" tells us in all seriousness that Mr. Outhwaite's non-stop run of 221 miles "constitutes the longest known journey without a halt." An excellent performance without doubt, but it cannot in any way be considered as a record, as many a *chauffeur* has done better without thinking it worthy of being chronicled. It must have been *langweilich* work, too, as the average speed attained was only fourteen miles an hour. Mr. Outhwaite must have been very glad when it came to an end. Levegh, Charron, de Knyff, and a hundred others would soon make mincemeat of such records. Why I, *moi qui vous parle*, have done almost as well in an ordinary tour without thinking about it, but I must admit that I went a little faster.

Apropos I hear that Baron Arthur de Rothschild has just driven from Paris to Homburg in sixteen hours, and that he announces that he beat the "express" from Frankfort to Homburg by seven minutes—a boast which is singularly ridiculous to anyone who knows the pottering little *trambahn* as I do. I wonder if the Prince will take his Daimler there this year if, as has been announced in several places, he forsakes Marienbad for his old love Elizabethan-Brunnen. The surrounding country is a little too hilly for motor-cars, but it would be rather good fun if some keen *chauffeur* were to run a big car daily out to Nauheim. I commend the suggestion to Mr. Fred. Cook and Mr. Cumming Macdonald, who has already nibbled at automobilism; it would be an interesting departure for the Gee-gee Club. Most of the big hotels can find accommodation for cars, but I should strongly advise the Victoria, as the good Baehl once looked after a car for me very carefully at his other hotel, the Provence at Cannes. There can be no difficulty about petrol, as I know that Count Voss takes his Panhard there every year now, although when I was last at Homburg in '97 there was not an automobile in the place.

I DROVE down to Margate last week on an Orient Express, which behaved admirably, going fast on the level and climbing such terrifying hills as Shooter's and Chatham with three people and luggage on board without a grumble. Motor-cars are not popular there with the cabbies and drivers of *char-a-bancs*, who have a wonderful command of invective to hurl at the unfortunate *chauffeurs* who have come to spend money in their town. There are but two or three resident cars, the only one of which I saw bening a Benz, belonging to a Dr. Webb. I can thoroughly recommend the Royal York as the best hotel of the comfortable old English type, the New Inn Yard as an excellent *garage*, and Bentley and Co., of 31, High Street, for petrol.

ENGLISH *chauffeurs* who want to go over to France for the summer, and at the same time do not wish to go too far afield, could not do better than make Boulogne their headquarters, as the neighbouring country is well suited to short tours. Boulogne to Amiens, Berck, St. Omer, Béthune, and Calais are all good day's runs over excellent roads, and there are a thousand and one delightful little excursions in the more immediate neighbourhood. The 12 h.p. cars can run up to Paris for lunch and get their owners back in time to lose a good many hundreds at baccarat before midnight. The Imperial has a *garage*, but it is a very expensive hotel. I myself would rather go back to Paris and put my car up at one of the *remises* in the town; of these, Leveco's in the Rue Thiers is the best.

YOUNG Mr. Banner, the son of the English parson at Freiburg, in the Black Forest, is the chairman of the lately formed Breisgauer Automobil Club, which has already a considerable list of members. The little town in Baden is a most perfect turning centre, as every road which goes out of it is well laid, and leads to some interesting or beautiful place. I can imagine

no more delightful way of spending a holiday than by running down there *via* Dieppe, Paris, Strassburg, and then making excursions to Triberg, Donaueschingen, Badenweiler, Basle, Alt-Breisach, and even Baden-Baden, Karlsruhe, Mannheim, and Constanze. The best hotel in Freiburg is Sommer's, the "Zähringerhof," but there is a delightful little *garten-wirtschaft*, with comfortable rooms and a good kitchen, called the Hotel-Restaurant, Z. Kyburg, about two miles from the town in the Guntersthal, the first valley of the forest. It is splendidly placed in the shadow of a great pine-clad hill, with the great mountain road at its doors and an ice-cold stream running through the garden, in which there is an abundance of small trout for one to catch and have grilled for breakfast. I spent many happy days there before even petrol had added its perfume to that of its lilies and violets, but I hope that it will not be long before I hear the bass notes of my teuf-teuf sung back to me by some fair Echo who has lived since time began in the caves of the mighty Hochberg.

MR. HERBERT DE STERN has invited the members of the Automobile Club who are owners of motor-cars and friends accompanying them on their vehicles to a garden party at Strawberry Hill on the 10th July.

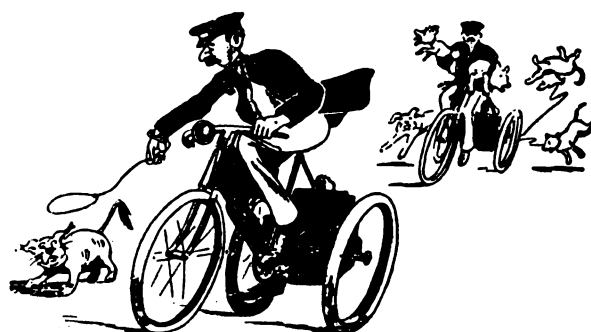
La Locomotion Automobile states that the Belgian Minister of War has placed an order with La Société des Automobiles Koch, of Paris, for a motor-car specially adapted for the transport of postal pigeons.

In a recent issue of *Cycling* Mr. G. Lacy Hillier had an article on his first trip by motor-tricycle. It provided excellent reading, and should be a warning to all who venture on new machines about which they know little or nothing.

THE daily papers report that at Preston Deanery, near Northampton, a motor-car was overturned on Sunday last, and, catching fire, was completely destroyed. The car was journeying from Derby to London, when one of the driving wheels skidded, causing the car to overturn.

It is reported that the Empire State Sugar Company, of Lyons, New York, has given an order to the General Carriage Company of New York for ten motor-trucks, each of five tons capacity, to be used for the cartage of sugar beets from the farms to the refinery. Mr. O. F. Thomas, the president of the concern, is also reported to have given an order for three electric omnibuses to run between Lyons and Soders Point on Lake Ontario.

THE *Municipal Journal* has been gleaning the opinions of a number of road surveyors regarding the suitability of macadam for road making. "What is your opinion of the use of macadam for the formation of main roads and business thoroughfares in a manufacturing town of 100,000 population?" was the question addressed to some sixty odd surveyors in various parts of England. The replies contain a strong objection to the material under any conditions, and a marked leaning is manifest to wood, asphalt, and granite setts.



DEALING WITH THE DOG NUISANCE.
(The Automobile Magazine)

TRIALS OF MOTOR-VEHICLES FOR HEAVY TRAFFIC.

UNDER the auspices of the Liverpool Self Propelled Traffic Association, a series of important trials of motor-vehicles for heavy traffic will take place in June, 1901. In our "Comments" we refer to the object of the trials and to the towns in which they will take place. Below we give the general regulations applicable to the vehicles and the rules and conditions of the competitions.

GENERAL REGULATIONS APPLICABLE TO ALL VEHICLES.

(I) The vehicle shall be self-propelled and self-contained. It shall be propelled by mechanical power alone, but there shall be no restriction on the source of such power or the nature of the agents used.

(II) The vehicle shall be capable of going anywhere that a horse-drawn vehicle carrying the same load is ordinarily required to go, and of being placed in the same positions and withdrawn therefrom without external assistance.

The particular manœuvre most generally called for is to work into and out of a loading berth when cramped for room. This requirement arises in the case of embayments, or of confined spaces between other vehicles in a line receiving or discharging goods. Carters usually back into such positions obliquely, and bring the vehicle into line by turning the leading wheels at right-angles to the rear wheels and again backing, but it is open to competitors to perform the manœuvre as they think best.

(III) The vehicle shall be capable of working into and out of an embayment of one-and-a-half times its own length.

(IV) The vehicle shall be capable of starting from rest on and mounting a gradient of one in nine (sets).

(V) The capacity of any water tanks, whether the same be fitted for feed, cooling or other purposes, shall suffice for a run of fifteen miles on the basis of the consumptions during the trial runs.

(VI) Such portion of the platform of the vehicle as is designed to carry the load shall be level, and the height of the floor-line, measured either when light or when laden, shall be not less than 3 feet 6 inches, and shall not exceed 4 feet 3 inches.

(VII) The vehicle shall conform in all respects to the requirements of the Locomotives on Highways Act, 1896, and, in the case of its being oil-propelled, of the "Regulations as to Petroleum" issued by the Home Secretary under Section 5 of this Act. In Class C, intended for vehicles for export to the Colonies and abroad, there is no tare limit, but the other regulations must be adhered to.

(VIII) All working parts shall be properly encased.

(IX) The boiler, tanks, oil-baths, and connecting-pipes shall be fitted with drain-plugs at their lowest points.

(X) The cross-section of any pipe connecting two tanks shall be not less than that of the pipe provided for filling the first tank of the two.

(XI) Provision shall be made to lock the compensating gear.

VEHICLES ELIGIBLE FOR COMPETITION.

Class.	Load.	Maximum Tare.	Minimum Level Platform Area.	Minimum of Driving Tires	Minimum width	Speed.
A	1½ tons.	2 tons.	45 sq. ft.	3 in.	8 m. pr hr.	
B	5 "	3 "	75 "	5 "	5 "	
C	5 " (minimum)	No limit.	95 "	6 "	5 "	

RULES AND CONDITIONS.

(I) The vehicle shall carry the weight of goods specified for its class, any excess weight in Class C being declared in advance by the competitor, throughout the continuance of the trials.

(II) Each competitor shall himself make all arrangements for the necessary staff and appliances to work his vehicle or vehicles. Accommodation for the vehicles, in Liverpool, Manchester, and Blackburn, will be provided by the Association. Vehicles intended for trial shall be registered as "arrived," at the Liverpool Depot, not later than noon on Friday, May 31st, 1901.

The association will arrange the supplies of water at intermediate depôts

(III) The Official Observers will accompany each vehicle during the trial runs to take notes of behaviour, fuel and water consumption, etc., and no repairs will be permitted without their knowledge and consent.

(IV) Any vehicle withdrawn from competition during the trials, except under the written authority of the judges, shall be ineligible for a prize or for commendation.

(V) Twenty half-plate photographs of each vehicle shall be furnished by the competitor, not later than May 16th, 1901.

These must be delivered in good order at the Liverpool Royal Institution, addressed to the Honorary Secretary, Liverpool Self-Propelled Traffic Association.

(VI) Entries shall be made on printed forms (to be obtained from the Honorary Secretary), and shall be

accompanied by an entry fee of ten guineas per vehicle.

Entries will be received under cover of a registered letter, by the Honorary Secretary, Liverpool Self-Propelled Traffic Association, the Royal Institution, Colquitt Street, Liverpool, any time prior to 12 noon on the last day of April, 1901.

(VII) A complete list of particulars, together with tracings or blue-prints of the general arrangement and principal parts, shall be lodged with the Honorary Secretary not later than May 16th, 1901, and further detailed drawings shall be submitted to the judges, in confidence, if required, while the trials are in progress or at their conclusion.

The description must be printed, and two hundred copies must be furnished. The particulars required are those enumerated in the section entitled "The Competing Vehicles" in the Report on the 1899 Trials.

(VIII) Each competitor shall arrange to have his vehicle or vehicles ready for inspection by the judges at 3 p.m. on the afternoon of Friday, May 31st, 1901, in the Liverpool Depot, when the dimensions, capacities, and weights will be taken by the Observers.

(IX) All vehicles shall be stored over-night at the depot or depôts provided by the Association.



FIG. 1.—GENERAL VIEW OF AUSTRIAN RACING CAR. (See opposite page.)

(X) At the conclusion of the trials, any vehicle, or motor, or part thereof, shall be opened up, in confidence, for inspection by the judges, if required.

(XI) Each vehicle will be allotted an official number, which shall be displayed during the continuance of the trials. Competitors must provide two boards or plates, each one foot square, with their number painted in black on white, the figures to be not less than eight inches deep, for attachment in the front and rear of their vehicle.

The judges reserve to themselves the right of absolutely disqualifying any competitor for any infraction of these rules.

Whilst obeying in all respects the instructions of the judges and the conditions of the competition generally, it is to be fully understood and agreed by every competitor that no responsibility, legal or otherwise, is to attach either to the judges or the Liverpool Self-Propelled Traffic Association, in respect of anything, or for any damage or injury caused to any person or thing, but that all responsibility of every sort and kind, whether pecuniary or otherwise, and all risk of damage to the competing vehicle, is to attach to the competitor, and is to be borne by him.

In making the awards, the judges—Mr. Everard R. Calthrop, C.E., M.I.M.E., Mr. S. B. Cottrell, M. Inst. C.E., M.I.M.E., Professor H. S. Hele-Shaw, F.R.S., LL.D., M.I.C.E., Professor Boverton Redwood, F.R.S.E., F.I.C., F.C.S., Sir David Salomons, Bart., M.A., A.M.I.C.E., and Mr. Henry H. West, M.I.C.E.—will consider the cost, control, working, and construction of the vehicles and the particular points in connection with those propelled by steam, oil, or electricity, respectively.

AN AUSTRIAN RACING CAR.

EARLY this year we illustrated and described the two-seated petroleum-spirit motor-car built by the Nessel-dorfer Wagenbau-Fabriks Gesellschaft of Nessel-dorf, Austria. We are now able to publish two illustrations of a racing car recently turned out by the same company. The car, which is said to be the first built in Austria specially for racing purpose, is thus referred to by the Nessel-dorf Company:—One of our cars competed this year for the first time in France and participated at the meeting at Nice. At the race of touring automobiles Nice-Dranguignan-Nice it secured the second prize, and at La Turbie (mountain) race the first prize. The car was especially adapted to Austrian roads and had a gauge of 1,150 mm.; that is about 200 mm. less than the French carriages. The car, as will be seen, has no resemblance whatever to a carriage, but is purely and simply a machine. It is double-seated, the driver's seat being elevated, while that for the mechanic is at the feet of the driver, this location being adopted in order to reduce the resistance to the air as much as possible. Steering is controlled by an inclined hand wheel, in front of which is the petrol-tank. A radiating coil is located in the fore part of the frame. Behind the driver's seat is placed the water-tank, the latter looking very much like the chimney of a locomotive. The motor has two horizontal cylinders, one

opposite the other; the cylinders have a diameter of 120 mm. and a stroke of 110 mm. The maximum number of revolutions is 1,300 per minute, which can be reduced to 100. The ignition is of the electro-magnetic type and is variable. Every part of the machine is readily accessible. On good level roads a speed of 92 kilometres (57½ miles) an hour, and on gradients of 12 per cent. 25 kilometres (15½ miles) an hour can be attained. The pneumatic tires of the rear hind-wheels have a thickness of 120 mm., and those of the front-wheels of 90 mm. The weight of the complete vehicle, including equipment, is 970 kilogrammes (about 19 cwt.).

THE first automobile exhibition ever held in Vienna was opened in the Prater on the 1st inst. No fewer than fifty-seven firms have sent exhibits.

THE Ceylon Rapid Transit Company, Limited, has been registered with a capital of £100, to construct, equip and work omnibuses, vans, carriages, boats and vehicles, whether drawn or propelled by animal power or by steam, oil, electricity or other mechanical power.

MOTOR WHEELS, Limited, is the title of a company which has been registered by Mr. A. S. Ramskill, 40, Holborn Viaduct, E.C., with a capital of £100 in £1 shares, to manufacture and deal in steam, oil, electric, and other motors, motor carriages and vehicles, bicycles, tricycles, velocipedes, etc. Registered without articles of association.

MR. M. CAPPELLEN, of the recently-formed Sports Motor Car Company, informs as that they are opening large and spacious premises at 103,

Fulham road, South Kensington, S.W., where the Mayfair voiturette recently illustrated in these columns will be on view. The new concern is making arrangements to carry a stock of petrol and also to store motor-cars for private owners as well as to carry out repairs of all kinds.

THE Locomobile Company of America are leaving no stone unturned to popularise their little steam cars. The company have just opened two storage stations in New York, where Locomobile vehicles may not only be stored, but where they will be cleaned, oiled, and kept in running order. A charge of 20 dols. per month entitles the customer to service at all the storage stations.

JOHN MARSTON'S Carriage Works, Limited, is the name of a company which has been registered with a capital of £75,000, to acquire the business of coach and carriage builders, etc., carried on by J. Marston, at 21 to 27, Bradford-street, Birmingham, as John Marston and Co.; and generally to carry on the businesses of coach and carriage builders and proprietors; and as manufacturers and dealers in electrical, steam, oil, gas and other motor-cars and vehicles, etc.

NEW laws have recently come into force in Switzerland to govern the operations of motor carriages. There are four regulations, as follows:—(1) Every motor-car must be tested by the authorities. (2) The driver has to be in possession of a legitimation. (3) Every motor-car must be fitted with two lamps, one with a white and the other with a green glass. (4) To every automobile must be affixed a plate bearing the name and address of the owner. It will be noticed that nothing is said in the regulations as to speed.

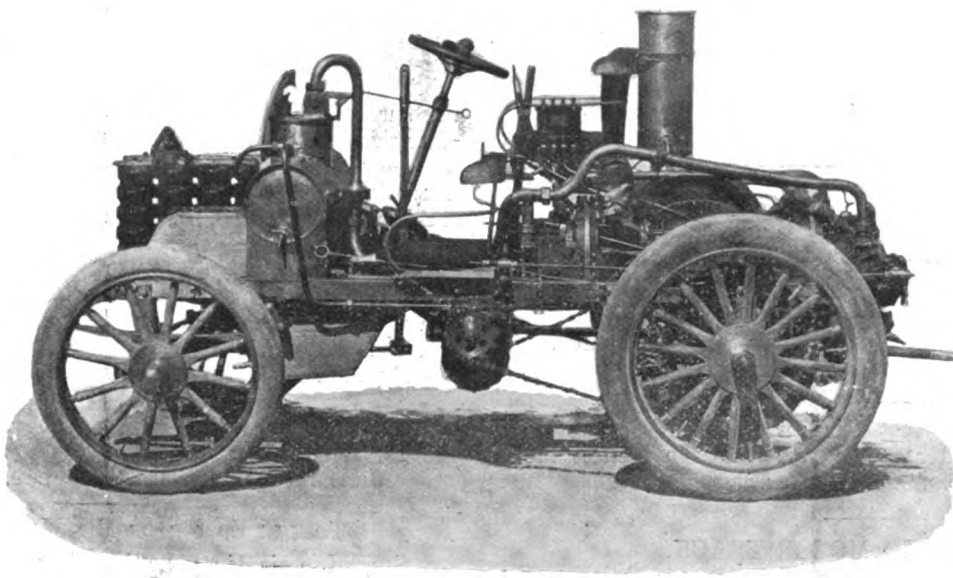


FIG. 2.—GENERAL SIDE VIEW OF AUSTRIAN RACING CAR.

CORRESPONDENCE.



THE CASE AT SKIPTON.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should like to correct an inaccuracy in the report which appeared in your paper of last week charging me with not giving "audible warning," causing two horses to bolt, and then running into a carriage. The true facts of the case are: the two horses which bolted were left on the highway unattended, and only ran about twenty yards, when they were stopped by two young men, doing no damage whatever. As for the carriage which was said to have been run into, it was not run into at all; it was approaching me from the front, and when within about ten yards of me the horse suddenly swerved round, causing the shaft to catch the hind wheel of the carriage to which it was attached, so I had nothing whatever to do with this. I might say that the driver never gave me any signal whatever, and the horse did not show any fear until it got nearly up to me, and as soon as I saw it I stopped my car. This accident occurred on the return journey, and was not at the same time as the horses bolting. The reason I did not appear was because I was away at the time, and it would have incurred further expense in travelling. I might say that I have had great experience, both in the shops and on the road, and I hold a driver's certificate. I obtained first honours and silver medal in 1900 for Benz cars, with the same car I was driving at the time of the alleged accident.

Hoping you will find space for this correction in your valuable paper, as inaccurate reports often make intending purchasers look on the dark side of motoring,

Yours truly,
TOM SCAIFE.

25, Winchester Mount, Hall Lane, Armley, Leeds.
June 10th, 1900.

[We would point out that our correspondent's correction applies to what transpired at the court; it does not affect the accuracy of our report.—Ed. *Motor-Car Journal*.]

THE PROPOSED MOTOR TRACK.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think your suggestion in the *Motor-Car Journal* of June 2 regarding a long-distance racing track for automobiles an excellent one in every respect. It is increasingly evident that the delights of speed on powerful cars are very attractive to owners of machines capable of such speeds as forty or fifty miles per hour. But our law prohibits anything above twelve miles per hour, so it is plain we must look in some new direction if we wish to use racing machines in this country. Such a direction is well indicated in your article, and I believe that both amateurs and members of the trade alike would welcome the erection of a course upon which something approaching to a "Derby on wheels" could be run. The objections raised by "Cautious Scot" in your issue of this week appear to me to be altogether beside the mark. He says the races at the Crystal Palace and the Automobile Club's tours should fill the want; but he appears to ignore the fact that a motor-car cannot race on the Crystal Palace track or, indeed, upon any other of that description, and, further, the club's tours are essentially "tours" and in no sense races.

Racing in France has undoubtedly produced the greatly improved car of to-day, and more racing will produce further improvements. I sincerely trust a suitable committee will be formed at once to deal practically with your suggestion.

Yours truly,
MARK MAYHEW.

The Automobile Club, June 11th, 1900.

SIR,—The question now being discussed in your columns in reference to the proposed motor track is one of especial interest to those of us who take such a keen interest in automobilism as

a sport. I notice that "A Cautious Scot" fears the sportive element being too closely identified with automobilism, on the ground that the professional element in racing would assuredly creep in. I am afraid in stating this he has formed his opinions on an entirely wrong basis. Motor-racing is entirely different to cycle-racing, and the question of expense is a very much more serious matter than is the case with the latter sport. The sportive element, in my opinion, is the element to be encouraged, and encouraged strongly.

What has up to the present formed the backbone of the growth of automobilism in this country? Why, the intensely keen enthusiasm of the amateurs who have taken automobilism up as a sport. From which section has the manufacturer derived the most benefit? Why, that section which has bought, and is buying, cars, in many cases very expensive cars, for the mere sport the owners will get out of the driving of them. The sport has made the industry in France and the sport is making the industry in England. The commercial side of the question has yet to develop.

And, now, granting all that I have said to be true, what would be more appreciated, what would be better supported, and what could be better conceived than a track specially designed for motor-car racing? In France the enthusiasm shown by the public has been unbounded in connection with the races there, and surely we in England are not behind our neighbours on the other side in appreciating a new sport, providing as it does the necessary dash and danger to make it fascinating both from a competitor's and onlooker's point of view. On such a track we could have our speed trials and time tests, and, in fact, do everything we wish to do and at present are prevented from doing in consequence of the "legal limit."

The manufacturer would also find a track of this description of very great assistance, and I am quite sure that the trade would most heartily support the idea.

By all means let us have a track, and let us have it soon.

Yours truly,
CHARLES JARROTT.

14, Regent Street, S.W.,
June 11th, 1900.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in your last issue a letter from a correspondent recommending the adoption of a motor-car racing course. There is no question in my mind that nothing would do so much to improve English manufacture as the adoption of this idea. Racing brings out the worst or the best points of every car, and a car which can travel fast and far without trouble can be adapted for every other purpose.

One may take it as a good rule that immediately the manufacturer of a large carriage suggests that his car is good for touring but bad for racing, it is practically admitting that it is badly designed, and it is only good enough for using on runs where one has time to get off and do repairs. Once this is more generally recognised so quickly will English motor-vehicles forge rapidly ahead.

Yours truly,
S. F. EDGE.

14, Regent Street, London, S.W.,
June 12th, 1900.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I quite agree with "A Cautious Scot" that a motor track would possibly lead to the decadence of the industry. We do not want the sporting man to get hold of the motor and ruin the trade in the way he has the bicycle, and it behoves a sharp look-out to be kept on the pot hunters, for, owing to the lack of interest in cycle races, there must be a large army of racing men and pacers standing idle, and would not care what harm they did to the trade so long as they could add a few more cups, marble clocks, etc., to their store.

I trust our influential journals will lose no opportunities to endeavour to keep the pastime free from the taint of racing. I really think that if the Act of Parliament had forbidden any car

to be geared to more than the regulation speed on a level track, the trade would have profited thereby, the cars would have been more serviceable, better hill climbers, and in every way more suitable for their purpose. I think that if one can do a journey of, say, fifty miles at the rate of eleven miles per hour they should be satisfied. No horse could do it, and no horse owner would think of such a speed, but directly he gets on a car nothing under twenty or twenty-five miles per hour is thought of. I don't want you, sir, to think I am conservative in the matter, but what is the use of cars speeded up to forty miles when the law only allows fourteen?

London, June 9th, 1900.

Yours truly,

W. T. W.

TROUBLE WITH A BENZ CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Re your note "experiences wanted" in "Comments" of this day's issue of the *Motor-Car Journal*, can any of your readers help in the following curious trouble? I have an English-made Benz with everything useful up to date, and for some time I have been regulating my speed by the advance ignition lever, not using the throttle valve lever at all, but lately I have found I could not slow down my engine. Indeed, in my attempts to locate the trouble, I have quite shut off the sparking, and have travelled nearly a mile still getting regular firing in the cylinder. It is positively nothing to do with the electricity, as I well understand that part of the car.

June 9th, 1900.

Yours truly,

FOG.

MOTOR-TRICYCLE EXPERIENCES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Perhaps some of my experiences with a motor-tricycle may be interesting to your readers.

My chief trouble has been with dry batteries, which I have replaced with woven glass accumulators. I have had two dry batteries this spring, and neither of them ran the tricycle more than a few miles. The trouble was probably not due to any defect in the dry batteries, but may have been caused by short circuits running these batteries out; but the reason I have discarded them is that they partially recover themselves, and you cannot tell for certain that it is the battery at fault, as after a good deal of coaxing, pedalling, and manipulation of the various levers the motor suddenly goes off all right, and you take the tricycle out only to get stranded about five miles from anywhere. Another thing in favour of accumulators is that if you run them out through short circuiting, you can get them re-charged for 6d., while with a dry battery you lose £1 or so. I think it a great mistake to put a battery of any kind in a tin case, as with the vibration one gets on a tricycle some part of the battery or communicating wires are sure to come in contact with the case, and away goes all your electricity. When I had a dry battery I nearly wore three or four sparking plugs out. Since using accumulators I have never had occasion to touch the sparking plug.

A very good way of preventing leakage of electricity is to thoroughly insulate the wire from coil to sparking plug by enclosing it in a piece of $\frac{3}{8}$ in. rubber gas tubing. The current through this wire is of very high voltage, and will go through almost anything. I have distinctly felt shocks on touching the ordinary insulation.

I have cured "oil on contact breaker" troubles by winding a piece of string round the half-speed shaft between the cam and ebonite; this prevents the oil that comes through from splashing on to the trembler.

I went for a trip to London and back a fortnight ago, and only had two little stops in addition to getting "stuck" on a steep hill through getting the mixture wrong. The first happened near Longfield. I was going at a great speed when the motor suddenly stopped firing, and the tricycle ran quite easily and with no compression; on dismounting I found the exhaust valve stuck up. I soon got it down again, and arrived in town without any further trouble. On returning I stopped on Wandsworth

Common to put some oil in motor case, and started off again without screwing on the cap in brass tank. I discovered this when I reached round to let some more petrol in. I expected trouble, and sure enough the motor stopped two-thirds of the way up Chislehurst Hill. I dismounted, and found that the oil had splashed all over the side of the motor, so I carefully cleaned the trembler and tried to start, but the motor would not fire. The only other place where the oil could have done damage was the sparking plug, so I took the wire out and carefully cleaned it, and on replacing it the motor brought me home in fine style. Have any of your readers had any experience with the Simms magneto ignition? I very much enjoyed reading your account of the 1,000-Miles Trial.

Herne Bay, June 9th, 1900.

Yours faithfully,

CYRIL SCOTT.

THE 1,000-MILES TRIAL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR.—At a meeting of the Judges' Committee which was held on the 11th instant I was directed to request that you would be so good as to announce through the medium of your columns that the attention of the Judges' Committee has been called to certain advertisements and statements concerning vehicles entered for or running in the 1,000-miles Trial.

The Judges wish to warn the public against accepting any such statements until their Report, upon the compilation of which they are now actively engaged, has been published.

The Automobile Club,

4, Whitehall Court, London, S.W.

12th June, 1900.

Yours truly,

C. JOHNSON,

Secretary.

THE DANGER OF PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—On May 16th last a Star motor-car belonging to our firm on returning from a journey was put away in the show-room, having a slight leakage from the gauge glass in the petrol tank. It was considered safer to draw out the petrol from the tank than to leave it, and while so doing the spirit vapour caught fire and exploded from the Dietz carriage lamps fitted on the front of the car. Without any possible chance of saving the show-room, not only was the show-room burnt out, but the adjoining residence and engineers' stores were also completely destroyed, doing damage to the extent of over £1,000.

We write this so that your influential journal may warn users of petroleum spirit of the dangers in using it, in order that great care may be used. This is an expensively bought piece of experience for us.

Yours truly,

RICHARD DRAKE.

(Richard Drake and Sons, Ltd.)

High Street, Sutton, Isle of Ely, June 9th, 1900.

CHANGE-SPEED GEARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. R. A. Cobb's query in your issue of 9th inst., he is quite correct in assuming that the gears in the De Dion voiturette are always in mesh, and that they are thrown in or out of work by clutches. The two clutches consist of two expanding segments each, with flat frictional surfaces, and expand away from shaft, and do not, as in usual practice, slide along the intermediate or driving shaft. They seem to me to be most certain and effective in practice.

Yours truly,

Lea House, Brondesbury, N.W.

June 11th, 1900.

G. D. BARNES.

[Owing to the pressure on our space this week several letters have had to be held over.—Ed. M.-C. J.]

COMPRISED in the Leeds hospital sports, which are fixed for August 7th next, are two motor-cycle handicaps.

THE agency for the New Orleans voiturette in the district has been secured by the Bristol Motor Company, of Red Cross Street, Bristol.

MOTOR-CARS ON THE CONTINENT.



Fire!

It is somewhat difficult to account for an outburst of fire on board a motor-cycle, especially during the cool of the evening, but such an incident occurred on Monday night last in the Champs Elysées, and the owner of the machine was sadly perplexed as to how he was to extinguish the flames. Fortunately for him, however, a passer-by had the brilliant inspiration of running across to the Jardin de Paris, where a fire-extincter was readily obtained, and the flames put out without trouble. I have had a similar experience of fire upon a motor-cycle, but in my case it resulted from the continuous exposure of the machine to the scorching rays of a summer sun, and it was preceded by the explosion of the carburettor. The simple remedy of a cap pushed well into the hole formed in the carburettor by the explosion was luckily sufficient to smother the flames, but since then I have always deemed it wiser to leave my machine in the shade whenever the sun has been at all powerful.

The Fêtes of the A.C.F.

FOR a long time past we have been daily expecting to hear some news as to the date upon which the theatre of the Automobile Club de France would throw open its doors, and now we are in possession of exact information upon the subject. The 9th and 10th July will witness the initial performances in this sumptuous theatre, and the occasion will be the two fêtes given in honour of the Exhibition and the various Commissioners General. The idea at present is to give two soirées, repeating on the second evening the same programme as on the first. Many of the leading artists in Paris will participate, and a *revue* has been specially written by M. Pierre Giffard for the occasion. The first soirée will be reserved to members of the Club and their friends, while invitations will be issued to the Ministers and several public officials, the Commissioners General, the various Prefects, and other notabilities. The relatives of members of the Club will be invited to the second soirée, and it is generally anticipated that these fêtes will be brilliant in the extreme. No doubt complete details will be issued in due course, and they are being awaited with interest.

M. Leon Bollee.

ENGLISH automobilists will learn with particular satisfaction of the nomination of M. Léon Bollée to be Chevalier of the Légion d'honneur, for was not Monsieur Bollée one of the very first to initiate us in the mysteries of automobilism? Personally I retain, and always shall retain, a very vivid recollection of the arrival of the Chevalier, with his curious low-lying machine, in London, and what a sensation the latter made in the streets. Some time afterwards, on the morning of the famous ride to Brighton, M. Bollée gave us a demonstration of his driving powers in the old Central Hall, Holborn, where the cars were housed previous to setting out upon their expedition to London-by-the-Sea, and the manner in which he dodged in and out among the vehicles, oil cans, tool boxes, and other encumbrances was a revelation to our extremely limited experience in automobile matters. M. Bollée is a member of a family singularly gifted with inventive genius, and it may be news to motorists that his efforts are not by any means confined to automobiles, and that he is well known as the inventor of a very wonderful calculating machine. Since the commencement of the motor movement in France, M. Bollée has taken an active part in its development, and his name will always be inseparably connected with these early efforts. He has competed, too, in many courses, including the historical race Paris-Bordeaux-Paris, which was won by M. Levassor, and in several of them has achieved capital performances.

Paris-Brest Race.

To the great regret of French automobilists the directors of *Le Matin* have decided to abandon the race from Paris to Brest and back, which it had been intended to organise for July 5th and 6th. It is indeed a pity, for the excellent arrangements made in "Le Tour de France" fully warranted automobilists' expectations that the Paris-Brest event under the same management would be one of the best organised races of the year. Whether the directors of this Parisian daily do not care to burden themselves with the great responsibilities of an automobile race, or whether the necessary authorisation is more difficult to obtain than we have of late been led to suppose, is, for the moment, not quite clear, but anyhow the race is off. Apart from the question of authorisation there is no doubt but that the organisation of a big motor race is no light undertaking, and especially so in the case of the busy staff of a daily paper—and then, too, there is the responsibility. No, I am not surprised at the decision of *Le Matin's* directors, but regret it none the less.

Motor Boats.

AN international competition for motor boats will take place on Wednesday and Thursday, the 23rd and 24th inst., on the Seine, at Argenteuil, when a number of small launches are expected to display their power. Were not motor constructors so busily occupied with automobile work, there is but little doubt that the motor boat would make much more headway than it is at present doing, for its advantages over the steam launch are many and important. The fitting, too, is not difficult, for there is no constant road vibration to contend with, and the work is remunerative. Possibly the approaching regatta may give a fillip to this branch of motor work, and the Hélice Club, under whose direction the races will be contested, are to be congratulated upon their movement.

The Victims of the Automobile War.

FROM a series of figures appearing in a recent issue of *Le Vélo* it appears that from April 29th last, the day upon which the war against Parisian automobilists commenced, until May 31st, no fewer than 140 *chauffeurs* have made their appearance in court charged with some infringement of their country's laws and that among these poor trembling victims of the over-zealousness of the police no less than eighty days of imprisonment have been meted out, not to mention a whole crowd of fines and minor penalties. I really do not wonder that automobilists are fined for not possessing a *permis de conduire*, for the delay in obtaining it, in Paris, is so dreadful that one becomes impatient and chafes at it. I know men who have sent in their applications more than one month ago, and who live in a state of anxious expectation awaiting the call that never comes. Let me strongly recommend English tourists coming into France to enter by way of Havre and obtain the necessary *permis* there, for it can be secured with but very little delay. Only don't forget the two unmounted photographs, and don't forget to make written application on *papier timbré à 60 centimes*. If there is any difficulty or uncertainty as to what to do a visit to M. Tourand at his *garage*, 31, rue Dicquemare, would probably be productive of good results, for M. Tourand is always willing to help a *chauffeur* in distress.

At Périgueux and at Draguignan.

ALTHOUGH the weather for the Bordeaux-Périgueux-Bordeaux race was not remarkable for its fineness the competitors had no serious complaint to make, and it was those automobilists who were more particularly interested in the exhibition and gymkhana at Périgueux who were really unfortunate. The *concours d'élégance* was rained upon and so were all the other festivities. The winners of the beauty prizes were:—Cars which had competed in race: 1, Lafitte; 2, Maurel; 3, Valton. Non-competing cars: 1, Comte de Fayolles; 2, Schroder. Voitur-

ettes: 1, Legendre; 2, Briol; 3, Chrétien. Upon the conclusion of the meeting several of the southern *chauffeurs* went on to Draguignan, where there was decided, on the 4th instant, a race over 182 kilomètres of route. This event was organised by the Automobile Club Dracenois, and the course followed was from Draguignan to Aix and return. Despite the rain, which fell incessantly, fair times were recorded, the official return being as follows:—Motor-cycles: 1, Vitalis, 5 h. 4 min. 25 sec.; 2, Allègre, 6 h. 34 min. Cars, 1st series: 1, Gondoin, 7 h. 30 min. 15 sec.; 2nd series: 1, Stead, 5 h. 20 min. 37 sec.

Commercial Travelling on an Automobile.

THE advantages of the automobile for business purposes were strikingly demonstrated some short time ago by the arrival in Paris of the traveller of a certain German firm trading in fancy goods. This gentleman left Berlin at five o'clock in the afternoon of May 27, and, travelling by way of Magdeburg, Brunswick, Hanover, and Cologne, he reached Aix-le-Chapelle, where he stayed a couple of days. From Aix he proceeded to Liège, where his duties kept him employed for two days, and then he came on to Paris *via* Namur, Givet, and Rheims, the distance covered being 1,145 kilomètres. Entirely independent of the railway he was able to suit his own convenience, and lost no valuable time in waiting for overdue trains, with the natural result that the actual amount of work performed greatly exceeded that which on previous occasions he had been able to carry out in a similar length of time.

Criterion des Electriques.

ON Monday next, the 18th inst., the directors of the well-known paper, *Le Sport Universel Illustré*, will hold their second annual competition for electric vehicles, and, as last year, this *Critérium* will have two distinct features. First of all there will be a race over the following course:—Porte Maillot, Avenue de Neuilly, Quai de la Jatte, Le Pont Bineau, La Garenne-Charlebourg, Bezons, Houilles, Maisons-Lafitte, La Croix-de-Neuilles, Poissy, Triel, Meulan, Poissy, Saint-Germain, Le Pont du Pecq, Le Vésinet, Chatou, Rueil, Suresnes, Saint-Cloud, Chalets du Cycle, and then the competing cars will be required to drive round and round Longchamps until their electric power is entirely exhausted. Three categories are provided, these being:—

1. Cars weighing 1,200 kilogrammes and upwards.
2. Cars weighing from 800 to 1,200 kilogrammes.
3. Cars weighing less than 800 kilogrammes.

All types of electrically-propelled vehicles are thus catered for. The start will be effected at nine o'clock in the morning, and after the finish a banquet will be given at the Chalets du Cycle.

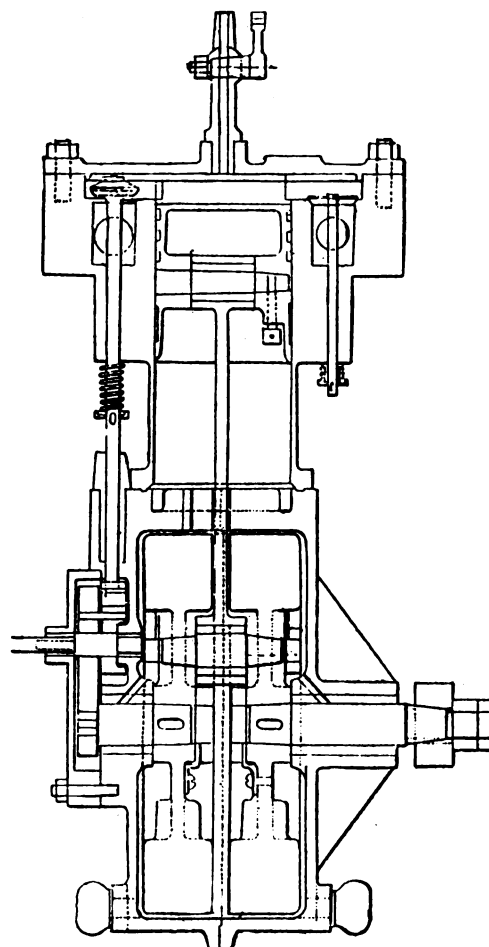
The Exhibition Competitions.

THE date originally selected for the cab competition was June 18th to June 23rd, but automobile events have suffered many changes and alterations this year, and the *Concours de Fiâcles* is no exception to the rule. It has been found necessary to defer the holding of this contest until August 6th, and the trials will extend over a period of six days, that is to say until August 11th. Entries must be made to M. Jeantaud, 51, Rue de Ponthieu, Paris, on or before August 1st. The fee is £4. From Monday next until Saturday the 23rd instant there will be held the motor-cycle trials, the awards being made upon the following basis:—1. The consumption of fuel or power; 2. The running of the motor; 3. The endurance of the machine. This event should give an opportunity to those manufacturing firms who do not construct racing machines, and who are consequently rather overlooked by the public. May it bring them good business!

THE *Globe* is among the London daily papers which have noticed the suggestion made in these columns for a five mile motor-racing track.

THE ROMAIN PETROLEUM-SPIRIT MOTOR.

THE Delaugère motor-tricycles, one of which is comprised in the automobile stud of Mr. Mark Mayhew, recently illustrated in these columns, is fitted with a motor known as the "Romain." The engine is made in several sizes, including one of 2 h.p. and one of 3 h.p. The sectional illustration given herewith shows the 2 h.p. motor. The cylinder is of the air-cooled type, radiating fins being also fitted to the exterior of the explosion and valve chambers. The cylinder has a bore of 82 mm., the stroke being 80 h.p. As will be seen, the piston rod



is connected to two crank discs, forming fly-wheels working inside an oil-containing case of partinium, the bearings being of manganophosphor-bronze. The valves are arranged one at each side of the cylinder; the inlet valve is made of one piece of steel, while the exhaust valve has a cast iron body and a steel stem. The normal speed of the motor is 1,300 revolutions per minute, but by means of the variable electrical ignition this can be varied between 400 and 1,700 revolutions.

UNDER the conduct of Mr. Whitney Lyon, the Automobile Club of America recently had a run, by invitation of the Turf and Field Club, to the races at Morris Park, New York.

OWING to the withdrawal of the support of the Bavarian Automobile Club, the Austrian Club has abandoned the projected Munich-Vienna race.

WHEN at Messrs. Friswell's Automobile Palace on Holborn Viaduct the other day we were shown a new type of "Argyle" voiturette. The car is fitted with a 2½-h.p. De Dion motor, having a water-cooled combustion chamber and a Clarkson-Capel cooling coil. The little vehicle is fitted with a variable gear giving three speeds forward and reverse motion, the transmission being similar to that adopted in the Renault cars.

THE GORDON-BENNETT CUP RACE.

(From our Own Correspondent.)

BY the time that these lines are in print the first Gordon-Bennett international cup race will have been run and won. Up to the last moment it was extremely uncertain whether the event could be brought off on the selected date, and for several reasons. First of all, the necessary authorisation was not received from the Minister of the Interior until Saturday morning, and although the Sports Committee of the Automobile Club had in the meantime been steadily completing the arrangements there were a hundred and one details which could not possibly be attended to until the official permission for the race was actually in the hands of the organisers. When one considers that the route had to be labelled from end to end to prevent any possibility of the competitors going astray; that the mayors of all the towns traversed *en route* had to be posted with the final details, and that the usual number of official red-tapeisms had to be complied with, it is obvious that the five days between the receipt of the authorisation and the date selected for the race did not allow of any too much time. But the Sports Committee buckled to its work and early in the week it was seen that the event could be decided. Then the Belgian team took exception on the ground that due notice had not been given to them, and on Monday afternoon I received a communication to the effect that it had been found necessary to postpone the *course*. On Tuesday afternoon a meeting of the delegates was held at the Club, those present being: Comte de Chasseloup-Laubat (France), M. Ruys Orban (Belgium), Mr. Dinsmore (United States), and Count Sierstorpf (Germany), with M. René de Knyff and Mr. Winton in attendance.

The opinion of Mr. Winton was entirely favourable to the race being run upon the originally selected date, and this it was eventually decided to do, the exact time and place selected for the start being three a.m. on the morning of the 14th instant, at the level crossing of Montretout on the Versailles road between Saint Cloud and Ville d'Avray. Whether under these circumstances the Belgian contingent will compete I cannot at the time of writing definitely say, but should they not do so the race will undoubtedly lose much of its interest, for to my mind they are the only competitors likely to really extend the French trio. The members of the Belgian team are MM. Caters, Jenatzy, and Lefebvre, and their mounts are 30-h.p. Bolide cars, which have already an excellent reputation for fast travelling. All the competitors have, I believe, gone over the route; indeed, a thorough knowledge of the road is absolutely essential. Mr. Winton, the American representative, made a careful examination of it from end to end, and his assistant, Mr. Collings, has run a couple of trips right through, in addition to an occasional drive or so over some particular portion. A great race may be anticipated, but I shall be astonished if any of the visitors succeed in wresting the cup from the keeping of the A.C.F. We shall see, however.

On Thursday morning we received a telegram (despatched at 8.14 a.m.) from our correspondent, who was then at Orleans, to say that five competitors had passed through the town, the order being as follows:—

1. Girardot.
2. Charron.
3. Knyff.
4. Jenatzy.
5. Winton.

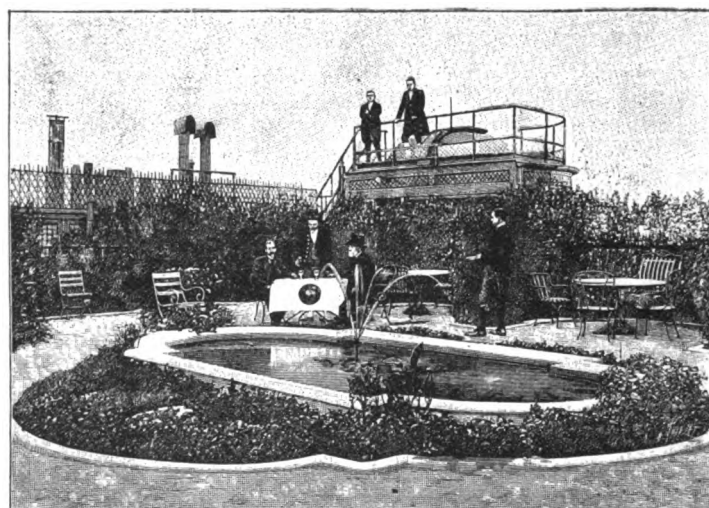
Just as we go to press we have received another telegram from our correspondent giving the result of the race. The winner is M. Charron, who arrived first at 12.23 p.m., having completed the journey at an average speed of sixty-two kilometres per hour.

MR. H. J. LAWSON has purchased the cycle factory in Coventry recently occupied by Starley Bros. Ltd. This is a good sized factory and eminently suited for motor work.

THE ENGLISH MOTOR-CAR CLUB.

AT a meeting held at the Holborn Viaduct Hotel on Wednesday inst., the 13th inst., a new motor-car club was formed for the whole of England, which will be known as the "English Motor-Car Club." Amongst the well-known motorists present at the meeting and who afterwards joined the new club were Messrs A. J. Wilson, F. F. Wellington, W. Munn, E. W. Hart, S. F. Edge, F. W. Baily, G. H. Smith, C. Jarrott, and several others. In addition, many of those present had names of gentlemen whom they knew would join immediately on the formation of the Club. To show the hopeful spirit prevailing, we might mention that several of the new members immediately paid the annual subscription for five years in advance, the annual subscription being for town members £1 1s. and for honorary members 10s. 6d. It will thus be seen that the club starts, not only with a membership, but also with funds in hand. The hon. secretary and treasurer is Mr. F. W. Baily, and a committee was elected, with power to add to its number as new members come forward.

Headquarters for the new club are being arranged at the Crystal Palace, but at the present, gentlemen or ladies who desire to join the new club should communicate with the hon. secretary, Mr. F. W. Baily, at his private address, 94, Oakfield Road, Auerley, S.E.



THE ROOF GARDEN AT THE FRENCH AUTOMOBILE CLUB IN PARIS.
(Cliché de) [La Nature.]

The new club starts immediately with an active programme. The first big event will be an open hill-climbing contest at Tilburstow Hill, near Godstone Green, in Surrey, on the first Saturday in July, starting at about four o'clock in the afternoon. This will be, we are informed, a completely novel competition, inasmuch that the scheme is being so arranged that results will be judged by the efficiency shown as relating to the price of the car and the weight in passengers it carries up the hill. The entrance fee for this event will be 10s. each for the cars, and for tricycles and quads, 5s. each. Intending competitors should communicate at once to the hon. secretary at the above address, as the time is short.

On the last Saturday in July there will be a control contest at the Crystal Palace. The leading feature of the new club will be club runs on Saturdays and week ends. It is thought that this will meet a long-felt want.

THE Automobile Club of America has now no fewer than 232 members, of whom 140 own motor-cars.

A LARGE building in Hope Crescent, Edinburgh, known as The Edinburgh Cycling Academy, has just been purchased by Mr. R. D. Leslie, advocate, for an Aberdeen client. It is to be used for the exhibition and trial of motor-cars.

THE AUTOMOBILE CLUB'S 1,000-MILE TRIAL.

TABLE A.—AVERAGE SPEED IN MILES PER HOUR OF THE VEHICLES ON THE VARIOUS DAYS ON THE ROUTE BETWEEN—

Official Number.	NAME.	London and Bristol .. 118½ miles.	Bristol and Cheltenham } 43 miles.	Cheltenham and Birmingham } 49½ miles.	Birmingham and Manchester } 101½ miles.	HILL—Taddington .. 2½ miles.	Manchester and Kendal } 73½ miles.	(a) 7½ miles.	(b) 1½ miles.	Kendal and Carlisle .. 61½ miles.	HILL—Dunmail Raie } 1½ miles.	Carlisle and Edinburgh } 100 miles.	HILL—Birkhill .. 2 miles.	Edinburgh and Newcastle-on-Tyne } 121½ miles.	Newcastle-on-Tyne and Leeds } 108 miles.	Leeds and Sheffield } 74 miles.	Sheffield and Lincoln } 46½ miles.	Lincoln and Nottingham } 80½ miles.	Nottingham and London } 122½ miles.	Average over the whole Distance.
<i>Class A.</i>	<i>SECTION I.—Cars at £200 or less.</i>																			
1	Benz Ideal	12	9½	12	12	5.39	12			11½	5.01	10	6.0	11	12	12	12	12	12	...
2	Benz Ideal	12	12	12	12	7.18	12	11.5	4.8	12	6.64	10	6.6	12	12	11½	12	12	11½	...
5	Locomobile Steam Carriage...	11½	9	9	12	9.76	12	6	6.04	12	9.79	10	10.9	9½	12	...	12	12	11½	...
16	Gladiator Voiturette	12	12	12	12	8.17	12			12	7.67	10	7.5	12	12	12	12	12	12	...
18	Endurance Car... ..					2f					2f		2f							
19	Orient Express... ..	12	12	12																
27	New Orleans Car	12	12	12	11½	6.30	12		4.42	12	6.22	10	7.7	11	11	10	12	12	12	...
28	New Orleans Car	12	12		7½	6.05	6		1		2f		2f			7½	12	12	11½	...
29	Eureka Car		8				12			11½	5.4						9½	12		...
30	Eureka Car		7																	
33	Décauville		11		10	6.70	12			12	5.13	10				9½	12	12		...
34	Décauville	12	12	12	11	6.30	12			12	6.84	10	8.6	12	12	12	12	12	12	...
42	3½ h.p. Voiturette					2f					2f		2f							
41	International Victoria	12	12	12	10	5.29	12			12	5.55	10		11	11	9½	12	12	12	...
44	International Victoria	12	12	12	12	6.17	12			12	6.04	10	4.1	12	11	10½	12	12	12	...
48	Humber Voiturette					2					2f		2							
51	Star Voiturette	12	12	12	12	9.15				11			8.	12	12	12	12	12	12	...
52	Roots and Venables	12	12		10½	5.80							2							
<i>Class B.</i>	<i>Cars between £200 and £300.</i>					2														
10	M. M. Co.'s Princess Car																			
11	M. M. Co.'s Princess Car																			
13	Ariel Panhard Voiturette																			
14	De Dion Voiturette	12	12	12			12	13.5	7.24	12	9.79	10	10.9		12	12	12	12	11½	...
15	De Dion Voiturette	12	12	12	12	10.08	12	14.5	7.58	12		10	8.0	12	12	12	12	12	12	...
24	Marshall Carriage	7½	9			2	11½	2	4.42	10½		9½	2f	9	9	5½	8½	12		...
31	M.C.C. Triumph	12	12	12	12	9.45				12	9.33	10	9.6	12	12	11	12	12	12	...
32	M.C.C. Triumph	12	12	12	10	7.56	9½			12	7.33	9	2		11	8½	11½	12	12	...
40	Wolseley Voiturette	12	12	12	12	10.08	12	13.0	6.37	12	7.9	10	8.6	12	12	12	10½	12	12	...
53	Wolseley Carriage					2		2	2		2		2							
45	S. S. Carriage	12	12	8½							7.33									
49	Marshall Carriage	7½	9½	11	11	4.94	12	10.5	4.54	12	6.04	10	6.3	11	11½	5½	12	12	12	...
<i>Class C.</i>	<i>Cars between £300 and £500.</i>					2		2	2		2		2							
8	M. M. Co.'s 6 h.p. Phaeton	12	11	10	10	5.29	12	10.5	5.14	12	5.86	10	6.5	11	12	10	12	12	12	...
9	M. M. Co.'s Iveagh Phaeton	12	12	12	12	5.49	12	10.5	4.42	12	5.13	10	6.3	12	12	12	12	12	12	...
23	Brown-Whitney Steam Car... ..	11	6½		10	4.56		3	3	12	7.67	10	8.9				8			...
25	Déchamps Car					3					3f		3f							
26	8 h.p. Peugeot	12	9	12	12	9.45	12			12	9.79	10	10.9	12	12	12	12	12	12	...
35	6 h.p. Daimler	12	12	12	12	6.30	12	13.5	6.37	12	7.9	10	6.8	12	12	12	12	12	12	...
36	6 h.p. Daimler	12	12	12	10	6.55	12	13.5	4.42	12	6.64	10	6.6	11½	12	12	12	12	12	...
37	Daimler Parisian	12	12	12	10	9.15	12	2	16	12	8.92	10	8.0	10	12	12	12	12	12	...
43	L. M. V. and Wagon Co.'s Phaeton, 5½ h.p.	12				3		2			4		4							
46	Richard Car	12	12	12	6½		12			12	7.67	10	7.5	12	10	9½	12	12	12	...
47	Richard Car	12	12	12	11½	6.43	12			12	5.86	10	5.0	12	12	12	12	12	12	...

* See note in Hill Climbing Competitions, Table B. The small figures under the hill-climbing records indicate the number of passengers.

THE AUTOMOBILE CLUB'S 1000-MILE TRIAL—TABLE A.—Continued.

Official Number.	NAME.	London and Bristol ... 118½ miles.	Bristol and Cheltenham ... 43 miles.	Cheltenham and Birmingham ... 40½ miles.	Birmingham and Manchester ... 101½ miles.	Hill—Taddington ... 2½ miles.	Manchester and Kendal ... 73½ miles.	Optional.	(a) 71 miles.	(b) 11 miles.	Kendal and Carlisle ... 61½ miles.	Hill—Dunmail Raise ... 11 miles.	Carlisle and Edinburgh ... 100 miles.	Hill—Birkhill ... 2 miles.	Edinburgh and Newcastle-on-Tyne ... 121½ miles.	Newcastle-on-Tyne and Leeds ... 103 miles.	Leeds and Sheffield ... 74 miles.	Sheffield and Lincoln ... 46½ miles.	Lincoln and Nottingham ... 85½ miles.	Nottingham and London ... 123½ miles.	Average over the whole Distance.
Class D. SECTION I.—contd.—Cars declared at a selling price of more than £500.																					
7	M. M. Co.'s 12 h.p. Phaeton ...																				
17	16 h.p. Napier ...																				
21	Lanchester Carriage ...																				
22	Lanchester Carriage ...	12	12	12	12	8.62	12	11.5	4.98	12	6.84	10	7.7	12	12		12	12			
Cl. E. (a)	Motor-tricycles, carrying one person only.					2		2	2		2		2								
12	Motor Manufacturing Co.'s Tricycle	12	9				12				12	7.9	10	12.6	12	10½	11	12	12		
20	Simms' Motor-wheel ...	12	12	12		9.45	12														
						1															
50	Renaux Tricycle																				
39	Motor-tricycle, carrying two persons.																				
	Century Tandem ...		12	12	12		12				12	2.10	10	10.9	12	12	11	7	12	12	
												2f		2f							
Class E (b) Motor Quadricycles, carrying two persons.																					
3	Ariel Quadricycle ...	12	12	12	12	15.13	12	20.5	6.12	12	11.41	10	13.3	12	12	12	12	12	12	12	
						2		2	2		2f		2f								
4	Ariel Tricycle with Whippet attachment	12	12	12	12	14.4	12	20.2	6.64	12	8.22	10	12.6	12	12	12	12	12	12	12	
						2		2	2f		2f		2f								
Class F Public Service Vehicles.																					
6	M. M. Co.'s Balmoral Char-a-banc																				
38	Daimler Public Service Vehicle ...	9	5½	7	6½		12				8½					11	8	12	12	8	
Class A SECTION II.—Cars declared at a selling price of £200 or less.																					
A25	Benz Ideal (Mrs. Bazalgette) ...	11½	7½	10½	10½	6.70	12				8	4.65	10		8½	8½	9	12	12	12	
						2						2									
Class B. Cars declared at a selling price of more than £200, but not more than £300.																					
A24	Mors Voiturette (Mr. Phillips) ...	12	12	12	12	8.39	12				12	7.67	10	7.5	12	12	11½	12	12	12	
						2						2		2							
Class C. Cars declared at a selling price of more than £300, but not more than £500.																					
A2	6 h.p. Panhard (Mr. Butler) ...	12	12	12	11	5.69	12	10.5	4.8	12	6.22	10	5.7	11	12	11	12	12	12	12	
						3f		3f	3f		3		3f								
A3	6 h.p. Panhard (Mr. T. B. Browne)	12	12	12	12	8.17	12	13	5.68	12	7.9	10	8.6	12	12	12	12	12	12	12	
						3		2	2				3								
A7	6 h.p. Daimler (Mr. A. Harmsworth)	12	12	12	12		12			12	4.66	10	6.6	12	12	12	5	12	12		
											2		2f								
A9	8 h.p. Napier (Mr. Harvey du Cros)																				
A10	8 h.p. Napier (Mr. E. Kennard) ...	12	12	12	12	13.74	12	19		12	13.69	10	11.5	12	12	12	12	12	12	12	
						3		2			3		3								
A12	6 h.p. Daimler (Mr. H. Edmunds)...	12	11½	11½	12	6.43	12			5	7.08	9½	10	11½	9½	12	12	12	12	12	
						2					1		2								
A21	6 h.p. Daimler (Mr. E. Pitman) ...	12	12	12	12		12	11	4.42	12	6.22	10	4.8	12	12	12	9½	12	12	12	
								2	2		2		2								
A23	6½ h.p. Motor Manufacturing Co.'s Phaeton (Mr. C. Cordingley)		6½	12	12	6.3						10			12		12	12	12	12	
						2															
A26	6 h.p. Daimler (Mr. C. K. Gregson)	12	12	12	12	5.80	12			12	6.84	10	4.1	11	12	10	12	12	12	12	
						3					3		3f								
A30	6 h.p. Daimler (Mr. J. D. Siddeley)	12	12	12	12	8.39	12	13	4.82	8½	8.92	10	7.7	12	12	12	12	12	12	12	
						2					2		2								
A31	6 h.p. Daimler (Mr. W. Exe) ...	12	12	12	12	8.17	12	11.5	5.68	12	7.9	10	8.2	12	9½	12	12	12	12	12	
						3		3	2		4		4								
Class D. Cars declared at a selling price of more than £500.																					
A4	8 h.p. Panhard (Mr. Mark Mayhew)	12	12	12	11	10.08	12	12	5.48							12	12	12	12	12	
						1		1	1												
A11	12 h.p. Daimler (Hon. J. S. Montagu, M.P.)	12	12	12	12	11.19	12			12	5.26	10	10.4	12	12	12	12	12	12	12	
						3					3f		2								
A17	12 h.p. Panhard (Hon. C. S. Rolls)...	12	12	12	12	17.77	12	27.5	17.71	12	20.54	10	16.	12	12	12	12	12	12	12	
						2		2	2		4		4								
A22	12 h.p. Daimler (Mr. J. A. Holder)...	12	12	12	12	14.40			7.24	12	10.27	10	10.9	12	12	12	12	12	12	12	
						4			4		4		4								
A29	7 h.p. Peugeot (Mr. Mark Mayhew)	12	12		12	7.74	12	15.5	7.97	12	9.79	10	10.0	12	12	12				12	
						2		2	2		2		2								
Cl. E (a) Motor Tricycles.																					
A16	Ariel Tricycle (Mr. A. J. Wilson) ...	12	12	12	12	18.91	12	18.5		12	5.13		6.8								
A20	Empress Motor Tricycle (Mr. H. Ashby)	12	12	12			12	20	15.94	7	17.06	10		12	12	12	12	12	12	12	
Cl. E (b) Motor Quadricycles.																					
A28	Enfield Quadricycle (Mr. E. M. Iliffe)	12	12	12	11½	9.15	12			12	9.33	10	12.0	11	11	11½		12	12	12	
						28					2f		1								

* See note in Hill Climbing Competitions Table B. The small figures under the hill climbing records indicate the number of passengers.
NOTE.—The figures are subject to amendment after further examination of records.

THE AUTOMOBILE CLUB 1,000-MILE TRIAL, APRIL 23rd to MAY 12th, 1900.

TABLE B.—HILL-CLIMBING COMPETITIONS.

No. of vehicle.	Description.	Class.	Horse-power.	Weight		Taddington.		Shap Fell No. 1 (optional.)		Shap Fell No. 2 (Optional.)		Dunmail Raise.		Birkhill.			
				cwt.	qrs.	Miles per hour.	No. of pass.	Miles per hour.	No. of pass.	Miles per hour.	No. of pass.	Miles per hour.	No. of pass.	Remarks as to passengers, etc.	Miles per hour.	No. of pass.	Remarks as to passengers, etc.
1	Benz Ideal...	A	3	10	3	5.39	2	11.5	2	4.8	2	5.01	2		6	2	Both out tempo.
2	Benz Ideal...	A	3	10	2	7.18	2*	6	2	6.64	2	6.64	2		6.6	2	Both out tempo.
5	Locomobile Steam Carriage	A	2	6	3	9.76	2					9.79	2		10.9	2	
16	Gladiator Voiturette	A	3½	5	2	8.17	2					7.67	2	One out tempo.	7.5	2	One out all the
27	New Orleans Car...	A	3	6	0	6.3	2			4.42	1	6.22	2	Both alighted [tempo.]	7.7	2	time and the [other tempo.]
28	New Orleans Car...	A	3			6.05	2					4.74	1			2	One pass. out for
33	Décauville...	A	3½	6	1	6.7	2					5.13	1			2	[a time.]
34	Décauville...	A	3½	6	0	6.3	2*					6.84	2	One out tempo.	8.6	2	One pass. out for
41	International Victoria	A	3			5.29	2					5.55	2	One out tempo.			[a time.]
44	International Victoria	A	3			6.17	2					6.04	2	One off tempo.	4.1	2	
51	Star Voiturette	A	3½			9.15	2						2	Both alighted.	8.0	2	
52	Roots and Venables	A	2½			5.8	2										
14	De Dion Voiturette	B	3					13.5		7.24		9.79			10.9	2	
15	De Dion Voiturette	B	3	7	0	10.8	2	14.5	2	7.58					8.2	2	One alighted near
24	Marshall Carriage	B	5	12	3			11.5	2	4.42	2						commen cement
31	M.C.C. Triumph...	B	3½	6	2	9.45	1					9.33	1		9.6	2	to adjust con-
32	M.C.C. Triumph...	B	3½			7.56						7.33	2				tact breaker.
40	Wolseley Voiturette	B	3	13	0	10.08	2	13	2	6.37	2	7.9	2		8.6	2	
49	Marshall Carriage	B	5	12	1	4.94	2	10.5	2	4.54	2	6.04	2		6.3	2	
8	M.M. Co.'s 6 h.p. Phaeton	C	6	21	3	5.29	3	10.5	3	5.14	3	5.86	3		6.5	3	
9	M.M. Co.'s Iveagh Phaeton	C	6	20	3	5.49	4	10.5	3	4.42	3	5.13	4		6.3	3	One pass. walk-
23	Brown-Whitney Steam Car	C				4.56	3					7.67	3	Two alighted	8.9	3	ing steep port'n.
26	8 h.p. Peugeot	C	8	17	0	9.45	2					9.79	2	[tempo.]	10.9	2	One out tempo.
35	6 h.p. Daimler	C	6	19	0	6.3	2	13.5	2			7.9	2		6.8	2	A third pass.
36	6 h.p. Daimler	C	6	21	0	6.55	4	13.5	2	6.37	2	6.64	4	One alighted	6.6	3	walked all the
37	Daimler Parisian...	C	6	19	1	9.15	3	16	2	4.42	2	8.92	4	[for 20 yds.]	8.0	4	[way up.]
46	Richard Car	C	7	16	0							7.67	4		7.5	4	One pass. walked
47	Richard Car	C	7	16	0	6.43	4					5.86	4	Passengers	5	3	All out tempo.
22	Lanchester Carriage	D	8			8.62	2	11.5	2	4.98	2	6.84	2	alighted tempo.	7.7	2	
20	Simms's Motor Wheel	E(a)	2½			9.45	1										
39	Century Tandem...	E(b)	2½									2.1	2	No pedals, both	10.9	2	No pedals, both
3	Ariel Quadricycle	E(b)	3½	4	0	15.13	2†		2	6.12	2**	11.41	2	w'lked last part	13.3	2	[off at finish.]
4	Ariel Tricycle, with Whippetattachm't	E(b)	2½	3	0	14.40	2	20.5	2	6.64	2***	8.22	2	Both walked	12.6	2	Pass. alighted for
A25	Benz Ideal (Mrs. Buzalgette)	A	3	10	0	6.7	2					4.66	2	[for 50 yds.]			about 20 yds.
A24	Mors Voiturette (Mr. Phillips)	B	4	11	0	8.39	2					7.67	2	Had to dis-	7.5	2	Had to dismount
A2	6 h.p. Panhard (Mr. Butler)	C	6	19	0	5.69	3†	10.5	3†	4.8	3†	6.22	3	[mount.]	5.7	3	[and push.]
A3	6 h.p. Panhard (Mr. T. B. Browne)	C	6	17	0	8.17	3	13	2	5.68	2	7.9	3	Had to dis-	8.6	3	
A7	6 h.p. Daimler (Mr. A. Harnsworth)	C	6									4.66	2	[mount.]	6.6	2	One out tempo.
A10	8 h.p. Napier (Mr. E. Kennard)	C	8	22	1	13.74	3	19	2			13.69	3		11.5	3	
A12	6 h.p. Daimler (Mr. H. Edmunds)	C	6			6.43	2					7.08	1				
A21	6 h.p. Daimler (Mr. E. Pitman)	C	6					11	2	4.42	2	6.22	2		4.8	2	
A23	6½ h.p. M. M. Co.'s Phaeton (Mr. Cordingley)	C	6½			6.3	2										Both had to push.
A26	6 h.p. Daimler (Mr. C. K. Gregson)	C	6	22	0	5.8	3					6.84	3		4.1	3	One walking.
A30	6 h.p. Daimler (Mr. J. D. Siddeley)	C	6	18	0	8.39	2	13		4.82		8.92	2		7	2	Dropped off for
A31	6 h.p. Daimler (Mr. W. Exe)	C	6	19	2	8.17	3	11.5	3	5.68	2	7.9	4		8.2	4	two yds to look
A4	8 h.p. Panhard (Mr. Mark Mayhew)	D	8			10.08	1	12	1	5.48	1		4	All had to			[at pump.]
A11	12 h.p. Daimler (Hon. J. S. Montagu, M.P.)	D	12			11.19	3					5.26	3	Two passen-	10.4	2	
A17	12 h.p. Panhard (Hon. C. S. Rolls)	D	12	22	1	17.77	4	27.5	2	17.71	2	20.54	4	[alight	16	4	
A22	12 h.p. Daimier (Mr. J. A. Holder)	D	12	25	1	14.4	4		4	7.24	4	10.27	4	gers walking.	10.9	4	
A29	7 h.p. Peugeot (Mr. Mark Mayhew)	D	7			7.74	2	15.5	2	7.97	2	9.79	2		10	2	
A16	Ariel Tricycle (Mr. A. J. Wilson)	E(a)	2½			18.91	1	18.5	1			5.13	1		6.8	1	Had to push up.
A20	Empress Tricycle (Mr. H. Ashby)	E(a)	2½					20	1	15.94	1	17.06	1				
A28	Enfield Quadricycle (Mr. E. M. Iliffe)	E(b)	2½			9.15	2†					9.33	2	Dropped pass.	12	1	Pass. off, driver
														onsteepportion			[pedalling.]

* One out temporarily. † Assisted with pedals. ‡ Had to dismount. § Passenger alighted for 100 yards. ** Passenger alighted and driver pedalled over last portion. *** Both alighted and pushed at finish.

CALCULATION OF AVERAGES.—In calculating the average speeds, no speeds in excess of the legal limits are recorded, and it is assumed that a vehicle is capable of travelling over the controlled portions of the road at the same speed that it makes on the uncontrolled portion. For instance, if a car covers 44 miles in four hours, of which eight miles have been through control districts at 8 m.p.h., the average speed over the whole distance will be calculated as 12 m.p.h. The averages do not include time occupied by compulsory stops for meals, but every other stop for repairs, replenishing oil, or for any other cause whatever is included in running time.

SPEED TRIALS.—By permission of the Duke of Portland, a trial of speed was allowed on one of the private roads at Welbeck, on Friday, May 11th. The times were taken over one mile of slight ascent and one mile of slight descent, and the average time occupied per mile were as follows:—Hon. C. S. Rolls' 12 h.p. Panhard, 1min. 35½sec.=37.63 m.p.h.; Mr. Kennard's Napier, 2min. 1½sec.=29.30 m.p.h.; Mr. Mark Mayhew's 8 h.p. Panhard, 2min. 1½sec.=29.60 m.p.h.; Ariel Tricycle with Whippet Trailer, 2min. 2½sec.=29.45 m.p.h.; Mr. Holder's 12 h.p. Daimler, 2min. 17½sec.=26.23 m.p.h.; Hon. John Scott Montagu's 12 h.p. Daimler, 2min. 18sec.=26.08 m.p.h.; Century Tandem, 2min. 29½sec.=24.09 m.p.h.; Gladiator Voiturette, 2min. 35sec.=23.16 m.p.h.; Mr. W. Exe's 6 h.p. Daimler, 2min. 36sec.=23.07 m.p.h.; Wolseley Voiturette, 2min. 37½sec.=22.81 m.p.h.; De Dion Voiturette, 2min. 44sec.=21.70 m.p.h.; Mr. Browne's 6 h.p. Panhard, 2min. 49½sec.=21.27 m.p.h.; Mr. Butler's 6 h.p. Panhard, 2min. 49½sec.=21.27 m.p.h.; De Dion Voiturette, 3min. 5sec.=19.45 m.p.h.

THE DAIMLER MOTOR COMPANY'S CATALOGUE.

THE new catalogue issued by the Daimler Motor Company, Limited, is an excellent one in every way: the printing is good, the letterpress capital, the arrangement clear, and the information accurate and reliable. When the next edition is issued it should be provided with an index, and then something approaching perfection can be inscribed on its cover.

One of the first and most important sections of the work is devoted to a description of the Daimler motor recently fully explained in our columns, and then follow readable chapters on pressure and gravity feed motors and the Daimler frame and transmission gear, both being illustrated in a very clear style. The list of awards and medals obtained by the Daimler Company extends to three or four pages, and a brief selection is also made from the many splendid testimonials which have been given the company's vehicles. Specifications of the frames, a price list of parts, and similar particulars useful to every intending motorist or actual automobilist, complete the first part of a catalogue the publication of which evidences considerable enterprise and should lead to extended business.

Nearly twenty pages are filled with matters of general interest to all concerned with motor-vehicles, and, apart from the nature of the first portion of the book, will give it a permanent value, including as they do legal information, the carriage and storage of petrol, railway regulations, clubs and associations in connection with the automobile movement, lighting up and speed tables, and other useful memoranda. Altogether the catalogue is worthy of the position attained by the Daimler Co. in the British automobile industry--and that is saying a great deal.

FURIOUS DRIVING CASE.

AT Eastbourne Borough Bench, before Mr. A. Mayhew and other Magistrates, Herbert Miller, of 11, Willowfield Road, and Arthur Allday, of 30, Beltring Road, licensed motor-car drivers, were summoned for furiously driving motor-cars on June 5th. Mr. H. West Fovargue (Town Clerk) prosecuted, and Mr. Lawson Lewis defended.

Detective-Sergeant Ransom stated that he was in Seaside Road at eleven a.m. on the day mentioned, and he saw defendants driving two motor-cars in the direction of Seaside. Allday was in front, on the right side of the road, and Miller, who was behind, on the wrong side, was apparently trying to pass the other car. In his opinion they were racing, and going about twelve miles an hour. He did not try to stop them, as they were going too fast. When they returned, he did not charge them with driving at a faster rate than five miles an hour; he simply told them that they were driving furiously and to the danger of the public.

P.C. Laurence, George Ridley, a cabman, and Joseph Whatford, another cabman, gave similar evidence.

Allday said he was a certified motor-car driver, and he had eight passengers upon the occasion mentioned. They were going from six to seven and a half miles an hour. He could swear positively as to the speed, because there was an indicator on the car, and the extreme pace at which he travelled was seven and a half miles. There was very little traffic in the road, and he could pull up his car in three yards. Miller was not trying to pass him, as he had orders from Mr. Jury to follow him all the way to Perensay. He increased the speed from six to seven miles opposite the Pier Hotel, because he had been in the habit of driving at that rate, and had never before been stopped.

Miller gave similar evidence, and William John Endersby, of 53, Seaside Road, gave corroborative evidence, mentioning that he was an engineer, and was competent to judge the pace of a motor-car. In answer to the chairman, he said it would not be dangerous to drive motor-cars in the town at the rate of nine miles an hour, as they could be pulled up in a yard. Mr. Lawson Lewis, in addressing the Bench for the defence, said that Mr. Jury, the owner of the cars, was anxious to conform with any reasonable regulations made by the Watch Committee, and had instructed the drivers to use every care and precaution. He also contended that the complaint was made that the men were driving over the rate of five miles an hour—a regulation which the Watch Committee proposed. He contended that that would be a most unreasonable regulation for the borough of Eastbourne, and there was not even such a regulation in the City of London, where they could every day see motor-cars going at seven and eight and even nine miles an hour.

After consultation the chairman said the public appreciated motor-cars, and the Bench had no desire to put unreasonable restrictions on them, but they had every desire to see that they were run with absolute safety to the public. Putting the speed at the lowest rate mentioned, the magistrates considered that they ought to convict. They usually dealt severely with cases of furious driving, but the magistrates did not

consider that it was an aggravated case, and they would only impose a fine of £2 each and costs, and allow defendants a month to pay the money.

A NON-DELIVERY ACTION SETTLED.

IN the Court of Session on the 9th inst., Lord Stormonth Darling was informed of a settlement in the action by Mr. Thomas Walker against the Madelvic Motor-Carriage Company, Ltd., Edinburgh, concluding for payment of £50 and £300. The pursuer, who is a master baker, ordered an electric brake from the defenders, the price agreed upon being £400, and he stated that though £50 had been paid the vehicle had not been delivered. The action has been settled by the pursuer accepting an offer of the liquidators of the Madelvic Company to rank him for £200, with expenses in the liquidation.

ACTIONS OVER MOTOR-TRICYCLES.

At Coventry County Court, on Tuesday, the receiver of the Beeston Motor Company, Limited, sued Messrs. Clarke and Company, of Doncaster, for £60 ls. 6d., the price of a motor-tricycle. A counter-claim was set up, and £35 indebtedness was admitted. An agreement was come to by which the Beeston Company got a verdict for £25 in addition to the £35, and the defendants were allowed a set-off of £10 10s., costs according to rule.

At Epsom County Court on Friday, the 8th inst., before his Honour Judge Lushington, Q.C., Clifford Potier, motor agent, Sutton, sued W. J. Gibbons, motor agent, Belmont, for damages for non-delivery of a motor-tricycle. Plaintiff stated that he gave the order for a tricycle on March 3rd, subject to its being delivered in ten days at the latest. He had, however, not received it yet. With a view to advertising the cycle he had prepared a catalogue, and placed a view of the one in question on the front page. He had a stand at the Motor Car Exhibition in April, and in consequence of the non-delivery of the machine there was a vacant space. He agreed to pay £45 for the machine, and paid a deposit of £15. Defendant said he had not delivered the machine in consequence of the difficulty in getting it from a firm in France. It was now being enamelled in London. His Honour gave judgment for the plaintiff for £10, in addition to the £15 deposit.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

Vol. II.]

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COMMENTS.



ALTHOUGH the progress with the adoption of motor-vehicles in England is not so rapid as many interested in the movement would wish, yet the number of cars to be seen running about in the public streets of our large cities is slowly but surely increasing, and hardly a trip can be taken in the country without meeting one or more automobiles. It would have been an instructive lesson to many who are continually asking "Where are

the motors?" to have been with us in Regent Street the other morning, when no less than six horseless vehicles ran by in as many minutes. The first that attracted our attention was a De Dion voiturette, after which Sir David Salomons came along on his Peugeot car. The next one was an electric dog-cart, and then Mr. Still appeared on his Canadian three-wheel electrical voiturette, which figured at the recent exhibition at the Agricultural Hall. Number five was one of the large petroleum-spirit motor-omnibuses which are now running from Kennington to Oxford Circus, while Messrs. W. H. Smith and Son's Lifu steam van made up the half-dozen. Yes, the motor-car is becoming a more and more familiar sight.

1,000-Mile Trial Protests.

THE club committee of the Automobile Club, in regard to protests made in connection with two vehicles run in the 1,000-Mile trial, have arrived at the following decisions:—The first was a protest made against "A 10," the 8 h.p. Napier entered by Mr. Edward Kennard in the Private Owners' Section. The ground for the protest was that the car was driven by a gentleman financially interested in its manufacture—Mr. S. F. Edge—and that although this might not be against the letter of the definition of the "Private Owners' Section," it was certainly against the spirit of it. The committee decided that as the protest was not lodged within the time specified in the rules, the matter could not be entered into, but they considered that the intention of the committee was that the rules should not allow manufacturers to drive in the Private Owners' Class, and that, in future competitions, the rules should be altered to make this clear. The second protest was against the tricycle entered by the Motor Manufacturing Company, on the ground that the tricycle which was running at the finish of the 1,000-Mile Trial was not the tricycle which started at the commencement of the Trial. The Motor Manufacturing Company had reported, during the earlier half of the Trial, that in consequence of damage having occurred to the framework of the machine they had substituted a new frame and wheels, and they subsequently reported that, owing to an accident to the motor, a new motor had been substituted prior to the last day of the Trial. As a result of the protest the Motor Manufacturing Company have withdrawn the tricycle from the competition.

Motor Meet in Ireland.

KILLALOE was much before the public a few years ago in connection with a popular song, but, of late years, it has fallen into obscurity. The fact that the first organised motor meet in Ireland is to be held there on July 14th should do something to revive its publicity. Already we believe the owners of a dozen motor-cars have promised to participate in the event, a start being made from College Green, Dublin. The route to be taken is as follows: Inchicore, Rathcoole, Kill, Nass, Newbridge, Kildare, Monasterevan, Ballybrittas, New Inn, Maryborough, Mountrath, Castletown, Borris-in-Ossory, Roscrea, Dunkerrin, Moneygall, Toomyvard, Nenagh, Killaloe, the distance being about 110 miles. The run is being organised by the Shannon Development Company, and will, we hope, be a great success. In connection with this it will interest owners of motor-cars on this side of the Irish Sea to know that the rate charged for conveying motor-vehicles between Holyhead and Dublin by the London and North Western Railway service is 33s. 3d. for the first ton, and 10s. 5d. per quarter ton afterwards. The motor-vehicles have to be at the dock at Holyhead not later than 5.30 p.m. for shipment by the boat which leaves there at 6 p.m. They are "slung" on board, and are stowed on deck and covered with waterproof sheets.

A Procession in the West End.

NEARLY every Metropolitan suburb has had its carnival and procession in connection with one or other of the War Funds, and now it is announced that Thursday, July 12th, the Badge Committee of the National Bazaar, which was opened by H.R.H. the Princess of Wales at the Royal Palace Hotel last month, will hold a carnival and pageant procession which will pass through the West End and City. The committee of the National Bazaar have expressed the hope that members of the Automobile Club who own motor-vehicles will take part in the procession. As this is likely to be a very important affair, and the route will be through the City as well as the West End, it should provide a good opportunity of bringing the automobile prominently before the public, and this, as well as the meritorious object of the procession, should influence members to join in the parade. In order that Mr. Johnson may have an idea of the strength of the automobile contingent, those willing to enter their cars should send their names and a description of their vehicles to the Secretary of the Club as early as possible.

A Demonstration for Mechanical Engineers.

THE discussion on the paper on "Road Locomotion," which was recently read by Professor Hele-Shaw before the Institution of Mechanical Engineers, is to be resumed on the 27th inst., in connection with the annual summer meeting of the institution. At the suggestion of Professor Hele-Shaw the committee of the Automobile Club is inviting owners of motor vehicles, and especially owners and manufacturers of motor vehicles designed for heavy loads, to take part in a display of automobiles in St. James's Park at 12.30 p.m., on Wednesday next. Owners

and manufacturers who may be willing to show vehicles on this occasion are requested to communicate without delay with the secretary of the Automobile Club.

The Prince's Car.

CONSIDERABLE interest seems to have been taken in the full account we were able to give last week with regard to the new car of the Prince of Wales, and already some curious errors have crept into the press. Thus the *Electrician* said the car was built in this country "but with French-made under-frame and wheels." Where that information was obtained we know not; but it certainly is inaccurate, as every part was made in England—a fact which we have already emphasised. Another paragraph appearing in a London evening journal and copied into several provincial papers stated that the Prince "had an experienced driver from the Royal Mews" in attendance on his motor-car, a statement that may have had its origin in the fact that a groom was sent from Windsor to Ascot to show the way to the mechanic on the car; but had almost at the outset to give up the pilotage and return to the royal borough alone.

Motor-Cycle Race Meeting.

As announced in our last issue, a motor-cycle race meeting is (subject to there being sufficient entries) to be held at the Crystal Palace on Saturday, the 30th inst., under the auspices of the Automobile Club. The following is the programme which it is contemplated to carry through:—At 3.0 p.m., the *Autocar* challenge cup one-hour scratch race, for motor-cycles; open to all classes and all comers. At 4.15 p.m., the *Motor-Car Journal* challenge cup five-miles race for touring motor-cycles. At 4.50 p.m., the *Automotor* challenge cup ten-miles handicap, for motor-cycles; open to all classes and any machine. At 5.45 p.m., three-miles handicap, for motor-cycles, for members of the club only, for Mr. Campbell Muir's silver cup. Medals will also be presented by the Club to the first and second in each of the four races. No meeting will be held unless a total of at least ten separate entries is made not later than Saturday, the 23rd inst. The entrance fee for each race is 2s. 6d. It should be noted that it will be necessary for competitors to register themselves and their vehicles with the A.C.G.B.I., under whose rules the competitions are to be held. Among those who have already registered and notified their intention to race are: Messrs. S. F. Edge, Chas. Jarrott, Frank Wellington, and S. J. Cusins. The handicapping will be undertaken by the Competitions Committee of the Club.

Another Long Non-stop Run in Contemplation.

run of 500 miles. No definite date or route has as yet been fixed for the experiment, but we understand that the start will be made from Edinburgh.

The Bournemouth Motor-Buses.

SOME time ago we referred to the peculiar action of the Horse Committee of the Bournemouth Corporation in attempting to make the local motor-omnibuses go along a road where the traffic was not sufficient to pay a profit to the proprietor. Now the Council has endorsed the action of the Committee, and has threatened to revoke the licences unless the cars run the whole of the distance decreed by the Committee. This, it seems to us, is carrying the prejudice against motor-cars rather too far. Some authorities have refused licences altogether; others are apparently endeavouring to impose conditions that are irksome and unnecessary.

An Adventure in France.

MR. H. G. HARRIS, of Calne, went to Paris recently and bought a motor-car. It was sent to Boulogne with the intention of being conveyed to Folkestone by steamer. Having a few hours to spare at the French resort, he decided to have a spin along the road skirting the shore. Accompanied by a friend, he went along gaily until they lost control of the car, which sent them into the roadway, and Mr. Harris had his shoulder dislocated. The car was returned to Paris for repairs. Mr. Harris had better have bought his car on this side of the Channel.

Tours.

WHEN shall we have motor-vehicle tours on such lines as those mentioned last week as being run from Paris? British railway companies are becoming enterprising so far as railway trips in combination with coaches and river launches are concerned, and a week's coaching tour from London to Stratford-on-Avon is now announced. Public motor-vehicle services are doing well in many places, and popular prejudice is steadily disappearing. Hence our reiteration of the suggestion that there is a good opening for motor-car tours to be conducted on a commercial basis.

In the Eastern Suburbs.

EPPING FOREST and the district round about is a strange land to motorists generally, and yet there are many miles of beautiful roads and delightful scenery in the ancient woodlands. Unfortunately the roads to the Forest are not of the best, and to approach it from the Snarbrook direction means four or five miles of the worst travelling in the Metropolis along the Mile End and Bow Roads onwards to Forest Gate, where turning into the Woodgrange Road the motorist will come upon the best cycling road in the eastern suburbs, and then the way to the Forest is easy and pleasant. Motor-cars are scarce at present in the locality, and even at the great Woodford cycle meeting on Saturday they were few in number. There are a few residents of Forest Gate owning motor-tricycles, and one has a quadricycle; while at least a couple of the local doctors were at the last Agricultural Hall exhibition on the look-out for vehicles—evidently neither has yet been satisfied as to his requirements being met. While mentioning this, we ought not to omit a reference to a little book on the history of the neighbourhood just published by Mr. Thomas Burleigh. It is written by Mr. A. P. Crouch, and its perusal should materially add to the interest of the motorist taking a trip in the region between the Forest and the Thames—once the haunt of Dick Turpin, and other notable persons, now a series of interminable rows of houses with only a few green lanes between. But it is one of the ways into some very pleasant, though flat, country in Essex—and as such can be tolerated.

The Motor Vehicle Users' Defence Association.

A MEETING of the committee of this Association was held on the 8th inst., and amongst those present were:—Major Holden, R.A., in the chair, and Messrs. T. W. Staple, Firth, S. F. Edge, R. E. Phillips, C. Cordingley, C. Johnson, J. J. Mann, and F. F. Wellington. Mr. G. R. Helmore mentioned that there had been a large accession of members to the Association, and that several cases had been reported by members and satisfactorily dealt with. A considerable amount of general business was done, and a vote of thanks to Major Holden concluded the meeting.

Automobiles as Household Effects.

A RECENT inquiry of Mr. J. R. Roosevelt, of New York City, as to the status of the motor-vehicle before the customs laws, has brought out a ruling from the department. He wished to know whether an automobile, which he desired to take to England with him to use there for a few

months, could be brought into the United States again free of duty under the provision of the tariff law regarding the free reimportation of personal effects taken abroad by residents of the United States. In reply to this inquiry the department has decided that as the automobile in question is of foreign manufacture, it would be liable to duty on reimportation within a year. If used abroad, however, for one year or more, it would be entitled to free entry as a household effect. While the automobile is not to be regarded as a personal effect, within the contemplation of the tariff act, it may be classed as a household effect.

Scotch Motor-Car Services.

"STANDS Scotland where it did?" is a question that has often been asked and answered affirmatively. Now, however, northern Britain is going faster than of yore, and is taking to the motor-car with enthusiasm and profit. The first of the motor-cars secured by the Banchory and Strachan Autocar Company, Ltd., has just been delivered to the purchasers, and the service was inaugurated on Monday of last week. A few weeks ago the directors concluded an arrangement with Stirlings, Limited, of Hamilton, for a large and comfortable motor-car suitable alike for the accommodation of passengers and the conveyance of luggage. The car, having run swiftly and smoothly all the way from Hamilton, reached Finzean on Saturday, the 9th inst., where it attracted much attention. The vehicle is now in service between the Sawmill, Finzean, and Banchory Station, the journey occupying 1 hour 25 mins. Stoppages are made *en route* at Boghead, Birse, Whitestone, and Strachan. During the last few days, too, the Aberdeen District Motor Service Company, Ltd., has inaugurated its motor-car service to Torry and the Aberdeen sea beach. It is intended to have four cars in the service, two of which have been delivered, the other two being still in course of construction. This service has been started with the sympathy of the local authorities, and at the opening run Baillie Taggart announced that he had seen Lord Aberdeen, who was willing to encourage a service to Methlick, and would allow passengers to have a walk through the policies of Haddo House. We hear that a public service of motor-vehicles is also in contemplation at Montrose, and altogether the present year is likely to witness a great development in the use of automobiles for the conveyance of the Scotch public.

"Punch" and Motor-Cars.

Punch appears, judging from the frequency with which automobile illustrations are now appearing in its pages, to be quite a convert to the motor-car and to have fully caught the enthusiasm of motoring. Only the other week we referred to the picture of a gentleman going to Epsom on his motor-voiturette, but taking his horses with him as a precaution, while in the current issue we notice a sketch of a hooded motor-car travelling rather slowly on a country road, the cause of the "crawl" being that the driver of a loaded farmer's cart had calmly attached his vehicle to the automobile by a rope. "If your car," says *Punch*, "suddenly appears to drag heavily you may be sure there is something to account for it!"

Knowledge Wanted.

"CARLO," whose "Motor Notes" in the *Star* are of a very general character, complains that "there is an absolute absence of any special endeavour to cater for business cars, the whole idea being to get excessive speed." And then he goes on to say, "I look in vain for any firm making, say, a special doctor's carriage, or a tradesman's delivery van, or a commercial traveller's vehicle. Motor dust-carts, water-carts, etc., are simply non-existent." If "Carlo" would glance through recent issues of this journal, he would see illustrations and descriptions of vehicles eminently suited—some of them especially designed—for the purposes he names. Several travellers now do their commercial

journeys on motor-vehicles, scores of doctors are employing light cars, and tradesmen's motor delivery vans are to be seen in all the big cities and towns. Firms are making special vehicles for particular purposes, and "excessive speeds" are hardly ever thought of by manufacturing firms in England, who realise that reliability and serviceability are the requirements of users here. As for "motor dust-carts, water-carts, etc., being non-existent" "Carlo" had better go to Chiswick and Chelsea, and see such vehicles in actual operation, or make inquiries of the firms in Great Britain who are making such vehicles.

The Manchester Automobile Club.

THE second run of the members of this club is to be started to-day (Saturday). The members will not meet in Manchester, but are making their rendezvous to-night at the Glyn Valley Hotel, Glynecirog, near Chirk. On Sunday a run will be held to some places of interest in the neighbourhood, Lake Vyrnwy and Falls of Ceiriog, the party returning to Manchester on Sunday afternoon or Monday morning.

Matrimony and Motor-Cars.

WEDDINGS in which the motor-car has figured have been freely recorded during the last few years, but, perhaps that occasioning most interest in automobile circles has just taken place. In a wedding which took place last week, the contracting parties were connected with the industry, Mr. Leverett, of the S. S. Motor Company, being married to the daughter of



Photo by]

[Mr. E. Seemell, Crouch Hill.

Mr. Chant (a director of Messrs. Hewetsons, Limited). A large number of guests were conveyed to and from the church in a Benz motor-wagonette, and everything went well, the various pairs of greys employed with the other carriages looking on the motor-vehicle with apparent unconcern. We give a photograph of the wagonette drawn up at the house to receive its passengers.

Heavy Motor Traffic.

LIVERPOOL has been to the fore with regard to heavy motor traffic, and now it is a Liverpool paper—the *Liverpool Journal of Commerce*—which is the first of the general Press to have a regular service of notes on goods transport by motor-vehicles. These notes appeared on Tuesday and will be published every alternate Tuesday. Judging from the first instalment they are written by someone of ability and independence, and should be useful in arousing the interest of local commercial men in the trials organised by the Liverpool Self-propelled Traffic Association next year—trials which, as already announced, will be followed by the inauguration of a regular service of transport by road from Liverpool to the great towns of Lancashire.

Out Texas Way.

THE cowboy is threatened, and the ranchman of the Western States is losing his individuality! On one of the ranches of Texas an automobile is being employed with success; although at the first venture it did great havoc among the cattle, exercising "force at a distance" in a very great degree. The first run of the vehicle was through a large pasture in which about fifteen hundred head of cattle were grazing. These cattle had no fear of men on horseback, but when they caught sight of the horseless machine making towards them they stampeded and tore across the pasture in a solid body. When they reached the wire fence on the opposite side of the pasture they went right through it. Many of them were cut and injured by the barbed wires. The driver returned to the ranch headquarters as fast as the automobile could carry him, and the whole force of cowboys was ordered out to round up the excited cattle and return them to the pasture. The stampeded herd was overtaken several miles away, and after hard work was again placed in pasture. The experience taught that the cattle must become acquainted with the automobile by degrees. For several days it was then run about the place with horses driven immediately in front of it, and the cattle are said to have gradually become used to the vehicle.

Motor-Ambulances Wanted.

IN London about 50,000 accidents occur every year and are treated at the various hospitals in the metropolis. A week or two ago 341 accidents were dealt with at St. Thomas's Hospital alone, and Dr. Heaton C. Howard suggests that an efficient motor-ambulance service might be provided for London at a very slight increase on the rates. Seeing the work that was entailed upon the ambulances during the hot days of the present month it does seem necessary that our capital should be brought to the level of New York in this respect. Probably motor-fire engines, ambulances, etc., will be regarded as essential in any modern British city or town in the coming century. Since writing the above we have learned how useful the motor-car proved in connection with the terrible railway accident at Slough. Dr. Bruce Porter, of Windsor, was one of the first medical men to render assistance to the injured. Unable to get a train at Windsor, he raced over to Slough on his motor-car, arriving there in considerably less time than would otherwise have been possible. Such an instance should decide doctors who are thinking of adopting motor-cars.

A Long Automobile Trip in Australia.

THE Thomson steam motor-car completed a successful and eventful journey of 500 miles at midday on Wednesday, the 9th ult., when it arrived in Melbourne from Bathurst, New South Wales, with Mr. H. Thomson, the inventor, and Mr. E. L. Holmes, who essayed the task of putting up a record in something new to Australia, viz., a long-distance trip on a motor-car. The start from Bathurst was delayed a couple of days, owing to heavy rains, and the effects of the rain made the travelling very heavy for a while. In one place, a bridge having been washed away, the car had to be driven across a ford, and was got through the mud with difficulty. Notwithstanding the hilly nature of a considerable portion of the route, fair progress was made throughout. The accidents were, states the *Melbourne Age*, very slight, consisting only in the breakage of a couple of small struts, which were easily replaced. Messrs. Thomson and Holmes are the first to accomplish a long motor-car journey in Australasia without the assistance of horses on any part of the way.

Motor Dust Carts Wanted.

THE Public Health Department of the City of London wanted an electrically-driven dust cart, and the Public Health Department is now suffering from disappointment. A contemporary "learns"—we like that word—"that although advertisements were inserted in all the journals likely to secure

offers for these vehicles," no inquiry was received, and the electrical engineer to the City Corporation has come to the sage conclusion that "none of the people likely to take up such a matter have considered what excellent conditions a dust cart service offers for the use of electricity." Firstly, advertisements were not inserted in all the journals likely to bring forth replies, for our advertisement manager mentions the name of a paper familiar to our readers as well as ourselves, in which no such advertisement appeared. Thus it will be seen that neither the resources of civilisation nor the means of publicity have been exhausted. Unsuccessful in their quest for an electrically propelled dust-cart, why will not the Public Health Department be content with a steam propelled vehicle? These are now being operated with conspicuous success, and would prove economical in the City of London, where rapidity of street cleaning is an essential factor in the removal of refuse.

Hill-Climbing Contest.

GODSTONE GREEN is a charming Surrey village nineteen miles from London and two miles from the railway station at Caterham, and among its local attractions is Tilburstowe, where, on the first Saturday in July, an open hill-climbing contest will take place under the auspices of the English Motor Club. The competitors will be divided into classes, the division being ruled by the list price of the motor-vehicles entered. Entrance fees—10s. for cars and 5s. for motor-cycles—should be sent to Mr. F. W. Bailey, hon. sec., 94, Oakfield Road, Anerley, S.E. We understand that the length of the rise is 972 yards, and that the gradients are now being ascertained.

The Lyndhurst Accident.

THE unfortunate accident near Lyndhurst to Mr. Martin D. Rucker's car has, we hear, considerably alarmed local people, and the death of Mr. W. F. Orriss, who was a passenger, has added to their fears. Unfortunately a number of wild stories as to the speed of the car have got about in the district, but the result of the inquest should do something to dispel these. It is clear that the accident could not be attributed to the vehicle. At the inquest the cause of the mishap was held to be due to the gradient in the road, which apparently sloping awkwardly would upset the calculations of almost any driver. In fact, the wonder is that accidents have not been more frequent at that point. With regard to the sad death of Mr. Orriss this was attributed to a clot of blood on the heart. For some days after the accident he had been making steady progress towards recovery, and his death was unexpected.

Electric Batteries.

IN their useful "Model Engineer" series of handbooks Messrs. Dawbarn and Ward, Limited, have just issued a little volume on "Electric Batteries: How to Make and Use Them," which will be of service to amateur electricians, and even to those whose knowledge and experience has taken them into the more extended scope of the professional. The book is divided into five chapters, the first being largely introductory, the second dealing with types of batteries, the third on how to make an eight-cell bichromate battery, the fourth on non-polarising bichromate batteries, etc., and the last on the arrangement of cells in groups. Simple language has been used throughout the sixty pages into which the work is compressed, and altogether it is a book that should prove of usefulness to students of electrical matters.

MR. ARTHUR BALFOUR has taken to the motor-car. He made a trial trip from the House of Commons on Wednesday, in company with Mr. Scott Montagu, M.P.

THE Canadian Steam Carriage Company has just been incorporated in Toronto with a capital of £50,000, to manufacture automobile carriages, etc.

The Gordon-Bennett International Cup Race.

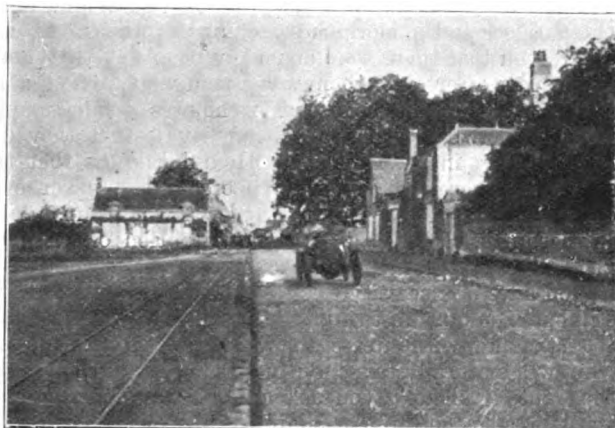


(From Our Own Correspondent.)

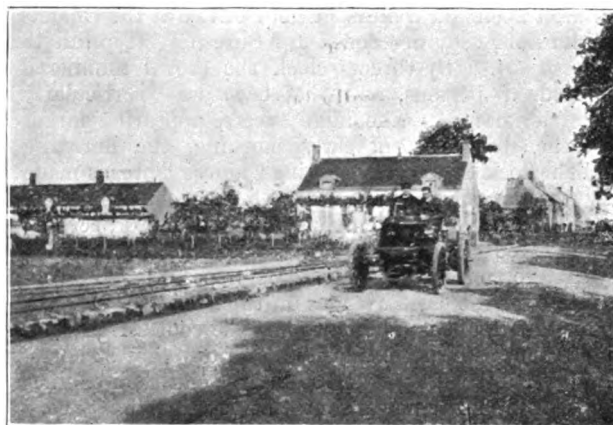
1, Charron (France), in 9 hrs. 9 min. 49 sec. ; 2, Girardot (France), in 10 hrs. 36 min. 23 sec. ; De Knyff (France), Jenatzy (Belgium), and Winton (America) abandoned ; Caters and Lefebvre (Belgium), and Eugen (Germany) non-starters.

SUCH is the result of the first race for the International Cup, and to see the French representatives returned winners will occasion no surprise in automobile circles. Unfortunately for the success of the race, the very greatest uncertainty existed as to whether it would be run off on the selected day ; indeed, it was not until the Tuesday afternoon

and the Place Martroi the local race commissioner was patiently awaiting the arrival of the cars before the Hotel Berry, which is in quite another part of the city. In the majority of towns an occasional notice intimated the approximate hour at which the racers would pass, but beyond this there was no other indication, and the competitors complain strongly of the trouble experienced in ascertaining the route, and the time consequently lost. Another effect of this uncertainty was the loss of a great deal of the international aspect of the race. On Wednesday afternoon the Belgian contingent intimated their intention not to compete, giving as their reason



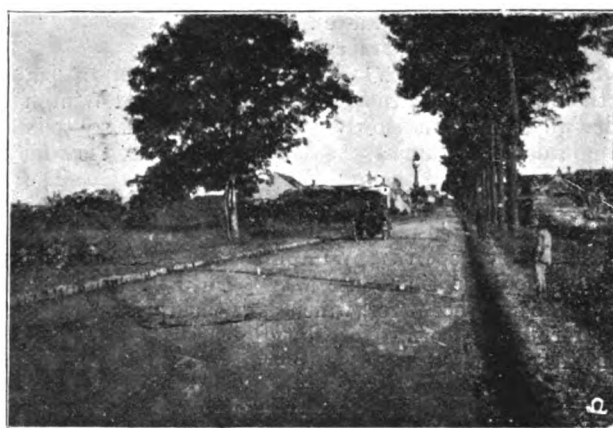
MR. WINTON BETWEEN ST. JEAN-DE-LA-RUELLE AND ORLEANS.



M. JENATZY BETWEEN ST. JEAN-DE-LA-RUELLE AND ORLEANS.



M. CHARRON NEAR LE GRAND ORME.



M. GIRARDOT BETWEEN LE MOULIN CHOIX AND LE GRAND ORME.

before the event that the International delegates came to a definite decision. Then on Wednesday evening the Mayor of Saint-Symphorien (Eure-et-Loire) notified the "A. C. F." that he would not permit the racers to pass through his town, and it was only after a long and eloquent telephonic pleading that he consented to remove his embargo. All this had the effect of seriously disturbing the work of the Sports Committee, the incompleteness of which was manifest from end to end of the course. Insufficiency of route directions was one of the most serious failings, for in traversing some of the larger towns the competitors had to find their way as best they could. This was strikingly exemplified at Orleans, where at the moment that Girardot was passing through the town by the Rue d'Illiers

the "A.C.F.'s" non-adherence to the regulations governing the race. They contended that the rule which stipulates that the exact date of the contest shall be fixed by common accord between the clubs interested had not been complied with, and later on this view was also taken by M. Eugen, the German representative, who, by reason of the short notice accorded to him, was unable to start. This latter gentleman's car was a 15-h.p. Benz, and as it was only credited with a speed of about 50 kilometres per hour its chance of winning was microscopical. As for the Belgian team, their mounts were 30-h.p. Bolide cars, with a stated maximum speed of from 90 to 105 kilometres per hour, but all three were actually in the railway station last Thursday morning, having only just arrived from Belgium. Cer-

tainly a Belgian representative, Jenatzy, eventually started, but it was not upon the car he intended to drive, and his object in competing was motivated by the desire to save the deposit of £120 lodged with the "A. C. F." Of course, the short notice had also a considerable effect upon the French team and their cars, but in a less degree. As ultimately proved, the three Panhard racers were by no means *au point*—indeed, they did not make their appearance at Charron's *garage* until late on Wednesday evening, although expected to arrive during the morning. No, the first Gordon-Bennett cup race has not achieved the success that automobilists all the world over were hoping, and when the second is run it is to be sincerely desired that circumstances will permit of the arrangements being so perfected that the somewhat unhappy recollections of the first contest will be entirely effaced.

THE START.

The scene of the start was at the entrance to the Park of Saint Cloud, which lies between the latter town and Ville d'Avray on the road to Versailles. A great number of automobilists and cyclists had left Paris late on the previous evening, and after spending a pleasant hour or two at the Châteaux du Cycle, in the Bois, they proceeded up Suresnes' steep hill to the *contrôle de départ*. By three o'clock the crowd numbered fully three hundred persons, and the scene was particularly picturesque and animated. The huge racers, appearing larger than ever in the dim light of early morning, the hurrying *chauffeurs*, and the flock of cyclists carrying Chinese lanterns made up a picture interesting in the extreme. Of the competing cars, the American vehicle, with its single-cylindere motor, seemed puny beside the three gigantic Panhard racers; but all the same, it had a businesslike appearance, which gave hopes of a close contest, at any rate over the earlier stages of the route, for its light aspect made experts doubt its ability to last the course right out. The car weighs some 720 kilogs., and its motor develops 23 horse-power. The new Panhards weigh 1,100 kilogs., and their engines are said to develop 27 horse-power, but this is probably a very inside estimate. Ranged up as they were for the start, and with the length of car between each, the competitors were:—

1. René de Knyff (France).
2. Jenatzy (Belgium).
3. Winton (America).
4. Charron (France).
5. Girardot (France).

It was at 3.14 a.m. that the Comte de Chasseloup-Laubat despatched them on their journey, and De Knyff and Winton getting under way somewhat slowly, Girardot and Jenatzy took an immediate lead, the order at the famous Grille de Picardie being Girardot, Jenatzy, Charron, Winton, De Knyff. The competitors did not dawdle through Versailles—subsequent result, all summoned—and at the Grille de Buc the order remained unchanged, except that Winton had dropped into the last place. By the time Chevreuse was reached Jenatzy had burst both of his back wheel tires, which is not surprising when his partiality for taking corners at sixty kilomètres an hour is remembered. At Limours the official times were:—

	H.	M.	S.
Girardot at	3	49	15
Charron at	3	52	0
De Knyff at	3	53	30
Winton at	3	59	0
Jenatzy at	4	29	0

All the competitors suffered from tire troubles, and just after passing Chartres De Knyff's chance of winning was destroyed by the breakage of his fourth speed gear. At Châteaudun, 125 kilomètres from the start, Charron had secured a ten-minutes lead from Girardot, while Winton was hopelessly in the rear with a damaged wheel and a punctured tire. The leaders were travelling well, and a considerable crowd had assembled to cheer them heartily as they disappeared down the road to Orléans.

AT ORLEANS.

ORLEANS, at no time a beautiful city, is certainly not seen at its best at three o'clock in the morning, and in this respect it in nowise differs from the great majority of towns, for it is at

that miserable hour, when the night is no longer night and the day has not yet commenced to be day, that everything has a truly forlorn and pitiful appearance, whether viewed by the individual seeking his bed or by the man who has just forsaken it. Personally, I am convinced that nothing but the possibility of seeing an automobile race would induce me to come under the latter category, for frankly speaking I am neither an advocate nor a practiser of early rising. Many people have dilated to me upon the delights of seeing the sun's early efforts to illuminate the cold dark earth, but the sun's eccentricities do not appeal to me not one little bit, and I wouldn't get up early to see him, not even at his personal request. But each to his tastes, and the man who loves to gaze upon the early sun probably considers me mad to lose a night's repose for the sake of witnessing half a dozen panting, snorting motor-cars go by at express speed. Add to that the strong possibility of seeing nothing at all, for at Orléans last Thursday morning nobody knew the exact route by which the racers would traverse the town, and I can well imagine that the sunny man would consider my case as hopeless. Anyhow, I was out and about at three o'clock in the morning searching for the route, and I can assure you that there were not many people at that hour to aid my efforts. Certainly there was a man who carried a basket of strawberries on his head, but if he was a fair sample of the Orléans strawberry men all I can say is that they don't take much interest in automobilism. He didn't know that there was a race, and incredible as it may appear he had never even heard of Gordon Bennett or of the International Cup. It really is extraordinary in what a profound condition of ignorance some people live, for granted that the members of the strawberry profession have no necessity to study the automobile trade in detail, still one would think that their sporting instincts would prompt them to follow with interest the various events of the racing season. You will naturally say, "But why all this difficulty in finding the route? Didn't you ask a policeman?" No, I did not, gentle reader, and for the simple reason that there was not one to be seen in all the length and breadth of Orléans town. I learnt later on that the Orléans police become dreadful sleepy at about eleven o'clock at night, and as it is never pleasant to walk about alone in the streets after that hour they just go to bed in order to awake fresh with the lark at ten o'clock on the following morning. Robert is the same all the world over when he gets a chance! Well, after a long and trying search, I discovered the Faubourg St. Jean, and knowing that it led to the route de Châteaudun, by which the cars must arrive, I followed it, and upon reaching the city gate I saw for the first time that I was on the right track, for there, stuck upon the wall, was an "A. C. F." notice, beginning, "Les habitants sont prevenus qu'une course," etc., and concluding with "charretiers et voituriers sont instamment priés de prendre bien exactement leur droite." Good, that tranquillised my troubled spirit, and if further assurance were needed the passage of a flock of cars, *en route* to see the race at Ormes, afforded it. Away out into the country I tramped, and had reached and rested a good forty minutes at the tiny hamlet of Le Moulin Choix before away in the distance was heard the Maxim-like sound of a big racing machine. I looked at my watch, which showed 5.7, and inwardly remarked, "By Jove, they are travelling in spite of all the local regulations," for to cover some 163 kilomètres in 2hrs. 7min. means fast going. The noise continued for perhaps a minute, then ceased as the car ran behind an intervening hill only to break forth with redoubled vigour as the racer's nose showed above the crest of the hill and dashed down towards us. The local enthusiasts sent up a howl of despair. The car was red! America's colour! But as she whizzed past us I recognised the grim countenance of M. Levegh, and was able to reassure the group of villagers that it was no American invader who was leading the way, but merely a French automobilist whose car the "A. C. F." had not considered good enough to represent "la belle France." As Levegh was travelling at some 90 kilomètres an hour the effect of my explanation was that the good people of Le Moulin Choix fully anticipated seeing the actual representatives of their fatherland fly rather than drive past, and when thirty-five minutes later M. Girardot hove in sight they were visibly disappointed

at his moderate gait of about fifty-six miles per hour. It was near to Le Grand Orme that Girardot passed us, for we had walked back a couple of kilomètres, and five minutes after he had disappeared down the long, level stretch of road, Charron arrived at express speed. Never have I seen a car travel so fast on level ground as did that of Charron's last Thursday morning at Le Grand Orme, and I have seen some few races too. She simply flew along, and then at St. Jean de la Ruelle she struck the *caniveau* traversing the route close to the Mairie, and was pulled up with a back axle bent almost double and a pump badly wrecked. By the time I reached the scene of the mishap Charron had roughly effected repairs and set out again, but very slowly, and no one anticipated that he would finish the race. We then procured and hoisted a green flag some thirty yards before the *caniveau*, and this, aided by plenty of shouting, had the effect of reducing De Knyff's speed to walking pace ere he reached the dangerous spot. A wave of the hand from De Knyff, and off he went again, but not at the pace at which he usually races, and it was obvious from that and the grinding sound made by his car that something was amiss. Jenatzy was the next comer, and he also was not travelling well, while the car of Mr. Winton, the whipper-in, presented a woe-begone appearance, with a buckled front wheel and a collapsed tire. A long tramp brought me back to Orléans, where I heard of Girardot's accident as he was leaving the town by the Porte de Bourgogne. A frightened horse, a sudden swerve, and the back wheel broken against a kerbstone, such briefly the story of Girardot's mishaps. This resulted in a loss of some eighty minutes to him, but for which he would doubtless have made a desperately close finish with Charron. It was here, too, that Mr. Winton decided to abandon the contest, and it is quite possible that had not the Comte de Chasseloup-Laubat been at Orléans and told Charron how matters stood he too would have discontinued. The official returns at this point, 173 kilomètres from the start, were as follows:—

	Name.	Time.	Average.
1.	Girardot	5.53	60.0 kilomètres
2.	Charron	6.10	58.9 „
3.	De Knyff	6.49	48.2 „
4.	Jenatzy	6.52	47.6 „
5.	Winton	8.30	—

Between Orléans and Gien there are 63 kilomètres, and at the latter place Charron arrived at 7.15 a.m., followed by Jenatzy at 8.25 a.m., and Girardot at 8.45 a.m., their respective average speeds per hour being 58.70, 45.00, and 42.70 kilomètres. Here de Knyff, who had, previous to reaching Orléans, decided to abandon the race, actually quitted the route and returned to Paris with MM. Krebs and Chasseloup-Laubat. At Nevers, 322 kilomètres from the start, Charron was a long way ahead of Girardot, and his average speed per hour was 59.60 kilomètres as compared with the latter's 47. Jenatzy had dropped into the last place of the three remaining competitors—tire, gear, and ignition troubles worrying him incessantly. Fifty-four kilomètres further on, at Moulins, Charron found Huillier and Levegh awaiting him, and they lent a willing hand in refilling his petrol tanks. At that point the ultimate winner's average speed had advanced to 60 kilomètres per hour. Girardot arrived an hour and a-half later, and after rapidly replenishing his petrol tanks he also made haste for Lyons. As for Jenatzy, he was hopelessly *en panne* some few kilomètres outside the town. At La Palisse Charron passed through the town at 10.9 a.m., and Girardot at 11.44, while at Roanne, 49 kilomètres further on (476 kilomètres from the start), the former arrived at 10.56 a.m. and the latter at 12.34. From La Palisse onwards the route became very hilly, with numerous nasty turnings, until the last 12 or 15 kilomètres into Lyons had to be negotiated, where the road was excellent. It was here that Charron met with an extraordinary accident. When travelling at nearly 100 kilomètres an hour a large dog ran right in the way of the car and became wedged between the steering gear and the springs. The vehicle swerved violently to the left passed between two of the trees bordering the route, descended into the ditch, mounted again, and continued its course down the road. And the dog was dead! And so was

the pump pretty nearly; for Fournier, who was with Charron had to hold it in place for the remainder of the journey.

THE FINISH, AT LYONS.

From ten o'clock in the morning a crowd of automobile enthusiasts had congregated before the hospitable doors of the "Délices de la Demi-Lune," that restaurant situated on the Arbrecle route, and so well known to all the *chauffeurs* and cyclists of Lyons. The members of the local automobile club had turned out in great force, and they were supported by many well-known motor-men from all parts of France. There was M. Giraud, fresh from his excellent performance in the Bordeaux-Périgueux race; M. Stead, back from Nice; Captain Insmore and the secretary of Mr. Winton, representing America; M. Clément, who drove out with M. Eldin; MM. Brun, Santoux, Maze, and a hundred others. Had the melancholy finish of the race been anticipated, I doubt whether the attendance would have been so large, for while recognising the superiority of the French cars, still a semblance of a struggle was expected. But not a bit of it. The race was but a race in name, and not a particle of excitement could be worked up over the arrival of but two competitors, and these two representing the same country, and separated by the trifle of an hour and a half. Charron reached the contrôle at 12.23 in a considerably exhausted con-



M. DE KNYFF AT "CANIVEAU" AT SAINT JEAN-DE-LA-RUELLE, WHERE ACCIDENT TO CHARRON OCCURRED.

dition, while his *mécanicien*, Fournier, was even more done up, having been required to hold in place a damaged pump during the last twelve kilomètres of the course. Girardot arrived at two o'clock, and after that, although anxiously awaited, no other competitor put in an appearance. What a tame conclusion to what promised to be a terrific race! But there it is; and we must wait a twelvemonth ere we again have an opportunity of seeing a contest for the Gordon Bennett cup. Will France again retain it so easily? Time will show.

THE Glasgow and West of Scotland Motor Car Company, Limited, is being voluntarily wound up.

It is stated that a new voiturette is in course of construction at the works of the Société L'Énergie, in Paris. It is to be fitted with a 5-h.p. Renault water-cooled motor, and will have three speeds and reverse motion.

A TWO-MILES motor race was run at the meeting of the Beeston Cycle Club, at Nottingham, on Saturday last. Mr. H. Belcher, from the 100 yards mark, came in first, and Mr. G. Hunt, the old long-distance cycle rider, was second off scratch.

THE Manchester Motor-Car Corporation, of Victoria Bridge, Manchester, the Lancashire agents of the Motor Manufacturing Company, have secured an order from the Ridgfield Cycle Company, of Manchester, for an Iveagh phaeton. It will be remembered that a car of this type, made by the Motor Manufacturing Company, ran exceedingly well through the 1,000-mile Trial, making its full average each day.

TOURING NOTES.

BY A WORLDLING.



KENT—has not someone called it “the Garden of England?”—is an ideal playground for the London *chauffeur*. I met at Margate the other day a friend who has been touring through the county on one of the new 10-h.p. Mors phaetons. He spoke with equal enthusiasm of the scenery and of the car that made it so easy for him to see it.

It is a delightful run from town to Littlehampton, by Epsom, Leatherhead, Horsham, and Findon, where there is a mighty hill; and it is good to find at the end of one's journey a hotel like the Beach, perfect in every respect, and the property of a keen *chauffeur* as is Mr. Whitehead, the popular secretary of the Raleigh. My friend told me that he let Mr. Whitehead's little daughter, who is not much more than ten years old, drive the great automobile from Brighton to Littlehampton, and that she managed it—on top speed, mind—with astonishing ease. This must be a record, although with a slight flaw, for in cutting a corner she broke a spoke against the curb.

I HAVE noticed that, whereas English horses behave in a singularly undignified manner when a motor-car is by, our dogs look on it with little interest and some contempt, which they rarely express with more than an indignant bark. In France the opposite obtains, for the horses understand that the automobile can do them no harm and, therefore, hardly ever shy at it, but the Gallic dogs are a regular pest. First of all, they have invented a new religion, the basis of which is that if they die while trying to kill an automobilist their souls will go to some wonderful Valhalla in which are pyramids of bones. This makes fanatics of them—witness the grim slaughter on the Cup Day, a very Omdurman for the canine Faithful. And then there is a sort of kindergarten training for the youngsters, who are taught to fling themselves with howls and yells in front of every car that passes, till some nervous driver, swerving too quickly, wrecks himself on the curb. Seriously, a big dog may cause a very bad accident; Charron might have been killed the other day when he was thrown on to the bank, and almost every *chauffeur* has had similar experiences. A whip is the best preventive—one of the colonial type, with a short handle and a heroic lash. Catch him sideways, but mind the lash does not get entangled in the chains. I remember young Prince Bibesco showing me an anti-dog contrivance, which, though thoroughly effective, does not commend itself to the Englishman. It consisted of a pistol that squirted out ammonia into the eyes of the enemy.

I HEAR that an automobile company has been formed in Mexico City, but, unless the roads in the country of the burning mountains have improved since I was there, I pity the people who, actuated by a spirit of modernity, invest in the company's cars. The city itself is well-paved, and there is a charming drive out to a place the name of which no one could be expected to remember, but which is famous for its wonderful trees covered in Spanish moss; but the more venturesome, who try the prowess of their automobiles against that of their buggies, will have a sorry tale to tell on their return. The desert over which Ernest Archdeacon had to travel to reach the oasis of Biskra in Algeria, is excellent going in comparison with the ruts and broken surface of a Mexican main road.

I CONSIDER a foot-warmer as one of the necessary extras on a touring car, and I am surprised to see that here in England, where the days are often and the nights always cold, very few *chauffeurs* go on their travels provided with this simple and comforting apparatus. I hate cold myself, especially in the hands and feet; I am, therefore, molly-coddle enough to take a muff with me when I am going for a cold run on a car driven by someone else. I learnt the value of this feminine prophylactic when shooting in Germany many years ago. The sight of a dozen members of a *verein* sitting in the snow on camp-stools with their

hands in muffs waiting for the beaten game, would make the Englishman laugh, but a warm finger is better on the trigger than a nerveless thing like a frozen stick. I introduced this “effeminate” system into the Cariboo country, and many an old trapper saw the wisdom of it; the English automobilist would do well to try it too. Fur cuffs are very sensible things to wear over one's driving gloves, as a cold wrist means a cold body.

A MOTOR - TRICYCLE AND GUN CARRIAGE FOR THE NORWEGIAN GOVERNMENT.



SEVERAL attempts have been made to introduce the use of motor-cycles in connection with the transport of light guns. In our issue of October 6th last, we published an illustration of an automobile gun carriage built by the Duryea Manufacturing Company, of Peoria, Ill., for Major Davidson, of the U.S. North-Western Military Academy. The military authorities in Norway have also been devoting attention to the same matter, and two or three months ago placed an order with the Gesellschaft für Motor und Motor-fahrzeugbau (Cudell and Company), of Aix-la-Chapelle, Germany, for a motor-tricycle and gun carriage. The vehicle has just been delivered, and by the kindness of Messrs. Cudell we are able to give an illustration of the combination. The tricycle is fitted with a 2½-h.p. De Dion motor, and except for an additional seat at the rear for a second passenger, resembles the ordinary motor “trike.” The gun carriage takes the form of a trailer, the frame being made sufficiently long so that it can receive the ammunition chest in front of the gun. Before the vehicle was shipped to Norway it was subjected to a test on the Kaninsberg, a steep hill 1½ kilometres long in the north-east of the town of Aix-la-Chapelle. The machine was mounted by a couple of soldiers from the 40th Infantry Regiment stationed in the Aix garrison, and we are informed that it mounted the hill at a good pace, many cyclists being passed *en route* pushing their machines along.

MR. ERIC CHAPLIN, son of the Right Hon. Henry Chaplin, president of the Local Government Board, has, we learn, placed an order for a 6-h.p. phaeton with the Daimler Motor Company.

A COMPANY has just been formed in Brussels with a capital of £40,000, to be known as La Société des Diligences, Courriers et Messageries Automobiles, to organise public services of motor-cars in France and elsewhere.

La France Automobile announces that the Prince of Oldenburg has lately made a journey on his Gardner-Serpollet steam car, extending to over 500 kilometres in the Caucasus. The route was a hilly one—from Novorossisk to Soukhoun.

THE Decauville Company, the manufacturers of the well-known Decauville voiturette, are said to have last year exported eighty-seven vehicles of various descriptions, two going as far away as Dutch East Indies, one to Egypt, one to Greece, and one to Manchuria.

MESSRS. R. HARRISON AND SON, Limited, is the name of a company which has been registered with a capital of £20,000 to acquire the business carried on at 1, Stanhope Street, N.W., as R. Harrison and Sons, and to carry on the business of coach, van, carriage, and motor-car builders, etc.

THE Motor Manufacturing Company's char-à-banc belonging to the Manx Cycle and Motor Company, Douglas, was kept actively employed during the recent Whitsuntide holidays. During the week two trips to Peel and back were made daily, while in the evening runs were made from end to end of Douglas promenade.

THE Hastings and East Sussex Motor-Car Syndicate, Limited, has been registered with a capital of £5,000 to adopt an agreement with A. H. Collins, D. Russell, H. Broadhurst, and H. A. Pearch, and to carry on the business of tramcar, omnibus, motor-car, and van proprietors, motor-car builders, etc. Registered without articles of association.

THE NAPIER MOTOR-CAR.

IN view of the success achieved by Mr. E. Kennard's 8 h.p. Napier car in the Automobile's Club's recent 1,000-mile Trial it was thought that a few details of this type of vehicle would be interesting to our readers, and with the view of gleanings the same a representative of the *Motor-Car Journal* recently spent an hour or so at the works of Messrs. Napier and Co., in Vine Street, Lambeth, where he had an opportunity not only of inspecting Mr. Kennard's 8 h.p. car but also a number of others of similar power, and a few of 16 h.p. in course of construction.

To deal first with the Napier motor—the standard one is of the vertical two-cylinder type. The cylinders have a diameter of 4in. by 6in. stroke, and at the normal speed of from 750 to 780 revolutions develop rather over 8 h.p. The cylinders are water-jacketed; the cylinder top is of special construction, which enables it to be connected to the cylinders proper by a gas joint, made simply by means of brown paper and boiled oil. The water-jackets around the cylinders and the cylinder top are quite distinct, so that no leakage of water at the joint is possible, the water connection between the two jackets being made by an outside pipe. A

radiating coil of the Loyal type is provided in connection with the water circulation. The ignition is electrical, the sparking plug being that introduced into this country by the United Motor Industries, and known as the "Reclus." The ignition is variable by means of a timing device with rubbing contacts, on the lines of that adopted in the De Dion tricycle. The inlet and exhaust valves are so

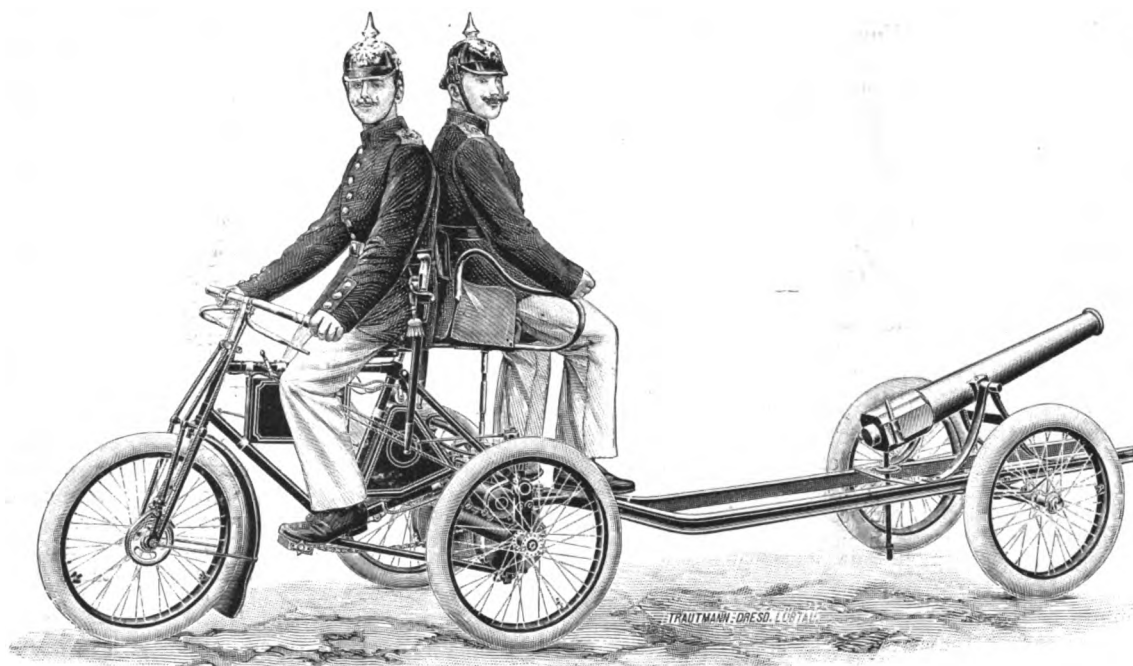
fitted that they can be removed at very short notice. Indeed, we were surprised at the rapidity with which Mr. Napier performed the operation in order to show us the special three-port inlet valve he employs. The workmanship of the motor is of the highest class, and as showing the care that has been paid to the details it may be mentioned that the wrist-pin in the piston is made of a special taper form, so that any wear can be readily taken up. The carburettor employed is of the Phénix type, but it is provided with a hot-air jacket to facilitate the carburetting operation. The crank shaft works in an oil-containing case, and we also noticed that the half-speed gear controlling the exhaust valve is located within this case instead of outside as is the case in many cars.

Coming now to the transmission mechanism, this, generally speaking, follows the arrangement adopted in the Panhard and Daimler cars, the motor driving a longitudinal shaft geared by spur wheels to a small counter-shaft, which at its end carries a bevel gear. This latter wheel conveys the power to a differential cross shaft, which is connected by the usual sprocket wheels and chains to the rear axle. There are four speeds forward and reverse motions, controlled by hand levers at the side of the car. While following the general lines of the Panhard car as regards the transmission, Messrs. Napier

have made certain alterations in the strength and size of the gear wheels, with the view of increasing the life of the same. All the gear wheels are steel forgings hardened, and they work in an oil-containing gear box, made of aluminium. Special attention has also been paid to lubrication and to the bearings, a roller bearing being provided on the counter-shaft behind the driving bevel gear, while the differential cross shaft is provided with a double-thrust ball-bearing. In the 16 h.p. cars roller bearings are being adopted throughout in the transmission gear. Steering is controlled by an inclined hand-wheel actuating a worm gear, enclosed in a protective casing, and provided with an adjusting device to take up any wear. A foot pedal controls a band brake on the differential cross shaft, while there are double-acting band brakes operated by a hand lever on drums attached to the hubs of each of the rear wheels; both brakes are so arranged that when applied the friction clutch connecting the motor with the transmission gear is simultaneously thrown out. The frame, which is constructed of channel steel, is so made that any type of "body" can be fitted to it; the road wheels are of wood, and are made by the Dunlop Company, this concern's 90 mm. pneumatic tires being also fitted. The 8 h.p. cars measure 8ft. 6in. by 4ft. 10in. over the axles; the 16 h.p. cars are the same width, but have

a base 10in. longer. At the time we visited the works a very busy state of affairs was prevailing, no less than about a dozen cars being in course of construction for the Motor Power Company, Limited, who control the rights in the Napier vehicles.

A SUB-COMMITTEE of the Southampton Corporation have just inspected the pattern of motor-car to be acquired by the Corporation.



A COMBINATION MOTOR-TRICYCLE AND GUN CARRIAGE BUILT FOR THE NORWEGIAN GOVERNMENT.
(For description see opposite page.)

Answers is offering a convertible quadricycle to the reader who disposes of his copy of the paper in the way that strikes the editor as the best.

LA SOCIÉTÉ DES MOTEURS ET AUTOMOBILES (RICHARD) is the title of a company which has just been formed in Brussels with a capital of £20,000.

THE Thames Valley Launch Company, Limited, of which Mr. W. Rowland Edwards, A.M.I.E.E., is managing director, announce that their charging stations at Weybridge, Maidenhead, Hurley, Pangbourne and Shillingford, are now available for charging electric motor-cars. At Oxford they can be charged by the Thames Valley Launch Company, Limited, by arrangement with the Oxford Electric Light Company.

UNDER the auspices of the Scottish Cycling Union, the Cyclist Touring Club, and the Scottish Automobile Club, a meeting was held in Edinburgh last week to consider what could be done to improve the present inadequate bye-law in regard to the carrying of lights by vehicles in Mid-Lothian. Resolutions calling for amendment of the County Council bye-law and in favour of the universal lighting of vehicles were adopted. Messrs. Newton and Alexander were appointed to wait on the Lord Advocate the first time he was in Edinburgh and place the views of the meeting before him.

CORRESPONDENCE.



THE PROPOSED MOTOR TRACK.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I cannot quite agree with Mr. Edge that a good touring car must be of bad design and want everlasting repair. Both Mr. Jarrott and Mr. Edge, I believe, are racing men of no mean order, so it is only to be expected that a motor track would seem the one ideal to them, but I think that the trade will do better to cater for the moderate speed user than to give ear to the racer in his attempts to knock off a fraction of a second. If the craze does catch on for racing I am much afraid we shall have makers cutting down every possible part for lightness with the inevitable result, and a collapse of a car at racing speed will be a serious affair, and most of the cars after a race will only be fit for the scrap heap—if one may judge by the tricycles that have broken records—tires worn nearly flat, and the canvas bare of rubber. I think, Mr. Editor, that we have had more than enough of bicycles with frames that collapse on the path, tires so thin that they could be almost pierced with a glance, handle bars bent to the most idiotic shapes that must have been the outcome of a distorted brain, and do not wish to have these abortions introduced into motor-cars. I believe the motor-car that is put on the market to supply the wants of the small trader (to replace his present horse and cart), and also the persons of moderate means who do not understand horses (like myself), will have a great sale, as there must be more of this class of customers than the racing fraternity.

I hope soon to be the owner of a car, but I shall certainly not place my order with a maker whose only claim is winning some race by a fraction of a second. I shall have a car that is good for touring, and will chance Mr. Edge's gloomy forecast as to repairs.

London, E.C., June 16th, 1900.

Yours truly,
W. T. W.TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to the article on above in your issue of 2nd inst., personally I think this would be an excellent means of developing the sport. At the same time I cannot help being of opinion that the time has hardly arrived for such a step to be taken, the number of racing vehicles in this country being hardly sufficient to justify the expenditure of the necessary amount of money even if the latter could be raised.

Another point is that at present racing is not, as your correspondent says, stopped in France. Permission has lately been granted by the Minister of the Interior for the holding of the Gordon-Bennett and all other important races that have been fixed up to the present. If a track were constructed at any time I should recommend it to be made as flat as possible (except as regards the "banking," if any), and not with a hill in the middle as your correspondent suggests, for there are plenty of hills on ordinary roads, and the object of the track would, I imagine, be speed only.

London, W., June 13th, 1900.

Yours truly,
CHARLES S. ROLLS.

CHANGESPEED GEARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice that Mr. A. Cobb, in your issue of the 9th inst., is desirous of information in respect of the speed-changing gear fitted to the De Dion voiturette. As possibly this information may be of interest to other of your readers, I would like, with your permission, to describe it.

The speed-changing gear is placed alongside the motor, and is enclosed in an aluminium case. It is composed of two shafts, on which are placed four cog-wheels of different diameters, meshing together, and being always in gear. The first of these shafts, on which are keyed the pinions, is joined to the motor shaft by means of a coupling sleeve in two pieces. The second shaft is the one on which the throwing in and out of gear takes place. This is effected by the aid of a rack and pinion which runs through the centre of the second shaft. By moving the rack and

pinion rod one way one pair of wheels is put in gear. At the same time the other pair is thrown out. By reversing the action the gear in drive is put out and the other in. The driving is done by two separate friction clutches situated side by side, one actuating the slow speed and the other the fast speed. These are formed of divided segments of hard composition, with metal flanges, and in the centre of each there is a small pinion upon which the rack acts as it moves to the right or left, by which movement the small pinion increases or decreases the diameter of the divided segments. When the rack is moved to the left the small pinion increases the diameter of the segments which bind tightly against the inner surface of the friction case in such a way as to cause the case to drive the toothed wheel connected to it. When the rack is moved along to the right this expands the fast-speed segment, and contracts the slow, and when the rack is moved in the centre both clutches are thrown out of gear. This rack is actuated from the steering pillar by means of a toothed wheel and chain to the extremity of the shaft. Opposite the rack is fitted the small pinion which drives the large spur wheel on the main axle.

I regret I cannot send you sketches showing this more clearly, but I trust that the above description will give some idea as to the particular device in question.

Yours truly,

CHAS. JARROTT.

(The De Dion Bouton British and Colonial Syndicate, Ltd.)
14, Regent Street, S.W., June 14th, 1900.

THE DANGERS OF PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of June 16th, we notice a communication from Mr. R. Drake, relative to an accident in his show room, occasioned by the spirit vapour catching fire and exploding in consequence of being ignited by a Dietz automobile lamp attached to one of their motor-cars. Fearing the numerous readers of your valuable journal may gain the impression that the Dietz lamp was at fault, we wish to explain that the accident would have happened had any other lamp been employed.

There is nothing whatever in the construction of the Dietz lamp different from any ordinary lamp, except that it is made on the scientific tubular system, and the volume of light is more intense, being equal to twenty candle power.

The lesson to be learned from Mr. Drake's experience is, of course, not to draw the petrol from the tank while the lamp is alight, whether a Dietz or any other.

Green Street, Blackfriars,

London, S.E., June 18th, 1900.

Yours faithfully,

SALSBUARY AND SON.

TROUBLE WITH A BENZ CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to your correspondent "Fog," I think he will find that a small bit of asbestos or other "foreign body" has got between the platinum wires of his igniter. This will not prevent the sparking at first, and will rapidly become red-hot, and will remain so by the heat of the explosions and fire just as a tube ignition system would. It would be interesting to know whether this is the case in "Fog's" car.

Rathmines House, Uxbridge,

June 20th, 1900.

Yours truly,

A. CHARPENTIER.

AN automobile mail collector is being tested in Concord, N.H., U.S.A.

PASSING through Ripley on Tuesday we learned that Mr. S. F. Edge had been there on Sunday on his 16-h.p. Napier. Mr. Jarrott was with him riding a motor-tricycle.

ARRANGEMENTS have been made by the Committee of the Sheen House Club that there should be special dinners, followed by concerts, on every Thursday evening during June and July. The dinners will take place at 7.30 p.m. Members of the Automobile Club who wish to participate in these dinners will meet at the Automobile Club at 6.30 on Thursday evenings, and will drive *via* Richmond Park to Sheen House Club.

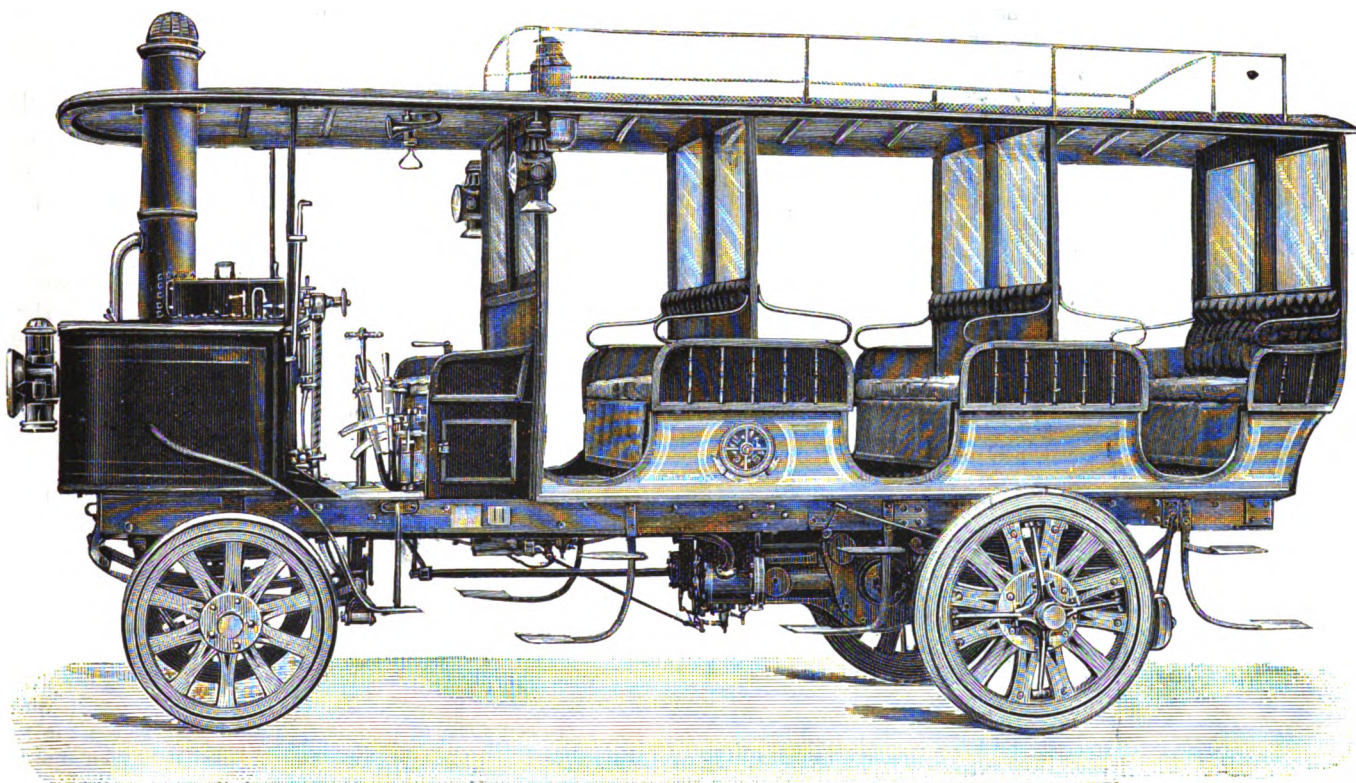
TO ASCOT BY MOTOR-CAR.

BY PHANOMEN.



PRESSURE on the space last week prevented me from referring at length to the pleasant trip I had on Wednesday, the 13th inst., on Mr. Oliver Stanton's Daimler mail phaeton, when I journeyed as far as Ascot to inspect the Prince of Wales's motor-car. During the afternoon the weather had been of anything but a promising character, but by the time our party was ready to start the sky had cleared, and I looked forward to an enjoyable journey, which expectation was more than realised. It was just twenty-minutes to six when the signal was given "all aboard"—there being four of us altogether—and Mr. Stanton, who was at the helm, drove off from the Daimler Company's depôt in Shaftesbury Avenue, W.C., into Oxford Street. Here the heavy traffic necessitated a very slow pace, and it was not until after the Marble Arch was passed that we could increase the pace to something more than a crawl. Our progress was again quickly blocked, however, owing to the main road along the north side of Hyde

to pass us in a dignified manner. Nearing Staines we met a huge traction engine hauling a couple of wagons, and, no doubt feeling himself an automobilist of a sort, the driver duly saluted us as we passed him by. It was striking seven as we went through the pleasant river-side town of Staines, and turning to the right immediately on crossing the bridge ran along to Egham in good style. The driving just about here needs a great deal of skill, particularly when on the other side of the road there is a continuous stream of race traffic returning home, as the road dips considerably to the left. The "toot, toot" of a horn just outside of Egham warned us of the approach of a motor-car, which proved to be a Daimler wagonette, having eight or nine passengers, each wearing a white felt hat, with the brims turned down! They were returning from the races, and judging from their smiling faces and general "happy" appearance had had a good time. The long and steep Egham Hill caused our driver to push the gear over on to the slow speed, and although the pace was not fast the car got to the top without it being necessary for any of us to get out and walk, not to speak of rendering assistance in the way of pushing. As we were now approaching Virginia Water, it is needless to remark



THE DE DION 20-SEATED STEAM CHAR-A-BANC. (For description see next page.)

Park being partially closed for repaving—not, we might add, before it was necessary. This caused us to make a *détour* through some side thoroughfares; but once on the main road again our rate of progression became much quicker and a good run through Notting Hill brought us quickly to Shepherd's Bush. Here we bore to the left along the Goldhawk Road and joined the main road to Hounslow at Young's Corner, Chiswick. Those motorists who have experienced riding through that narrow, busy thoroughfare—King Street, Hammersmith—will find the route we followed a welcome change.

Once on the main road, we travelled along at a good rate, leaving Gunnersbury and Kew quickly behind. Here is Brentford, here Isleworth, now we are at Hounslow and the open country, and are reeling off the miles—say it quietly—at nearly twenty to the hour. By the time we reached Bedfont, with its quaint old church and where a fair was in progress, we began to meet quite a number of four-in-hand coaches and horse-drawn vehicles of all kinds returning from the races, and from here onwards quite a number of "hay-motors," which were apparently unused to the automobile, caused us to slow down so that they might be induced

that we were in the centre of a beautiful district. It was a glorious evening and many cottages did we pass; the walls of which were hardly discernible owing to the wealth of roses, while the long rows of huge rhododendrons all in bloom seemed endless. The gaiety of the scene, too, was heightened by the many "picnicking" parties on the roadside that we passed. The long straight run down to Virginia Water was quickly followed by an ascent, and then we turned off to the right. Our destination at Ascot was at the far end of the town, and as we ran along the High Street, thronged with people owing to the races, we met with a hearty reception. Our journey of from twenty-four to twenty-six miles occupied just a couple of minutes over the two hours, but had it not been for the heavy traffic in London and the care needed in driving along the route, owing to the coaches and other vehicles returning from the races, I should have been able to have chronicled a better record.

The object of my visit to Ascot occupied some little time and it was not until ten minutes past nine that we were again under weigh for London. On the return journey our party was reduced to three in number and with a clear night, a clear road, and a

motor on its best behaviour we came along as far as Egham at an exhilarating pace. Here a collie dog gave us considerable trouble, the animal persisting in making the pace for us for over a mile, it not being until Staines bridge was reached that we managed to get rid of it. Passing slowly through the town of Staines full speed ahead was signalled by Mr. Stanton to his gear as we once more got on to the solitary road, and, without having met a vehicle or person for several miles, we reached Bedfont, which, what with the roundabouts, shooting galleries, sweetstuff stands, etc. on the green, presented a lively appearance. We now began to overtake heavy wagons taking vegetables to the London market, and also a few straggling vehicles returning to town from Ascot. Giving the latter as wide a berth as possible, the delay on the home journey not having increased the capacity of the drivers of these conveyances to drive, we successfully ran through Hounslow, Isleworth, and Brentford, and on to Kew, where we arrived at 10.20 p.m., and where Mr. Stanton slowed up just sufficiently



THE MISSES LAWSON ON THE LAWSON MOTOR-WHEEL.

Photo by]

[Argent Archer, Kensington.

to allow me to alight with safety, and with a hasty "good-night" the car sailed away, all that I could see being its two red lights at the rear. Not for a long time have I enjoyed an automobile trip so much, and my visit to Ascot will long remain a pleasant memory as much for the journey by road as for the opportunity I had of inspecting the Royal motor-car.

MR. F. R. SIMMS (vice-chairman), Mr. Worby Beaumont, and Major Holden have been appointed to represent the Automobile Club at the International Congress on Automobilmism in Paris from July 9th to 16th.

AT the last meeting of the Club Committee of the Automobile Club a letter was submitted from Lady Garvagh, suggesting that ladies might become members of the club without being permitted to make use of the club-house. It was agreed that the suggestion should be placed before the next annual general meeting.

THE DE DION STEAM CHAR-A-BANC.

ALTHOUGH in this country we are only acquainted with the motor-cycles and voiturettes propelled by petroleum-spirit motors turned out at the Puteaux works of Messrs. De Dion, Bouton and Company, the firm do not confine their attention to petrol, but are still busily engaged on the construction of heavy steam cars, and this week we are able to publish an illustration of a huge twenty-seated char-à-banc of a type which is now being used for public services in various parts of France. The boiler, which is carried on the front platform, is of the firm's own tubular type. Coke fuel is employed, the consumption being stated to be about four kilogrammes per kilomètre traversed. The engine is of the horizontal compound reversing type and is of 30 h.p. capacity. The water tanks have a capacity sufficient for a run of thirty kilomètres, while coke for a seventy kilomètre trip can be carried. The car is fitted with a mechanical change speed gear, and can, it is stated, ascend gradients of 10 per cent.

THE CROWDEN WATER-COOLING COIL.

WATER-COOLING coils, or *refroidisseurs*, as they are termed in France, have now become an integral part of motor-vehicles, propelled by means of petroleum-spirit motors and the variety of types of this class of device is steadily increasing. The latest addition to the list is the cooler which has just been put on the market by Mr. Charles T. Crowden, of the Motor Works, Leamington. The cooler, as usual, consists of a series of tubes fitted with radiating fins. The feature of the cooler is that the tube ends are connected by a light casting fitted with screwed caps. By this means each pipe of the condenser can be readily cleaned out and the scale removed, so that the radiation can always be kept effective. The framework of the cooler for attaching to the car is very strong and light. The device can be fitted without disturbing any of the pipes or connections, the only alteration necessary being in connection with the hinged front board, in the case of a car of the Panhard type, the condenser being placed in front, where it is considered to be more effective. Mr. Crowden informs us that he has fitted several cars with the new cooler with satisfactory results.

MR. HERBERT DE STERN proposes to offer a cup in connection with a motor-car race to be held during his garden party at Strawberry Hill House on Tuesday, the 10th prox.

CAPTAIN COE, of the *Star*, has offered prizes for the best answer of 150 words to the query, "What is your opinion of a motor-car?" apparently suggested by the number of motor-vehicles seen at Ascot last week.

RECENT additions to the list of members of the Automobile Club include Mr. Isidore Clifford, Mr. Charles F. Dixon, Mr. Wilson Noble, Mr. Oscar Selbach, Mr. H. W. Spiller, Mr. George Henderson, Mr. J. H. Green, the Hon. Leopold Canning, Mr. K. Edgecombe, Mr. T. E. Chambers, Mr. Henry Barcroft, Mr. Walter Bourke, Mr. C. Bright, Mr. W. E. Lake, Mr. Isaac Wheeldon, Mr. H. C. Clarke, and Mr. Charles Rivers.

THE London Auto-Car Company, Limited, of Gray's Inn Road, London, W.C., have just introduced a little article which should meet the wants of many users of De Dion air cooled motors who find the radial fins insufficient for the cooling of the combustion chamber. The new article referred to consists of a water-jacketed combustion chamber, which can be quickly fitted to any 1½ h.p. or 2½ h.p. De Dion motor. In shape it is exactly like the ordinary construction chamber, but with water jacket around it, and with ribs cast on the outside as well for radiation. Any amateur can place it on his tricycle himself, as it fits, without alteration, on to existing motors, the valves and dome being simply taken out and replaced into the new combustion chamber. Two gallons of water, it is stated, will last for an eight hours run on a hot day, while the additional weight is but small.

THE AUTOMOBILE WAGON FOR HEAVY DUTY.*



It can be easily proved that the progress of civilisation made by all nations has been closely interwoven with the progress of transportation. In olden days men were well satisfied to live, grow, and end their days wherever destiny planted them. There they established themselves, contented with the pursuits of life which were within easy reach, looking to Nature for their maintenance, and buying and trading with their immediate neighbours, and within narrow bounds. It would be outside the scope of this paper to discuss whether life was then less comfortable than it is to-day, and whether the few commodities then obtainable were insufficient to make existence enjoyable. At the present day our needs are considerable, varied, and ever increasing. It is no exaggeration to state that many a person's happiness is marred for a good many hours if an express package containing personal goods coming from a great distance should not arrive on the hour.

We all know how an improvement in the facilities for rapid passenger transit shifts the centres of districts where people congregate to manufacture, and the districts where they gather to live. Towns prosper or decay according to transportation facilities, and the value of real estate is seriously affected by them. The manufacturer and the farmer knows what it means to buy and sell where the opportunity is greatest, and how important the item of a quick, safe, and economical transportation of their goods has become at the present day, when the fluctuations in the value of raw material have become an ever increasing factor in the cost of the finished product.

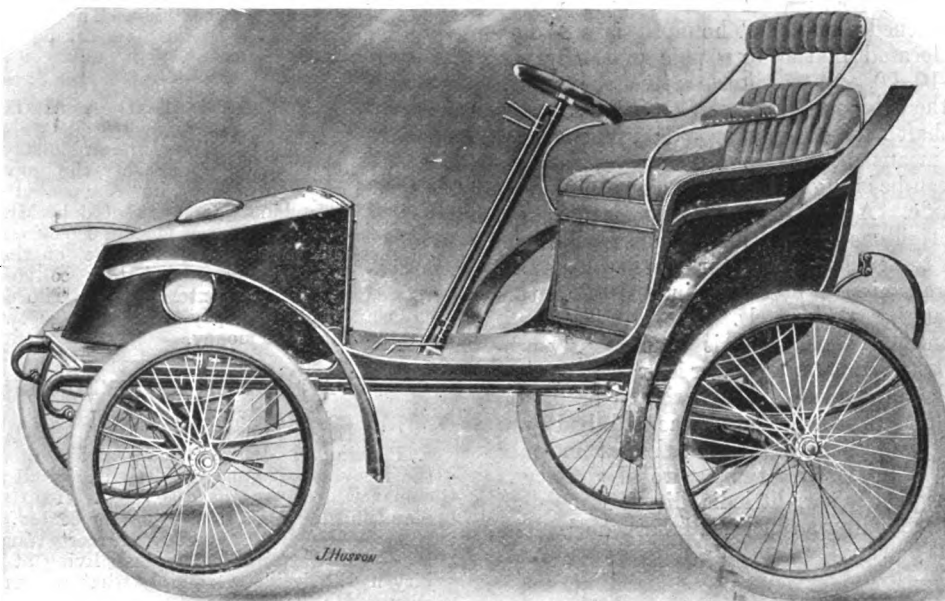
Before the advent of the railway overland transportation was limited to the public highways. Washington maintained that the future prosperity of the country would depend on more horses and national roads, and it can be well said that his prediction has been fulfilled if we only substitute for the word "horse" the words "motive power." When, long after Washington's days, the locomotive appeared, the prevailing idea was that there would be little further use for horses and that all traffic would soon be handled by steam roads. It was different. The fact became apparent that traffic begets traffic, and that the increased opportunity which the railway presented stimulated local enterprise and necessitated the employment of more horses and wagons to ply to and from railway stations. It can be safely stated that the amount of merchandise hauled by horses on our streets and over short distances is as great in the aggregate as that carried by the railways over long distances.

The advent of the bicycle and of the electric tram-car characterised similar periods of apprehension on similar lines, and yet statistics show that the number of horses in use has so far been little affected. However, it bids fair that with the advent of the motor-carriage this increase may now be checked, to gradually give way to a diminution in the number of horses used. Some enthusiasts have already predicted that it will be

only a few years before there will be no horses on the streets. This sanguinism is not justified. However, while the horse will continue to remain man's best friend among the brute creation as a saddle horse, and will probably never be wholly substituted in the propulsion of fancy carriages, there can be little doubt that the motor freight vehicle has come to stay and will eventually supersede the horse as a beast of burden. It will evidently be a question of some time and evolution before it will become a universal institution and of the greatest importance to transportation interests.

The motor wagon presents a problem which should admit of no prejudice. It is a case free from sentiment, and merely influenced by economic considerations. The elements constituting in principle a successful motor-vehicle were known and experimented with by enterprising engineers some eighty years ago. The reasons why those experiments did not lead to results are not far to seek. It was then the time of railway development, and the new competition from the railway did not encourage costly experiments for a competitive line. Furthermore, the machinery used in the motor carriages was in a crude and undeveloped state. The revival of the movement, which may be said to have begun not more than ten years ago, has met with a great deal of indifference and prejudice. It has been

contended that these wagons would frighten the horses, while we can say to-day that most horses soon become accustomed to the peculiarities of their new competitor. Most of this opposition has come from prejudiced quarters; many of the opinions have been volunteered by persons who had never ridden in a motor-carriage, and whose remarks were intended for consumption by the home circle. The advantages of any kind of self-propelled vehicles are patent to any one who stops to give the matter unbiassed thought.



THE VINET VOITURETTE. (For description see next page.)

One has only to think how quickly a motor-wagon with its reduced length can thread its way through crowded thoroughfares, and how it thus saves road space which is at present occupied and made dangerous by the oftentimes erratic horse. It may be contended that the heavier weight supported by the largest types of motor-wagons will damage the roads, but this can be proved to be a fallacy, since even if such damage did occur it would be more than outbalanced by the pounding and tearing action of the horses' hoofs.

One of the necessities for the successful running of motor-vehicles, for some time to come, will be a good road surface, and those responsible for the maintenance of public roads could well afford to encourage the new movement, seeing that by the use of motor-wagons a considerable saving will be effected in the matter of street cleaning, let alone the improvements in the hygienic condition of the roads. The matter of safety has often been doubted, and, while we will consider it later when studying the characteristics of different systems of motor-wagons, it may here be said that statistics have already shown the new vehicle to be far safer from accidents than the horse-drawn vehicles.

At times the horse will stop of its own sweet will, and refuse to budge, but, in case of emergency, using his best efforts he could seldom pull up from full speed inside of less than thirty yards. It necessarily takes time to communicate the driver's will to the horse's brain, and from there to the horse's muscles.

* Abstract of a paper read by Mr. A. Herschmann, before the American Society of Mechanical Engineers.

A motor-wagon, on the other hand, can be quickly stopped, as powerful brakes are within easy reach of the driver, whose intelligence alone is challenged, in case of emergency. In addition, the driver of the motor-wagon will have a clear view of the road ahead without being perched high in the air. It is very difficult to avoid an accident with a horse-driven wagon should the pole chain break, and it is naturally most likely to break when it is most wanted, *i.e.*, when suddenly pulling up. There is another important item which is strongly in favour of the motor-wagon as compared with the use of horses. Horses are dependent on the weather. Flies molest them in summer time, and the driver is often led to believe they are sick or tired, and will naturally slacken up for fear of straining them. Climbing a steep hill he will often get off the wagon to save his horses, and it is evident that all this interferes with economical transportation.

(To be continued.)

THE VINET VOITURETTE.

THIS week we are able to illustrate (*see page 293*) a new two-seated voiturette, which has lately been put on the market by M. G. Vinet, of 25, Rue Brunel, Paris. The frame of the car is of tubular construction, and is so arranged that any form of body may be attached thereto. The motor is a $3\frac{1}{2}$ h.p. water-cooled De Dion, located in the fore part of the frame. Three forward speeds—10, 20, and 35 kilometres per hour—are provided, the power of the engine being transmitted by a single belt to a small counter-shaft behind the rear axle. The change in speed is obtained by means of three pinions on the counter-shaft, any one of which can be brought into gear with corresponding pinions on the rear axle. A special arrangement is provided whereby the belt can be tightened or slackened as desired. Thus in the case of a block in the traffic the motor can be instantly thrown out from the transmission by slackening the belt, this being also done when changing the speeds. The variable speed-gear works in an oil-containing case, and is consequently protected from dust and dirt. Ample brake power is provided, there being a hand brake on the differential gear and similar brakes on the hubs of each of the rear wheels. The frame and body are suspended on easy springs, and it will be noticed that not only is the wheel base a long one, but that the centre of gravity is very low, there being consequently very little liability for the car to overturn. Steering is controlled by an inclined hand wheel. The weight of the car is about 5cwt.

THE quarterly 100-mile and hill-climbing trial organised by the Automobile Club is fixed for Wednesday, the 27th inst.

THE Automobile Club of Austria is organising a motor-car tour from Vienna to Paris, in connection with the Exhibition.

A LARGE ten-seated wagonette, with canopy, was just on the point of being despatched to the Derby Motor-Car Company when we looked in at the dépôt on Holborn Viaduct, E.C., of the Motor Manufacturing Company, Limited, the other day.

MR. F. W. HUDLASS, of the Phoenix Works, Southport, has sent us a copy of an illustrated price-list he has issued. It gives particulars of the Hudlass five-seated car recently illustrated in these columns, also of the Hudlass petrol motor and a variety of accessories.

WE learn that the hill-climbing trials of motor-vehicles announced by the Catford Cycling Club to take place at Westerham Hill at 7 p.m. on Saturday, the 30th inst., will be held under the rules of the Automobile Club, as the rules of the National Cyclists Union do not affect road trials. The rules of the A.C.G.B.I. will permit of the pedalling of motor-tricycles in this competition.

THE Scottish Motor Company, Limited, has been formed with a capital of £10,000 in £10 shares, of which 500 are now being subscribed for. The chairman is Mr. John Harper, jun., of Aberdeen, and Messrs. W. Harper and R. J. Murray are the joint managing directors. A building in Hope Crescent, Edinburgh, is to be rented, and a concrete track will be laid on which purchasers will be taught to drive. The sole agency for the Benz car in Scotland has been acquired.

ACCIDENT.

AN accident, in which one of Mr. A. C. Harmsworth's motor-cars figured, recently took place in Castle Street, Reading. The car was in charge of Mr. Harmsworth's engineer and valet, and was proceeding to the station with a number of trunks. As it was being steered around a carriage a young woman, who was on a bicycle following a cart, going in the opposite direction, wheeled out (on her wrong side of the road) just in front of the car. The driver tried to turn out of her way, but she appeared confused, and steered right against the machine, which knocked her down. One of the wheels passed over her head, and her face was considerably injured, though the mischief was found to be by no means so great as was at first feared, the wheels of the motor-car being fitted with very resilient pneumatic tires.

FURIOUS DRIVING CASE.

AT the Hull Police-court, on Saturday, Thomas Henry Hawley, thirty-five, cycle and motor-car manufacturer, Scarborough, was charged with driving a motor-car at a furious rate on the South Foreshore Road, Hull, the previous day. Defendant denied the charge. P.C. Mansfield deposed to seeing defendant drive the car, in which was a lady, along the thoroughfare in question at full speed. On defendant returning witness spoke to him. There was a great deal of vehicular traffic at the time, and the reckless conduct of the defendant involved great danger. Defendant said that even at a slow rate the revolutions of the engine were extremely rapid, and this probably gave the witnesses a wrong impression as to the actual speed. At twelve miles an hour there would be 1,500 revolutions per minute. The magistrates imposed a fine of £1, including costs, the Chairman remarking that the Bench regarded the case as a very serious one.

DAMAGING A MOTOR-CAR.

AT the Merthyr Police-court, on Monday, David Lewis was summoned for wilfully damaging a motor-car, the property of the Merthyr Motor-car Company. Mr. D. W. Jones appeared in support of the summons, and the defendant was represented by Mr. Beddoe. The defendant is a brakedriver, and it seemed from the evidence that whilst the car was on the stand at Troedyrhiw he got on the driver's seat and set the car going, with the result that it collided with a brewer's dray and was damaged to the extent of £5. The defendant was fined 10s and costs, and ordered to pay the £5 damage, two month's time being given to him to find the money.

AN ACTION FOR WRONGFUL DISMISSAL.

AT the Norfolk and Norwich Assizes last week, the case of Egerton v. Pennington and others was heard. This was an action for the recovery of damages for wrongful dismissal. A special jury was empanelled to try the case. Mr. Kemp, Q.C., and Mr. Low were for plaintiff; defendants were unrepresented. In opening the case, Mr. Kemp said plaintiff was Mr. Herbert Wingfield Egerton, a young man, the son of a Norfolk clergyman living at Weston. The question the jury had to decide was simply what amount of damages was due to his client. He had made a study of motor-cars and cycles, and was approached by defendants, motor-car manufacturers, of London, to come into their employ. He entered into an agreement with them for five years, the salary to be £200 for the first year, rising £30, with a minimum commission of £100 the first year, £150 the second, and rising £30 a year. He entered their employ on February 23rd, 1899, and on July 26th of that year was told by Mr. Pennington that he had better take a short holiday. He came down to his father's home in Norfolk, and, although he wrote them on several occasions he was unable to hear from his employers. He subsequently sued them in the High Court for a month's wages, and succeeded in obtaining a verdict. Defendants were also absent on that occasion. The total amount receivable under the agreement was £2,032. Of this he had received six months' wages and commission.

Plaintiff, in giving evidence, stated that after six months' inaction he obtained employment with a London motor-car syndicate, but it was not very satisfactory, and he relinquished it. He was out of a situation now, but had reasonable prospect of obtaining one.

Summing up, Judge Bigham pointed out to the jury that plaintiff was entitled to recover for what benefit he had been deprived of by his employment having been taken from him. He had been out of a situation for six months, and there was also £16 3s. 4d. due to him as wages. He advised the jury to give but moderate damages, as he thought they would adequately meet the case. The jury retired for private consultation. Returning into Court a few minutes later, they announced that they had decided to award plaintiff £16 3s. 4d., wages due to him, and £300 damages. His lordship remarked that it was a very proper verdict.

A 100-KILOMETRE race between Salon, Arles and Salon is being organised by the Automobile Club de Salon for July 1st. The competition is open for (1) cars weighing over 400 kilograms, (2) motor-cycles, and (3) voiturettes weighing less than 250 kilograms.

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COMMENTS.

ON Wednesday morning the discussion on Professor Hele-Shaw's paper on Road Locomotion was resumed at the Institution of Mechanical Engineers. Most of the discussion was, however, of a different character to that we would have expected at such a meeting, and the points of constructional interest that were elucidated were not many. Mr. E. J. Chambers thought that the Institution should take up

the question of motor-cars, and Mr. Bryan Donkin urged more study of the vibration of cars. Mr. Allen Jones deplored the lack of knowledge of the rules of the road shown by some automobilists. Mr. H. Sturmeay asked engineers to study the circulation of the water, as the failure of the pumps was the cause of the greatest number of troubles during the recent Trial. Mr. Hemming, an American representative, spoke strongly in favour of the noiselessness of the American motor, instancing the Stanley (now known as the Locomobile) steam vehicle as a case in point. With regard to smoke, he declared the two factors necessary to secure its absence were the use of the best American oil and American anthracite coal—a statement doing honour to his appreciation of American things, and one that greatly amused his audience.

The Tare Weight:

SUBSEQUENT speakers included Mr. Fowler and Mr. Thornycroft. The former had had six months' experience with a heavy lorry and recognised that it was essential that steam should be employed in such work. There had been

no troubles with horses when the drivers did not call the attention of their animals to the presence of the motor-vehicle. The only animal with which they had had trouble was a bull fastened to a cart, that wanted to charge the lorry and upset the cart in the attempt. He thought the proposed trials at Liverpool were scarcely long enough and vehicles should be run at least six months, as many little things developed in the course of constant running that could not be ascertained in a week's trial. The three-ton tare necessitated the use of a great deal of aluminium, and if the tare could be raised it would be a great advantage. The boilers, too, should be as large as possible. Mr. Thornycroft referred to the restriction of the present tare limit and thought the Institution of Mechanical Engineers might try to secure a raising of the present limit. Mr. Worby Beaumont dealt with the question of roads and the comparative costs of motor, horse, and railway cartage.

End of the Discussion.

He was followed by Mr. Sydney F. Walker, who said that the electrical vehicle would be the vehicle of the future, for it would secure a perfect method of control. At the present time there was an undoubted drawback in the fact that the electrical accumulator would only provide for a run of forty

miles. He believed that to obtain the current without the lead plate might provide a remedy in the future. Mr. Holroyd Smith suggested that some of the details in the paper would provide material for future discussions. Having criticised a few of the points he described a method of securing a perfect radial movement between the hub and the tire, and no other movement—a necessary condition in any spring wheel. In his reply Professor Hele-Shaw promised to make some addenda to his paper, and gave full particulars of the trials projected by the Liverpool Self-Propelled Traffic Association.

A Display of Cars.

DURING the latter stages of the discussion a few motor-vehicles were being assembled in front of the handsome building of the Institution of Mechanical Engineers at Storey's Gate. The first to arrive were three heavy vehicles on the Thornycroft system, two being steam vehicles for Messrs. Harmsworth, and the other the motor dust-cart which the Strand Board of Works has been employing with marked success. Then came a motor-tricycle, and Mr. W. J. Peall on his Daimler was the next to arrive. Mr. C. Cordingley's Iveagh phaeton, Mr. Mark Mayhew's Peugeot, Mr. T. B. Browne's Panhard (with Captain Langrishe as passenger), and Mr. Roger Wallace's car (driven by Mr. Northey), gave the engineers some idea of the lighter vehicles about which something had been said in the course of the discussion. In one thing they were disappointed. Instead of appearing on his famous 1,000-mile Trial car, Mr. Rolls came along on a bicycle with a very large gear wheel. It had been anticipated that more vehicles would have been *en evidence*. The dull morning probably had something to do with the meagre display.

The Automobile Club 1,000-mile Trial.

THE final meeting of the Judges for the recent Automobile Club 1,000-mile Trial took place at the club on Tuesday, 26th inst., when the list of awards was completed, and together with the judges' reports were passed into the hands of the printers. The number of calculations on various points which were considered by the judges, in arriving at the awards, exceeded 1,500 in number. We understand that the awards will probably be made public on the morning of Friday, July 6th.

Motor-Car Trips.

THE Midland Motor Agency, of Acocks Green, Birmingham, has bought up the cars and stock of the Motor Touring Company, Ltd., of Llandudno and Stetchford, and proposes to run the cars to places of interest in the Midlands and also to let them out on hire. The purchase includes the whole of the assets of the projected Motor Excursions, Limited. The manager of the Midland Motor Agency is Mr. A. J. Aldred, who was manager to Captain Cragg in the formation of the Motor Touring Company—the first company, it is said, formed for the purpose of working a passenger service.

A Run from Brighton.

ON Saturday Messrs. Blake and Rush, with four other gentlemen, went to Newhaven to meet a 6 h.p. Panhard wagonette, on which they made a good run to Brighton, the only difficulty arising from the heating of the bearings. The car was stabled with Messrs. Monk and Lonsdale, of Brighton, who are splendidly equipped for dealing with motor-cars, and whose attentions to the vehicle were much appreciated. On Sunday the party of six came up to London on the wagonette in very stormy weather. This, however, did not seriously detract from the pleasure of the trip, as the car is fitted with a canopy and waterproof curtains and has a glass front.

Motor-Cars for Military Purposes.

MAJOR-GENERAL SIR F. MAURICE, K.C.B., has proposed a scheme for the utilisation of cyclists for defensive purposes, which is to receive a full trial on the August Bank Holiday. Not only is he an advocate of the extension of military cycling, but he is also of opinion that motor-cars could be usefully employed and he will be glad of the opportunity to use them experimentally if he can obtain suitable vehicles for the purpose. This is a chance of which motor-car manufacturers should be very ready to avail themselves, and we shall be glad to know that several vehicles of different types have been brought to the notice of Major-General Maurice for experimental purposes.



MESSRS. E. J. PENNINGTON AND C. G. WRIDGWAY TESTING THE LATEST PENNINGTON CAR IN AMERICA.
Coming down hill at about 60 miles per hour!

An Automobile Club for Yorkshire.

A MEETING of gentlemen interested in automobilism was held in Leeds a few days ago, and presided over by Dr. Farrow, of Cleckheaton, to consider the question of the formation of an automobile club for Yorkshire. It was decided to form a club to be called the Yorkshire Automobile Club, that it should be affiliated to the Automobile Club of Great Britain and Ireland, and that the subscription be £1 1s. per year, with associates at half the price. A committee, consisting of Messrs. R. Winn, C. Korte, A.W. Dougall (Leeds), H. Hay (Bradford), J. E. Tuke (Harrogate), Dr. Farrow (Cleckheaton), with A. I. Greenwood as hon. sec., was chosen to draft rules, etc., to be submitted to a further meeting.

Proposed Tax on Automobiles.

WHAT brilliant ideas emanate from the minds of some rural councillors! This is especially the case with regard to motor-vehicles, etc., which are calculated to quicken the progress of the world. Some few months ago the Yeovil Council distinguished itself in an attempt to reduce the speed of motor-vehicles, and now the Ashbourne (Derbyshire) Rural District Council is circularising similar bodies with the view of inaugurating a combined movement to secure the imposition of a tax on cycles, motor-cycles, and motor-cars. The worthy councillors suggest that the proceeds of the tax should be devoted to the repair of the highways. This is, of course, a very desirable use

of the money, but, seeing that the wear and tear of motor-vehicles on roads is considerably less than that caused by horse-drawn vehicles, does it not seem absurd to suggest that the owners of automobiles should be taxed to repair the damage done by horses and the vehicles with which they are associated?

Automobile Racing in America.

IN our issue of May 4th last we gave the results of the first automobile road race organised by the Automobile Club of America. The distance was fifty miles and the route from Springfield to Babylon, N.Y., and back. There were nine starters, of which seven finished. It will be remembered that the race was won by Mr. A. L. Riker, who, driving an electric car, made the journey in 2 hrs. 3 min. 30 sec. On page 305 we are able to publish, by the kindness of our American contemporary, the *Automobile Magazine*, three snapshots, taken during the race. The first shows Mr. C. J. Field driving a De Dion voiturette, with which he secured the sixth place in 2 hr. 48 min. 42 sec. The second illustration shows Mr. A. C. Bostwick and M. Léonce Blanchet. The former gentleman who is now in France, as recorded in our last issue, opened the eyes of French racing *chauffeurs* by securing third place in the Bordeaux-Perigueux race. The third picture of the series depicts Mr. A. L. Riker, the winner, arriving on his electrical car at the finishing point of the race.

The Split in the Belgian Automobile Club.

As was anticipated, the secession of certain members from the Belgian Automobile Club has duly come about, and now Belgium as well as France rejoices in a new society. It is reported that at the initial meeting of the secessionists, among whom, by the bye, General Willaert is a prominent figure, it was decided to style the new organisation the Moto-club of Belgium, but as there is already in existence a society bearing this name, it is evident that the new club must adopt another title. I believe, writes our Paris correspondent, that I am correct in saying that the Moto Club de Belgique has for its president M. Léon Dehaut, and that it has been in existence some eighteen months. After all the name matters but little, and if the members of the new society are really prompted by a desire to see the promotion of the welfare of the industry, and are not motivated by any personal feelings against the leaders of the "A.C.B.," automobilism in Belgium should certainly benefit by the appearance of the new organisation. If, on the other hand, it is simply the result of personal disagreement, then the industry, as well as both the old and new clubs, will be made to suffer.

Tolls.

OUR correspondence columns this week contain something of interest to those who go by motor-car to Marlow and elsewhere. We also give information with regard to the Automobile Club's attitude towards similar charges as are referred to by Dr. Dobson. We are glad that gentleman has written on the subject, and feel confident that if every automobilist who is charged these exorbitant tolls would write to us on the matter the publicity thus obtained would help any agitation that may be raised for their removal. The instances given are not the only ones that could be mentioned, and it is gratifying to know that the Automobile Club is watchful of the interests of motorists in this respect. Every individual owner can help his fellow-motorists by making public the charges at the various toll gates through which he passes.

Spatula.

To spread plaster over another substance or to assist in counterfeit work a spatula is often necessary, but that it should have been adopted by motorists to lay a certain veneer of dignity upon themselves is surprising. Decorum should warrant silence when confrères go ahead. Such a course would certainly be found more dignified than spiteful exclamations—

cheap though they be—and we would urge these who thus employ themselves to make a better use of their time.

Electrical Vehicles.

In his presidential address at the Convention of the Municipal Electrical Association held at Huddersfield, Mr. A. B. Mountain referred to electricity in connection with motor-vehicles. When considering the various types of motor-cars now on the market, he said, it might be imagined that electricity was of little use, because the length of run was limited to about forty miles with one charge, and that the difficulties of charging impeded its application. These difficulties disappeared if they considered the commercial use to be made of the motor-car. As a means of conveyance for tradesmen, cars would not be required to cover more than about twenty miles a day, and if municipalities arranged charging stations in convenient positions such cars should be speedily adopted. If the charging were done at night or in the early morning energy could be supplied at a very low cost. For long distances petroleum at present had an advantage over electricity owing to there being no facilities for charging in out-of-the-way places.

A Strange Affair.

MR. MOFFAT FORD and the South-Eastern and London Chatham and Dover Railways have been engaged in litigation, the former bringing an action for assault. From the report appearing on another page the ordinary reader will see the yard at Victoria Station must have been in something like confusion, and that the antipathy of the cabmen to the motor-vehicle was probably the cause of the difficulty. That being so, it seems strange that the railway company should have allowed the case to go into Court, for although they may have been technically right, it does seem to be straining a point to refuse the assistance of their own police in taking the name of a boy who was obviously in the wrong. Motorists should be very careful when at Victoria.

Motor-Cycle Racing at the Crystal Palace.

THE motor-cycling contest at the Crystal Palace this afternoon should prove of considerable interest. The meeting is under the auspices of the Automobile Club and will commence at three p.m., when the one hour scratch race will be started. For this Messrs. F. Wellington, C. Machin, Moffat Ford, S. F. Edge, C. Jarrott, and E. Buck have entered. In the ten miles handicap all these have entered, together with Mr. J. Cusins. Messrs. F. Wellington, C. Machin, J. Cusins, S. F. Edge, and E. Buck will compete in the five miles scratch race and in the three miles club handicap the entries are Captain Langrishe, Messrs. Campbell Muir, C. Jarrott, and S. F. Edge.

The Officials.

ALL the above competitors have been registered under the rules of the A.C.G.B.I. The officials of the track will be as follows:—Judge, Mr. R. E. Phillips; starter, Mr. T. W. Staplee Firth; observers, Hon. C. S. Rolls, Hon. J. Scott Montagu, M.P.; Sir D. Salomons, Bart.; Mr. Robert Todd; hon. timekeeper, Mr. Harry J. Swindley; competitors' steward, Mr. C. Johnson.

Courtesy on the Road.

DESPITE the crisis in China and the news from South Africa, the London *Standard* has been able to find space for several letters from correspondents complaining of motorists who took no notice of signals to stop when asked to do so. Unfortunately there are drivers of motor-cars who lack consideration for nervous horses and frightened drivers of horse-drawn vehicles, but their number is few. It certainly is the duty of automobilists to show ordinary courtesy and to pay proper respect to the feelings of nervous horses, and we are certain that

the great majority of motorists do not err in that respect. But the fact that there are some who ride, never heeding passing traffic, is to be regretted. Those who write to the papers to magnify the number of such delinquents should remember that they constitute but a small proportion of automobilists.

Motor-Cars and Parliament.

THE fact that Mr. A. J. Balfour has ordered a voiturette, and will soon be classed among automobilists, should be encouraging to those who heard Mr. T. W. Russell inform M.P.'s last week that the Local Government Board was considering the identification of motor-cars. Mr. R. J. Price, one of the Norfolk members, appears to have heard that some motor-cars have been driven about the country at an excessive speed, and has asked whether a provision could not be made compelling every motor-car to carry a distinctive number, of such a size as to render identification easy. Evidently the opposition to the progress of automobilism is not yet inactive, and motorists must be prepared to unite for their mutual protection.

Roads in Ireland.

MANY automobilists who went on the 1,000-mile tour, and many who did not, would like to make a similar progress through Ireland next year. Certainly the experience would be a delightful one if fairly decent stretches of road were selected. We are glad to see from the Wexford papers



THE 1000-MILE TRIAL. THE GEORGES RICHARD CAR AT ST. ALBANS.
(Photo by) (Mr. E. Kennard.)

that Colonel Magrath is endeavouring to arouse the local authorities to some recognition of their duty in improving the roads and so rendering such a tour possible and pleasant. There is no doubt an automobile pilgrimage would prove of great advantage to the hotel-keepers and to those who are anxious to make Ireland popular among tourists, and hence we hope the Colonel's advice to the local authorities to improve their roads will be acted upon. If the Irish people would bring their roads to the standard of English highways they would have a great influx of visitors, pedestrians, and cyclists, as well as motorists. Irish newspapers wishing to see the further prosperity of their country would materially assist its progress by drawing attention to this urgent need.

THE British Consul in Java, in his report for 1899, just issued, states that a firm in mid-Java has lately taken up the import and manufacture of motor-carriages, tricycles, etc. The trade is, he adds, however, still a small one, prices being somewhat prohibitory.

SPEED TRIALS IN BELGIUM.

UPON the Sunday following the Gordon-Bennett International Cup race the Automobile Club of Belgium held a series of speed trials over a distance of one kilometre on the well-known Dieghem road at Brussels, when some remarkable times were achieved. In the category reserved for cars fitted with motors of more than 12 h.p., two of the racers specially built for the International event were competing, and, as would naturally be expected, the greatest interest was manifested in their achievements. Belgian automobilists had been keenly disappointed by the non-starting of these cars in the cup race, for capital performances had been confidently anticipated from them; indeed, some of their more enthusiastic supporters had even expressed belief in an outright win for the Belgian colours. But the uncertainty as to whether the race would or would not be contested on the 14th instant seriously interfered with the arrangements of the Belgian contingent, and when upon the Tuesday afternoon previous to the *course* the international representatives decided to hold the race upon the originally selected date it was seen that Belgium's specially constructed cars would not be received in time to line up at the start. As a matter of fact the vehicles only arrived in Paris a few hours before the start of the race, and during that eventful Thursday they were resting tranquilly at the railway station. No wonder then that a goodly crowd of motor-men assembled last Sunday afternoon to witness these mighty racers go whizzing by upon the Dieghem road. Constructed on the Bolide system, these two cars are provided with 30 h.p. motors, and should their staying powers equal their pace they would certainly have run Charron and his Panhard pretty close in the cup contest. On Sunday last M. Jenatzy's mount made the kilometre, with flying start, in 38½sec., which represents a speed of 94 kilometres, or 59 miles per hour. This is the fastest time ever officially recorded, the previous best being that made by M. Albert Lemaître on his Peugeot during the Nice week of 1899. M. Lemaître's time upon that occasion was 47½sec., but it must be borne in mind that there are now in France several cars quite capable of greatly improving upon this figure. Take for example M. Levegh's performance in the Bordeaux-Perigueux event early this month, when he covered 116 kilometres in 81min., which represents an average of 42sec. for each kilometre throughout the journey. M. Jenatzy has now the proud distinction of holding the world's kilometre record with flying start on two types of cars, for, as is well known, it was he who drove the electric car, "La Jamais Contente," over this distance in 34secs. The second Bolide car was driven on Sunday by M. Lefebvre, and his time was 39½secs., equalling a speed of 94 kilometres (57½ miles) per hour, also a splendid performance. In another category, that reserved for cars of eight to twelve horse-power, a capital run was made by a Gobron and Brillié, a vehicle which has hitherto not been regarded as particularly fast. This car made the kilometre in 58½secs., equivalent to a speed of 62 kilometres (39 miles) per hour. Coming to the steam cars, a record was achieved by M. Miesse's mount, which ran the distance in 48½sec. which represents a speed of 74 kilometres (46¼ miles) per hour. The previous best was that made by a Serpollet car at Nice this spring, viz., 65½sec. The only other noteworthy performance was that achieved by the 6 h.p. voiturette of M. Guders, which covered the kilometre in 68½sec., or at a speed of 53 kilometres (33½ miles) per hour. In all the categories the majority of automobiles were of home manufacture, a striking testimony to the flourishing condition of the industry in Belgium and the quality of the vehicles constructed. The complete official returns were as follows:—

MOTOR-CYCLES.

		Time in seconds.	Speed per hour in kilometres.
1. V. Dratz	3½ h.p.	57½	62
2. De Ridder	2½ h.p.	76	47

VOITURETTES OF MORE THAN 4 H.P.

1. Guders	6 h.p.	68½	53
2. Liedekerke	6 h.p.	92½	39

VOITURETTES OF LESS THAN 4 H.P.

1. De Ridder	3 h.p.	73½	49
2. Madon	3½ h.p.	73½	49
3. Dratz	3½ h.p.	74½	48
4. Liedekerke	3½ h.p.	95½	37
5. Delin	3 h.p.	108½	33
6. Moutens	3½ h.p.	119½	30

CARS OF LESS THAN 8 H.P.

1. Rivière	7 h.p.	73	49
2. Vanderspeck ..	6 h.p.	78½	46
3. Aubrey	6 h.p.	85½	42
4. Grégoire	6 h.p.	89½	40

CARS OF FROM 8 TO 12 H.P.

1. Roland	—	58½	62
2. J. de Crawhez ...	8 h.p.	67½	53
3. Maus	8 h.p.	101	35

CARS OF MORE THAN 12 H.P.

1. Jenatzy	30 h.p.	38½	94
2. Lefebvre	30 h.p.	39½	92
3. Wilford	15 h.p.	56½	64
4. P. de Crawhez ...	12 h.p.	63½	57

STEAM CARS.

1. Miesse	—	48½	74
2. Blacke	—	86½	41

THE Selby Rural District Council have passed a resolution in favour of a tax on motor-cars.

Two motor-cars have been licensed to run along the front from Hastings to Bulverhythe.

MOTOR-CAR excursions in Paris and district are now being organised by a concern known as L'Auto-Touriste, of Levallois-Perret.

MESSRS. LAMPLUGH AND CO., LIMITED, is the name of a company which has just been registered with a capital of £10,000, to carry on the business of cycle and motor saddle and accessory manufacturers, etc.

MR. C. H. OLIVERSON, of Queen's Road, Southport, is this week removing to his new works at Kendal, which are being equipped not only for the repair of motor-cars and cycles, but also for the construction of new motor-vehicles. Mr. Oliverston tells us that he is about to make a start with the building of half-a-dozen cars, part fitted with single-cylinder motors of from 4 to 5 h.p., and part with double-cylinder engines of 8 to 10 h.p. A feature of the cars will be the transmission gear, this including the Oliverston-Killingbeck variable gear, illustrated in our issue of January 26th last.

THE Automobile Club of America carried out a run from New York to Philadelphia on Saturday, the 2nd inst. Eight Locomobile cars, four Wintons, three Rikers, and two Columbia electrics started from the Waldorf-Astoria at 7.30 a.m. Mr. E. Schwartzkopf went in his fore-carriage petrol 'bus, carrying six passengers and all the baggage. The Automobile Company of America entered one petrol brake, which stopped at Staten Island, owing to a broken clutch. The *Horseless Age* states that Mr. George F. Chamberlain, president of the club, was the first to reach Philadelphia, arriving at the Bellevue Hotel in his Winton car at 7.20 p.m. Sixteen minutes later the second Winton arrived, with Mr. Percy Owen driving, and the Locomobiles and others followed. Mr. Schwartzkopf arrived late, after several minor breakdowns. Two of the Riker carriages arrived late at night, the batteries having been recharged *en route*. The third, which was Mr. Riker's racing machine, sustained a short circuit between Trenton and Princeton, and the two Columbias disappeared somewhere and were not heard of. The run was not supposed to be a race, but it quickly degenerated into a scramble for Philadelphia. Mr. Chamberlain and several others stopped at Princeton at noon and waited till nearly four o'clock for the stragglers. Several heavy showers delayed the run between Princeton and Philadelphia, and all reported the road between Moorstown and Philadelphia to be the worst they ever rode on.

AUTOMOBILISM IN CANADA.



THE progress of the automobile is universal. In pleasure-loving France, in business-like Germany, in go-ahead America and in more conservative England its day is approaching, while our British colonies are watching developments with interest. There is hardly a country where the motor-vehicle has not been; and there is certainly not a land where it could not be usefully employed. Under the diverse conditions that obtain in different climes engineers are at work improving and perfecting older forms of vehicles, and just as the first half of the nineteenth century witnessed great changes in methods of locomotion so the early years of the coming era are likely to see important developments with regard to the highways.

I recently had the advantage of a chat with Mr. W. J. Still, of Toronto, who has done much to further automobilism in the Dominion of Canada. He is of English birth, but has been so long in Canada that he has become as like unto the Canadians themselves—in feeling and sympathies—that he can regard himself as a Colonial. And what matters? Our Empire is so wide and so united that whether born in Surrey or living in Toronto he is a Britisher. Speaking generally on the matter we talked of the influence of national or racial traits on the prospects of automobilism. The Canadian seems to be a compound of Scotch caution and American pushfulness. He is inclined to consider new things and discuss their merits; but he must be fully convinced on the latter point ere he will purchase. Consequently any vehicle likely to secure his practical approbation must be a really commercial success. The Canadian is very thrifty, and horses are very cheap in the Dominion. That is a fact that must delay the progress of the automobile somewhat; still its use in Canada is growing despite the cheapness of horses and the badness of the roads.

"The fact that small independent charging stations are very much more common in Canada than in England," said Mr. Still, "has, of course, done much to help electric automobiles in the Dominion; but the presence of charging stations is not all that is required. The first questions generally are: How will the vehicle go up gradients, can it get out of mud holes, what will it cost, and how far will it go? Those questions answered the results are compared with the work of a horse, costing probably £4, and even then, when the work done is fairly heavy, the comparison frequently leads to the adoption of the motor-car."

Those who saw Mr. Still at the Motor Car Exhibition driving one of his electric phaetons and seated considerably off the ground, were inclined to regard such a high seat as inconvenient as well as unsightly. That may have been the case in this country, but in Canada it is otherwise.

"You must not forget the different conditions which obtain in Canada to those you know in the old country," said Mr. Still, when I sought his confidence on this point. "How should I have got along through twenty inches of snow seated on a vehicle with the axle at the height familiar in England or France? But that is not all. The marked peculiarity, I might almost say the characteristic feature, of Canadian roads is their ruts. In Toronto many of the roads

are composed of round cedar blocks with the intervening spaces filled in with sand, and in the country round about they are formed of what we call macadam. You would call it dirt. In the city itself the holes between the blocks are often eight to ten inches deep. Fancy a man on a De Dion voiturette or a quadricycle enjoying a ride over such roads. Certainly no Canadian would stand it."

Another point that has struck British people as rather strange in the Canadian electric vehicles that Mr. Still has introduced to this country is the sombre character of their appearance.

"The Canadian," I was told in response to my question, "is not generally a man who likes a car or carriage—whether horse drawn or motor propelled—upholstered and finished in bright colours. The American frequently goes in for bright yellow, while the Canadian favours dark blue, black, or dark green. Certainly in motor-cars he will have nothing that departs from what he has been used to in broughams and victorias."

Naturally, Mr. Still is inclined to regard the electric vehicle as the vehicle of the future—especially in countries where electrical developments have been most prominent in other directions.

"Automobilism is advancing," he said, "in both the United States and Canada. Going up the Broadway, New York, some time ago I counted seven horseless vehicles—cabs and delivery vans—and all excepting one were electric."

"What was the exception?" I asked.

"A Stanley steamer. It was a very cold day and the presence of the exhaust steam was clearly apparent. In fact, on the coldest days in our Canadian winters it would not be possible to run steam vehicles owing to the steam condensing on the exhaust pipes."

"Then you are prepared to range yourself with those who unhesitatingly declare for the electric vehicle under almost all conditions?"

"Yes, an electric commercial vehicle is quite possible, and even with the competition of steam and petrol such is likely to make headway. I have

seen nearly all the vehicles in use in this country, and few come up to my idea of what is a commercial vehicle. To be entitled to such a description it should be made so that any ordinarily intelligent driver can handle and keep it in repair and make all the necessary adjustments. Where is the steam or petrol vehicle that comes up to that test?"

It was not for me to answer. So slanting towards the *tu quoque* kind of argument, I asked Mr. Still if the electric vehicles of the company of which he is the consulting engineer—the Still Motor Company, Ltd.—were of such easy management.

"Certainly," he unhesitatingly affirmed. "I can point to a vehicle running in London which is being driven by a storekeeper who had not had any previous experience in handling such vehicles. After half an hour's tuition he was able to go alone. Then, after I had given him ten minutes' instruction in running, he took the car along the Embankment, up Whitehall, across Trafalgar Square, and along St. Martin's Lane without difficulty. He was quick at the work, but any man with fair intelligence could have done the same, and he has been running, cleaning, oiling, and keeping it in repair for three months."

Such an instance naturally gives Mr. Still confidence in the future of the electrical automobile.

"WHYBROW."



MR. W. J. STILL TRAVELLING ON HIS ELECTRICAL PHAETON THROUGH 20 INCHES OF SNOW IN TORONTO.

MOTOR-CARS ON THE CONTINENT.

Public Services in Italy.

ARRANGEMENTS are in hand for the establishment of a public service of motor-vehicles between the railway stations at Mortara and Vigevano and Parona, Cilavegna and Gravelona. It is also stated that a service of electric vehicles is shortly to be started between Spinea, Mirano, Noale, Scorze and Mestre (province of Venice).

The French Moto Club.

FOR the present the Moto Club de France continues to grow apace, and already the names of upwards of four hundred members are enrolled upon its books. The committee pursues its work of elaborating the society's governing rules and regulations with unabated energy, and yet finds time to attend to some of the minor details. A badge has been selected and will be sold to members at a very moderate figure, and an automobile excursion to Tyre-Château, near to Gisors, has been planned for Sunday, July 8th. A capital attendance is expected at this, the first outing of the new club, for already some twenty owners of cars have signified their intention to participate.

The Vincennes Motor-Cycle Competitions.

It was on the 18th instant that the competition for motor-cycles, organised in connection with the Paris Exhibition, commenced at Vincennes, and every day, excepting Thursday, until the 23rd inst., the machines were required to cover nearly 160 kilomètres. The scene of this long and trying competition was the automobile track which encircles the Lake Daumesnil, and the day's work consisted of 70 kilomètres in the morning and 90 in the afternoon. The question of speed did not enter into the judges' consideration at all, the awards being made to those competing cars which, by their regularity of action and their low consumption of fuel, proved themselves to be vehicles entirely suitable for use by the ordinary public, who desire a reliable and economical machine. Twelve machines presented themselves at the start of the contest, and a thirteenth commenced the task upon the following day. These were:—

No.		Motor of	Kilos.
1	Tricycle ...	74 x 76mm.	120
2	Tricycle ...	71 x 80 „	130
3	Quadricycle ...	75 x 80 „	180
4	Tricycle ...	74 x 75 „	130
5	Tricycle ...	80 x 80 „	124
6	Quadricycle ...	90 x 90 „	203
7	Quadricycle ...	90 x 90 „	218
8	Tricycle ...	76 x 90 „	136
9	Motor-bicycle ...	55 x 66 „	42
10	Motor-bicycle ...	55 x 66 „	42
11	Motor-bicycle ...	62 x 72 „	40
12	Motor-bicycle ...	64 x 70 „	—

Of these seven successfully carried out their trials, and on Monday last the official awards were made known. These were:

FIRST PRIZES (GOLD MEDALS).—No. 11. Bicycle-motor, 62 x 72; weight, 40 kilogs.; consumption, 23 litres 870; average speed per hour, 40 kilomètres 300 mètres. No. 1. Tricycle-motor, 74 x 76; weight, 120 kilogs.; consumption, 20 litres 579; average speed per hour, 38 kil. 400. No. 2. Tricycle-motor, 71 x 80; weight, 130 kilogs.; consumption, 20 litres 890; average speed per hour, 39 kil. 600. No. 3. Quadricycle-motor, 75 x 80; weight, 180 kilogs.; consumption, 29 litres 700; average speed per hour, 33 kil. 600.

SECOND PRIZE.—No. 4. Tricycle-motor, 74 x 75; weight, 130 kilogs.; consumption, 24 litres 230; average speed per hour, 39 kil. 500.

THIRD PRIZES.—No. 8. Tricycle-Motor, 76 x 90; weight, 136 kilogs.; consumption, 37 litres 360; average speed per hour, 43 kil. 200. No. 7. Quadricycle-motor, 90 x 90; weight, 218 kilogs.; consumption, 31 litres 770; average speed per hour, 41 kil. 600.

The motor bicycle which secured a gold medal is that known as the Werner; the other first-prize winners are of Rochet construction. Créanche built the second-prize winner, and the silver medals went to the "Energie" and the "Luc" motor-cycles.

The Artistes' Fete.

NEXT Friday, at Longchamps, there will be a fête which annually attracts a mighty crowd, and that is the sportive fête of the theatrical world of Paris. Commencing at two o'clock, the festivities will not cease until six, and throughout the long programme automobiles will play a prominent part. First of all there will be a race for artistes; then, an automobile gymkhana. This will be followed by a procession of florally decorated automobiles of the theatres of Paris, and then an automobile battle of flowers will take place. Later in the afternoon a country fête will be indulged in; and the list of pleasures will conclude with a concert at the Châtelets du Cycle. This is invariably one of the most delightful fêtes of the year, and it appeals doubly to motor-men, for it affords them an opportunity of seeing the prettiest women and the handsomest motor-cars in Paris at the same time. What more can one desire?

The Béconnais Souvenir.

It will be remembered that after the Nice and the succeeding race meetings in the south of France, at which Béconnais raced so brilliantly and with such barren results, some of his admirers opened a subscription list through the medium of the *Vélo* for the purpose of presenting the "roi des motocyclistes" with a souvenir of his performances. This list was closed some few days ago, and after consulting Béconnais' wishes the presentation took the form of a handsome gold watch-chain. *A propos* of Béconnais, it may interest English readers to learn a little of the history of this intrepid rider. Born at Angers in the year 1867, he commenced what proved to be a long and successful career as a racing cyclist in the autumn of 1883, being then sixteen years of age. His maiden race was one of 52 kilomètres from his native town to Janzé, and he was classed but seventh, the winner being another Angevin, now also a famous *chauffeur*, viz., Charron. During the following two years Béconnais continued to race, but with only trifling success, and it was not until 1886 that he came well to the front as a cyclist. In that year he first made his mark by running second to Terront in a four hours' race at Angers, and later on he occupied a similar position in a big event at Agen, the actual winner of the latter *course* being Paul Rousseau, now a director of the *Vélo*. A year later at Angers he ran Charron, Laulan, and Terront very close in an international event, and a few days after this race he succeeded in setting up a record for four hours in the annual *course* at Angers. His distance was 105 kilomètres, and among the vanquished men were Terront, Laulan, and Médinger. In 1888 he did excellently, perhaps his most notable performance being his record of 1h. 36min. 24sec. for the 50 kilomètre tricycle race. During the following season he scored many victories and in 1890 he finished first in thirty and second in twenty-seven events. It was during the latter year that he gained the 100 kilomètre championship of France, beating both Terront and Dervil. During the following eight years—that is to say, down to the autumn of 1898—Béconnais continued to win some thirty races each season, and when in the spring of last year he decided to enter the ranks of the motor-cyclists, the whole French sporting world regarded the experiment with interest. And from his *debut* as a *chauffeur* Béconnais has been wonderfully successful, especially so over comparatively short distances, as witnessed by his marvellous performances over from one to one hundred kilomètres. Certainly at the present moment no one travels so fast as he does, and it was worth going a long way to see the hardly suppressed mirth of one and all in the crowded court at Saint Germain, when Béconnais, in response to the judge's question, blandly stated that on the day of Paris-Roubaix, when occurred the accident at the Croix de Noaille, his speed did not exceed *twelve kilometres per hour*. That little incident will live in the memory of all who were unfortunate enough to be in

court that morning. Béconnais racing at twelve kilomètres per hour! *Quelle vitesse!*

The Electric Race.

AN after effect of the speed at which the competitors in the International Cup race passed through Versailles has been the refusal of M. Poirson, the Préfet of the Seine-et-Oise, to allow the course for electric cars, which was set down for decision last week, to be run over his territory. This interdiction was very unfortunate, for all followers of electric traction were keenly anticipating the race, and the idea of its being prohibited was never for a moment considered, as the speeds attempted by touring electromobiles is never excessive. However, there it is, and unless M. Poirson can later on be persuaded to remove his embargo, manufacturers of electric cars will have no opportunity of displaying the powers of their cars. For the race in question some dozen vehicles had been entered.

Motor Boats.

ON Saturday and Sunday last the international competitions for motor boats, promoted by the Hélice Club, were carried out on the Seine at Argenteuil, and although the management was far from being ideal, the regatta cannot have other than a beneficial effect upon this somewhat neglected branch of the motor industry. Those launch owners who have never employed anything but steam engines upon their craft can have no idea of the conveniences of the petrol motor. The facility of starting without that long and weary wait for a head of steam, the cleanliness, and the certainty of action, all go to make the motor boat an ideal craft. For the entire success of the Hélice Club's regatta it is a pity that the organisation was not more perfect, and that the promoters had not given a little more publicity to their *fête*. Many people who take a keen interest in river locomotion were quite unaware of any such competitions taking place until the regatta was over, and the attendance on the opening day was but very sparse. On the Sunday the presence of a big holiday crowd certainly brightened up matters somewhat, while the semi-official visit rendered by the Rallye-Auto Club brought an influx of many well-known automobilists upon the scene. Several celebrities in the motor world were actually aboard the competing craft, and I may quote the names of Commander Krebs, who was on the Phoenix, M. Garcin on the Riquiqui, and M. Teste, who was in charge of the Aiglon's engines.

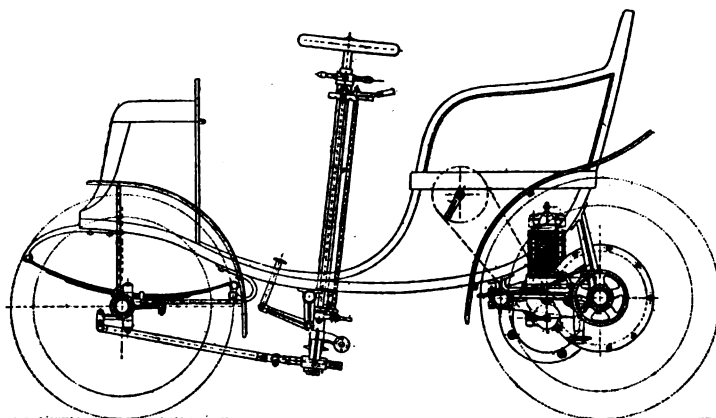
Saturday's official results were as follows:—First series, for boats of less than 6m.50 in length: 1, L'Aiglon, petrol; 2, Souris Blanche, petrol; 3, Surprise, petrol, 3½ h.p.; 4, Mandarin, petrol, 2¼ h.p.; 5, Sirène, petrol, 4 h.p.; 6, Nenett, petrol, 3 h.p.; 7, Le Brution, petrol, 2¼ h.p. The winner covered the 50 kilomètres in 2h. 40min., giving an average speed of 18 kilomètres per hour. Second series, for boats of 6m.50 to 8m. in length. 1, Olifant, steam, 6 h.p.; 2, Rainette, petrol, 2½ h.p.; 3, Isabelle, steam, 3 h.p.; 4, Centaure, petrol; 5, Petit Poucet, steam, 4 h.p.; 6, L'Abeille, petrol, 3 h.p. In this class the first boat took 3h. 21min. to make the voyage of 50 kilomètres, which represents an average speed of 15 kilomètres per hour. Third series, for boats of 8m. to 10m. in length: 1, Lisette, steam, 3 h.p.; 2, Suzette, steam, 7 h.p.; 3, Ellen, petrol, 4 h.p.; 4, Iris, steam; 5, Sport Nautique, petrol, 5 h.p. The Lisette made the 65 kilomètres in 4h. 40min., or at an average speed of 14 kilomètres per hour. Fourth series, for boats of 10m. to 15m. in length: 1, Phoenix, petrol, 18 h.p.; 2, Suzanne, steam, 15 h.p.; 3, Favourite, steam, 12 h.p. The Panhard boat took 3h. 49m. to cover 78 kilomètres, thus making the best average of all classes, viz., 20 kilomètres per hour.

The official returns on the Sunday were:—First series, for boats of less than 6m.50 in length, distance 13 kilomètres: 1, L'Aiglon, petrol; 2, Souris Blanche, petrol; 3, La Surprise, petrol, 3 h.p.; 4, Surprise, petrol, 3½ h.p.; 5, Sirène, petrol, 4 h.p.; 6, Mandarin, petrol, 2¼ h.p.; 7, Le Brution, petrol, 2¼ h.p. Second series, for boats of 6m.50 to 8m. in length, distance 13 kilomètres: 1, Centaure, petrol;

2, Rainette, petrol, 2½ h.p.; 3, Marie, petrol. Third series, for boats of 8 to 10 m. in length, distance, 20 kilomètres: 1, Riquiqui, electric, 8 h.p.; 2, Ellen, petrol, 4 h.p.; 3, Suzette, steam, 7 h.p.; 4, Iris, steam; 5, Pygmée, petrol, 5 h.p. Fourth series, for boats of 10 to 15 m. in length, distance 26 kilomètres: 1, Phoenix, petrol, 18 h.p.; 2, Suzanne, steam, 15 h.p.; 3, Favorite, steam, 12 h.p. The failure of the steam launches was even more marked on the second than on the first day, indeed, the petrol craft had matters all their own way, except in the third series, when M. Garcin's electric boat scored an easy victory. Prizes to the value of £1,000 were distributed among the successful competitors.

A New French Voiturette.

M. P. DUPRESSOIR, of Maubeuge (Nord), France, is the builder of the little two-seated voiturette illustrated herewith. The motor is located at the rear of the car, and is geared direct through the medium of a special three-speed gear to the gear axle. The choice of motor is left entirely to the purchaser, either a 2¼ h.p. De Dion or Aster air-cooled motor being fitted, or, if desired, a 3 h.p. De Dion or Aster water-cooled engine. The variable-speed gear is adapted to give 10, 20, or 32 kilomètres per hour, with the motor running at 1,800 revolutions per minute. Steering is controlled by an inclined hand-



wheel, on the standard of which all the control handles—variable speed gear, mixture, ignition, etc.—are mounted. Between the motor and the variable-speed gear a friction clutch is interposed, so that the motor can be instantly thrown out of gear. The clutch is controlled by a foot pedal, the continued depression of which brings into operation a band brake on the differential drum. A second pedal controls band brakes on the hubs of each of the rear wheels. The car is spring suspended at the front, while the wheels are of the cycle type with pneumatic tires. The motor is arranged to be started by the small hand wheel and chain gearing seen at the side, a free wheel device being introduced on the sprocket on the motor shaft. A speed of 32 kilomètres can, it is stated, be readily attained by the car with the engine running at 1,800 revolutions per minute.

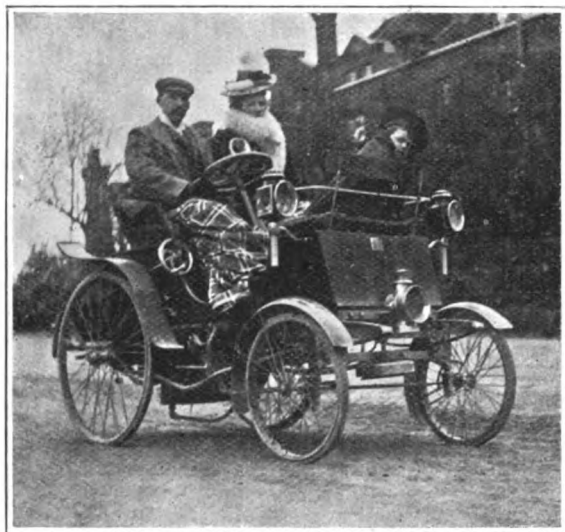
THE American Carriage, Car and Motor Manufacturing Company, Charlestown, W. Va., has been incorporated to make and deal in vehicles of all kinds. The capital is £1,000,000!

A BOURNEMOUTH Omnibus Company having recently commenced running on Sundays, the Town Council have unanimously resolved that at the expiration of all omnibus, motor-car, and excursion coach licences, no further licences be issued except on condition that the vehicles should not ply for hire on Sundays.

ARRANGED by the New York *World* some tests in lassoing cows from the seat of an automobile have taken place in Brooklyn. Two "Locomobile runabouts" were selected as suitable vehicles, and the cowboys, who operated from their seats, soon settled down to their work, and after the trial had been successfully carried through one of them said:—"There's one good thing about those carriages—they never buck."

THE BLAKE FOUR-SEATED PETROL CAR.

TOWARDS the close of the exhibition at the Agricultural Hall, Mr. F. C. Blake, of the Ravenscourt Works, Dalling Road, Hammersmith, brought in a new four-seated car built in accordance with his own ideas, and of which we are now able to publish an illustration. The motor is a horizontal four-cylinder one of the petroleum-spirit type, the cylinders being arranged in pairs opposite to one another, the pistons being connected up to a common crank shaft; it is of 7 b.h.p., with water-jackets, and is located in the centre of the rear portion of the frame; its normal speed is 800 revolutions per minute. The ignition is electrical by means of small accumulators, a feature being the employment of only one induction coil, with a special distributor, for the four cylinders. Two speeds, about five and fourteen miles per hour, are provided. The motor-shaft carries a drum, which is connected by a single belt to a first counter-shaft, carrying one loose and two fast pulleys. Connected to each of the fast pulleys is a pinion which gears with corresponding pulleys on a second counter-shaft. The first counter-shaft is carried in swinging arms, the belt being



continually kept taut by means of a spring. From the second counter-shaft to the rear road-wheel axle, which is a "live" one, the power is transmitted by a single chain. The frame is of channel steel, the body being supported thereon through the medium of rubber blocks. The wheels are of the suspension type with solid rubber tires. Steering is effected by means of an inclined hand wheel controlling the front wheels. The petrol tank, which has a capacity of eight gallons, is arranged in the front of the car. The engine is started by means of a detachable handle, while all the working parts of the motor are readily accessible. The water tank is of large capacity, while a radiating coil is also provided. The front mud-guards are fastened to the front axles and move with the wheels, so keeping mud from being splashed over underframe and machinery. A foot pedal controls a hand brake on the counter-shaft, while Price's tire brakes, acting on the rear wheels and controlled by a hand wheel at the side, are fitted. The car appears to run very quietly and with a minimum of vibration. Its weight complete is 10 cwt.

LA SOCIÉTÉ DES AUTOMOBILES PEUGEOT, of Audincourt (Doubs), France, has just increased its capital to £200,000.

A NUMBER of electric vehicles have been shipped from New York to Mexico to the order of the Mexican Electric Vehicle Company.

SOME experiments with motor-cars are about, it is stated, to be carried out by the fire brigade authorities at Frankfort-am-Main, Germany.

STEAM v. ANIMAL POWER FOR HEAVY TRACTION.

THE following statement by Mr. A. G. Lyster, the Engineer-in-Chief, Mersey Docks and Harbour Board, on the working of a Leyland motor-wagon, forms an appendix to the paper recently read by Professor Hele-Shaw before the Institution of Mechanical Engineers:—

This machine, which is a motor-wagon designed to carry a paying load of four tons, has its engine worked by steam generated by liquid fuel. The service is of a very special character, consisting as it does in conveying materials from a central dock-yard, where they are manufactured, to the various parts of the estate where they are required for the works, comprising only comparatively short journeys, and returning with such loads as may be picked up for the yard or intermediate positions. The wagon is by no means, therefore, either constantly fully loaded or employed; it has to wait for longer or shorter periods, according to circumstances, at its several stages or points for discharging or loading, or elsewhere; and altogether the conditions are extremely unfavourable for affording data which would be of benefit to firms whose work is of a more regular and uniform character.

The cost per ton-mile varies very largely according to the nature of the work, being as low as 3·4d. per ton-mile for the work done on a certain day, and at times very much higher, the average over the whole of the time worked giving a little over 9d. per-ton mile.

During the period to which this applies, viz., from the beginning of January to the middle of March, 1900, and providing a total of fifty-two working days, the actual working time was only 44 per cent. of the total.

The work for which the motor-wagon was obtained had previously been done by horses and carts, and no exact data are available for comparison with the new vehicle. In general terms, however, the cost for the work done has been much less than it would have been by horses, and, as regards despatch and convenience, which are often of greater importance in urgent work than direct cost of transport, the comparison is immensely in favour of the motor-vehicle.

It has been very efficient for the purpose for which it was obtained, and its working has been entirely satisfactory. No difficulty whatever has been experienced in manœuvring, but on one or two occasions, after a heavy snowfall, some difficulty was found in starting. This, however, was soon overcome.

EARL RUSSELL was out with a party of friends on his Panhard car on the Ripley road last Sunday.

THE Construction Liégeoise d'Automobiles, Liège, Belgium, send us a pamphlet describing the Duryea motor-car, for which they hold the Belgian patents. The characteristic American features of these carriages and their merits as compared with Continental practice are well set forth, especial mention being made of the low vibration, the details of transmission, and the interchangeability of parts.

THE entries for the motor hill-climbing to be held at Tilburstowe Hill, Godstone, Surrey, on Saturday next, under the auspices of the English Motor Club, will be divided into the following sections, separate awards being given in each:— (A) Tricycles and quadricycles, list price of which shall not exceed £140; (B) Voiturettes, list price of which shall not exceed £150; (C) Voiturettes, list price of which shall not exceed £250; (D) Cars, list price of which shall be between £250 and £500; (E) Any car costing more than £500. A special medal will be given to the motor covering the course in the actual fastest time. The result in each section will be determined not merely by taking the fastest time, but by taking the best time in relation to the selling price of the car and the number of passengers carried. It will thus be possible for a motor owner to win in his section by the careful adoption of the necessary number of people. The entry list will be closed on Monday next.

FROM COVENTRY TO NORWICH BY MOTOR-CAR.

THE following account of a run to Norwich from the Motor Manufacturing Company's Works at Coventry, on a van which the latter company supplied to their order, has been sent us by Messrs. Garland and Sons, of Norwich.

"We were well on the way out of Coventry by 10 a.m., and took the long rise up past Coombe Abbey on the third speed, and managed all the hills to Lutterworth in the same easy fashion, passing through the latter place at 11.15. Nothing of any particular difficulty encountered us until our arrival at Market Harborough at 1 o'clock, just in time for lunch at the "Three Swans." We were informed at the dining table by a gentleman who lived in the neighbourhood that he should be much surprised if we mounted the hills that now lay along our route, but we started off full of confidence in our motor, and left the town, which is a great hunting centre, at 2 p.m.

It was not long before we encountered some hills that fairly staggered us to look at; we rushed well at them and anxiously crept towards their summits—several of them were one in nine at least—and, of course, we had to resort to the first speed, upon which our valiant motor overcame them in capital style, and, nothing daunted, were soon away at top speed and ready for any more of the same description. At 4 p.m. we arrived at Weedon, and stopped a few minutes to send off telegrams and to look over the lubrication, and from this little village onwards the hills, though they would be considered stiff in Norfolk, seemed almost contemptible to us after our past experience. Oundle was reached at 5 o'clock, and here we cooled our good steed and refreshed ourselves at the Falcon Inn. This is a very fine old hostelry, and boasts a grand oak staircase from Fotheringay Castle, the ruins of which are hard by. At 5.50 p.m. we were on our way again, and soon came into altogether smooth waters as we began to near Peterboro'. We reached the latter place at 7 p.m., and started away amid considerable excitement among the inhabitants at 7.10, going at a good speed. We ran into Wisbech at 8.35 p.m., a distance of 19½ miles, having stopped once only—three minutes at a railway crossing. It is a good flat road, and the pace and clear beat of the engines was acknowledged by all on board to be "grand." Here we met friends, and decided to put up for the night, well satisfied with the way the motor had behaved.

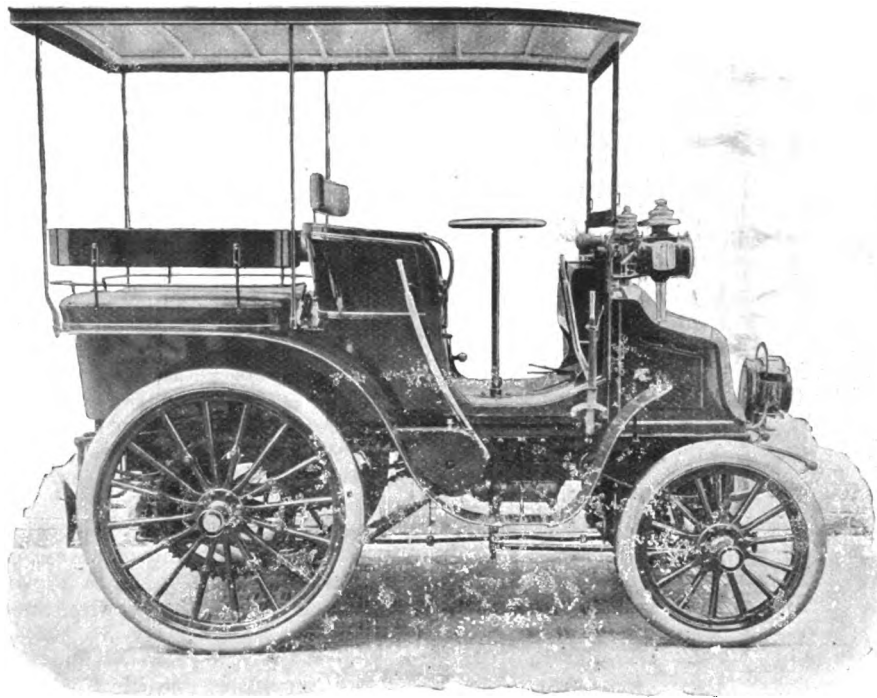
We proceeded on our way the next morning at 9 a.m., reaching Lynn about 10 a.m.; just stopping to make a call at the post office, we sped on to Swaffham in first-rate style. Here we had to replenish our stock of petrol, having nearly run out, and, taking on board two gallons of Pratt's motor spirit, we were soon off again, and, *via* East Dereham, made no stop for the remaining thirty miles, until we reached our destination about 2 p.m. We were all highly pleased with the way the motor conducted itself on the trip, and thoroughly enjoyed our journey."

In answer to T.O.C., the makers of the Delaunè tricycles fitted with "Romain" motors are Messrs. Delaunè and Company, 89, Rue d'Illiers, Orleans, France.

THE "PIPE" MOTOR-WAGONETTE.

REFERENCE has already been made in these columns to the motor-vehicles of the Compagnie Belge de Construction d'Automobiles, a concern which has recently established large works in the Place du Châtelain (Quartier Louise), Brussels. We are now able to give an illustration of one type of car turned out by this company—a four-seated wagonette. The motor, which is known as the "Pipe," is a vertical one, comprising two cylinders; it is capable of developing up to 6 h.p., and is fitted with a governor in the usual way. The ignition is by means of incandescent tubes, while the water circulation is maintained by a small centrifugal pump, the water in its circulation passing through a radiating coil. The engine is located under the bonnet in the fore part of a channel-steel frame. Four speeds and reverse motion are available, the method of transmission of the power to the rear road wheels being very similar to that adopted in the Daimler cars—viz., through a clutch to a longitudinal variable gear shaft, connected by spur-wheels to a countershaft above, the power from the latter being conveyed by a bevel gear to a cross shaft and thence to the rear road wheels

by the usual sprocket wheels and chains. The frame is spring-suspended on the axles; the road wheels are of the artillery type shod with pneumatic tires. Steering is controlled by a hand wheel, in proximity to the standard of which are mounted the various control handles. One foot pedal actuates the clutch, while another operates a band brake on the cross shaft. In addition there are band brakes on drums attached to each of the rear wheels, actuated by a hand lever. The motor and transmission gear are mounted on a standard frame, to which any desired type of body can be attached.



THE "PIPE" MOTOR-WAGONETTE.

THE Lowestoft Motor-Car Company, Ltd., Lowestoft, is being voluntarily wound up.

MR. ELMER A. SPERRY, of Cleveland, read a paper on "Automobiles as a Source of Revenue to Central Stations" before a recent meeting of the National Electric Light Association in Chicago.

THE Secretary of the Automobile Club asks us to state that the average speed of the Wolseley voiturette, No. 40, on the run from Sheffield to Lincoln in the 1,000-mile Trial was twelve miles per hour, not ten and a half miles, as given in the table recently published.

LA Société des Automobiles Créanche, of Rue Brunel, Paris, has sent us a copy of its 1900 catalogue, which gives particulars of the Créanche electrical and petrol cars, and also the motor-tricycles and quadricycles made by the company, the latter being fitted with De Dion motors.

MESSRS. H. PERCIVAL AND COMPANY, of Saracen's House, Snow Hill, London, E.C., have been appointed agents in the United Kingdom for Mr. W. H. Dorey, of Paris, wholesale factors of fittings and parts for motor-cars and cycles of all kinds, also of motors, complete cars, and cycles, etc. Those interested in the motor industry will find the new illustrated list the firm have just issued very useful.

CORRESPONDENCE.

AN IMPROVED MOTOR-QUADRICYCLE WANTED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your journal appears to have a large circulation among both motorists and makers, and I therefore beg to put forward a suggestion for their consideration.

The 2½-h.p. air-cooled motor-tricycle has two serious drawbacks—the heating of the engine, and the excessive vibration, the latter due to the three separate wheel tracks. Let us have a two-track machine, a quadricycle, fitted with 3-h.p. or 3½-h.p. water-cooled motor. Those objections would disappear; the machine would possess plenty of power, be reliable in action, and be able to run a long journey without a stop, as a large supply of petrol could be carried. There should be a comfortable large air-cushion saddle, with low back and arm-rest, pedals, and 36-inch gearing for starting, and a wind-shielded platform for foot-rest during journey.

Such a machine would beat anything for tours (one man and luggage aboard), and there would be such a large demand for it that it could be turned out at £80, with satisfactory profit.

Yours truly,

London, W., June 23, 1900.

H. J. C.

ROAD IMPROVEMENT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—There appeared not long ago in the *Spectator* an article on the subject of motor-cars, the writer of which summed up by saying: "The motor-car has given us back our roads." In dealing with the question he considered motor-cars chiefly as a means of pleasure traffic; which, I think, will not be so great in, say, ten years time, as the light goods traffic, much of which at present is carried by railway, will in all probability be carried by road as being both cheaper and quicker. This brings us to the question of whether our roads are capable of safely carrying a traffic of this sort. I am speaking of country roads. No doubt our main roads are wide enough for a considerable increase in the number of vehicles travelling; but there are many sharp corners, steep gradients, and narrow stretches even on our most important highways which would be a constant source of danger to rapid road traffic in any quantity. A maximum steepness of gradient and minimum radius of curve, as well as minimum width, should hold good for all main roads, and the classification of roads should take into consideration gradient as well as surface. It is a large subject, but I write this hoping that it may call the attention of the Automobile Club and automobilists in general to the very important question of preparing our roads for the traffic they will have to carry in the near future.—Yours truly,

London, June 21st, 1900.

ROADSTER.

THE DANGERS OF PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to Messrs. Salisbury and Sons' letter in your columns of last week, we may say that in no way did we wish to suggest or imply that our fire was caused through the use of a Dietz automobile lamp. Our idea was to inform users of petrol the great danger there is with it. Our experience of the Dietz automobile lamp has been most satisfactory; in fact, we intend to use them on our other vehicles and locomotives, as they have proved the best for light and ordinary purposes.

Yours faithfully,

RICHARD DRAKE AND SONS, LTD.

Sutton, Isle of Ely, June 25, 1900.

THE TOLL QUESTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I write to warn any of your readers who may contemplate a run to Marlow *via* Cookham of the treatment they are likely to meet with if they wish to cross the bridge over the river at Cookham. On Sunday I ran to Marlow on my car *via* Maidenhead and Cookham. I was charged 8d. for crossing Maidenhead bridge, but was politely told that the charge included the return

journey and as many others in the day as I might choose to make.

At Cookham I found the gate closed, and after repeated calls a man strolled out, and, without any attempt to open the gate, said I had to pay 1s. 6d. I answered that I was perfectly ready to pay the correct toll, but asked him how he made up the charge, as carriages were charged 9d. He replied that I came under same charge as a traction engine, and if I didn't pay I shouldn't go through.

On my return I was kept waiting in the same way; a fresh demand of 1s. 6d. being made, and the man's manner was as insolent as he could make it.

It is bad enough to be compelled to pay an extortionate charge of 3s. for permission to cross the bridge; but when, at the same time, one has to put up with rudeness, it is quite sufficient to make one avoid the place in future.

My brother, who crossed the bridge in his car the same day, I find, met with a similar experience.—Yours truly,

LEONARD DOBSON, M.D.

59, Addison Gardens, Kensington, June 25th.

ELECTRICAL CABS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—One would think from reading the circular issued by the directors of the late London Electrical Cab Company, Limited, that the electrical vehicle was an impossibility, and that the vast sum subscribed by the public was used in endeavouring to put a practical vehicle on the streets.

From the manner in which the capital was spent, wicked-minded persons might feel inclined to suggest that the only reason for which the company was started was to obtain the £25,000 for the valuable (*sic*) licences, without which, we were told, you could not make electrical vehicles at all, although the electrical landau, which was shown to the would-be shareholders at Winchester House, was made under quite a different system, and one for which no licence was required other than that conveyed to the purchaser of any patented article.

The directors say that although the designs were approved of by engineers and experts, several defects developed themselves in the vehicles. To my knowledge the directors were advised to make only two cabs, in order to find out what was required to stand the London streets; but no, this would have been too prudent, and the licence money could not be paid out soon enough; so, without any actual experience to guide them, the first forty cabs were put in hand at once. They say they were too heavy for the rubber tires; of course 38 to 40 cwt., which was their weight, is too much for the same wheels and rubbers one would find on an ordinary four-wheel horse-drawn cab, which weighs only 8 cwt., and which were the sort put on the first cabs. The vibration, too, we are told, destroyed the cells. One cannot be surprised at the vibration in a vehicle which was built practically without springs; what further damaged the cells was the enormous amount of current taken from them owing to the want of attention to the gearing and sending out of the cabs without proper oiling arrangements. Not any of the vehicles had an ampere-meter, so that, however anxious a driver might be to run the cabs successfully, he had no certain means of telling whether his cab was running properly or not.

Then there was the driver bogey. Can one expect men who have a living to earn not eventually becoming disheartened and reverting to the old horse-drawn vehicle in consequence of the continuous breakdowns?—breakdowns which could in all cases have been prevented by proper supervision and examination of the cabs after each day's run. I know that it is possible to obtain any number of men who could, with slight training, properly drive an electrical vehicle. Consider again the large sum spent upon that alternating transformer plant, which was put down to supply the electricity for the accumulators, and which turned out to be practically useless, as the current ultimately cost 4d. or so a unit, and was abandoned, a continuous-current plant, with Babcock-Wilcox boilers, being afterwards put down, at a further cost of several thousand pounds, although all the current necessary for the undertaking could have been

obtained without a farthing outlay at about 1½d. per unit from one or two supply stations in London.

That electrical vehicles can be made to run, and at a profit, when properly managed, you have only to turn to New York, where, starting with a modest twenty cabs, the number is now increased to over 200, and to Berlin, where electrical omnibuses are in use successfully, and also to the few electrical Victorias which have been recently hired out here in London, and have proved such an unqualified success. But no company started to hire out electrical carriages can ever prove profitable if run upon the lines of the late London Electrical Cab Company.

That smart, comfortable and reliable electrical carriages will eventually appear in our streets in large numbers there is not the shadow of a doubt, their popularity is beyond all question. The entire absence of noise and vibration, heat, or unpleasant odours, not only to the passengers, but to anyone in the immediate neighbourhood, and the ease with which they are controlled, all tend to make them an ideal means of locomotion.

Yours truly,

The Automobile Club, S.W. CARL OPPERMANN.
June 23rd, 1900.

THE AUTOMOBILE ASSOCIATION'S CATALOGUE.

IN a very neat and effective cover comes the new list of the Automobile Association, Limited, which is not only dealing in motor-vehicles, but is also introducing the system of the French *garage*, viz., the warehousing and care of the cars of private owners. For an inclusive charge cars are stabled and kept clean, and as the warehouse is kept open day and night the cars are always at the disposal of their owners whenever they are wanted.

The cars illustrated in the new catalogue include motor-tricycles, quadricycles, Mors phaetons and dogcarts, the Delahaye voiturette, the Vallée car, the Orient Express phaeton, the De Dion-Bouton voiturette, the Holland dogcart, the Gobron and Brillié brake, the Koch paraffin car, the Hercules wagonette, the Swan and Ivan electric vehicles, the Peugeot victoria, and several others. We notice a design is given of the "University" runabout—a two-seated car on the Benz system, which will be ready shortly.

In addition to particulars of the vehicles there is a comprehensive price list of accessories and parts, and the catalogue, which extends to forty-eight pages, will be found useful to those on the look out for automobiles.

STIRLING'S MOTOR CARRIAGES, LIMITED, of Hamilton, are opening a show-room at 304, Sauchiehall Street, Glasgow.

At the last meeting of the Glasgow Corporation complaint was made as to the delay in delivering the motor dust-cart, ordered by the Cleansing Committee.

It is reported that the Daimler Motoren Gesellschaft, of Cannstatt, Wurtemberg, is building a new motor to the designs of Herr Maybach, engineering manager of the company. The new motor will be largely constructed of the new alloy "magnalium," and will comprise several special features, including mechanically-operated admission valves.

A TOLL-GATE keeper in Schenectady, N.Y., when called upon to collect toll for the first motor that went through the gate, settled the question of rates by the horse-power of the vehicle, "ten cents for a team and five cents for each additional horse," or fifteen cents, on the rider's statement that his was a 3-h.p. machine!

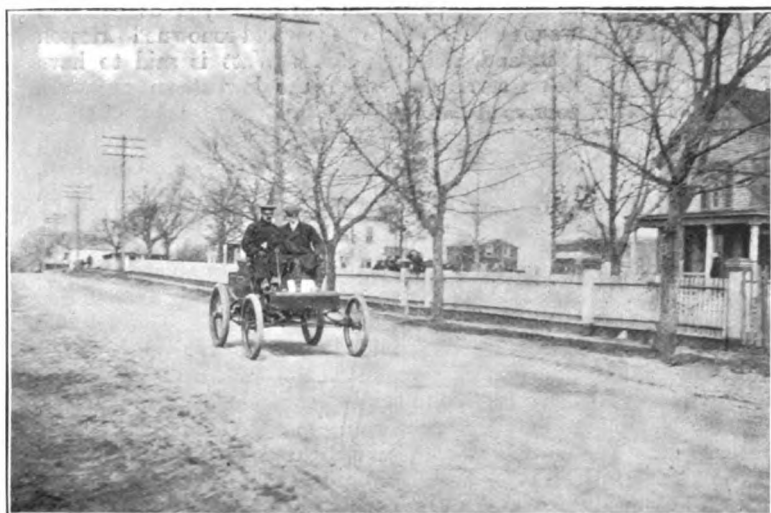
We met Mr. Hewetson, of Hewetson's, Limited, on Wednesday, and during the course of the few minutes we had with him he informed us that Benz cars were in greater demand than ever. Since the 1,000-mile Trial orders have been flowing in at an unusually rapid rate, "our only trouble," remarked Mr. Hewetson, "being that we cannot get the cars from Germany fast enough."

AUTOMOBILE RACING IN AMERICA.

(See page 296.)



MR. C. J. FIELD ON DE DION VOITURETTE.



MR. A. C. BOSTWICK AND M. LÉONCE BLANCHET ON PETROL CAR.



THE FINISHING POINT AT SPRINGFIELD. THE WINNER (MR. A. L. RIKER) ARRIVING ON HIS ELECTRIC CAR.

[The Automobile Magazine.]

THE AUTOMOBILE WAGON FOR HEAVY DUTY.*



Concluded from page 294.

We have briefly touched on the matter of brakes, and this really is the nucleus of the speed question. We need only consider the speed of modern railway trains and ask ourselves whether such a speed could be safely maintained without the use of air brakes to approach the speed question of motor-wagons. It is an easy matter to provide for powerful brakes on a motor-wagon, and the propelling motor lends itself in many cases as a very powerful second brake. We have found that a load of three tons on a motor-wagon, running at a speed of eight miles, could be pulled up in eight yards, a performance which could never be obtained with horses. It may have escaped the notice of the on-looker that when we speak of an eight-mile gait with horses it should be asked, how long can they keep it up, and then it should be considered that it would probably only approximate a five-mile gait of a motor-wagon, which latter never gets tired, runs evenly, and is ready to do work as long as we provide fuel, and, further, is satisfied to remain where we leave it when put out of commission. The latter consideration is an economic advantage not to be overlooked in the operation of motor-wagons.

Taking up the different propelling agencies which have been experimented with so far, we find that almost every known motive power has been tried. Steam was employed as early as 1820, and such wagons were built by the world-renowned Ericsson and Tangyes in England, and even James Watt is said to have constructed a steam carriage. With the low steam pressures then available, poor roads, and difficulties with unreliable material and workmanship, it is not surprising that the matter was allowed to drop. The next experiments were in the line of oil engines, followed by electric vehicles, compressed air, carbonic acid and the revived steam carriage.

Naturally, in America, expectations were greatest with electric vehicles. The electric equipment renders a vehicle clean and easy to operate. These vehicles can be made to answer the requirements of running on smooth city roads. The suitable commutation of battery cells provided in these vehicles, effected through interconnection of contacts on the "controller," affords together with the series and multiple arrangement of the motor, some flexibility in the power and speed conditions of the machine. There are, however, inherent disadvantages to the use of batteries, which grow prohibitive in a motor-wagon intended to carry heavy weights over a long distance. It is common experience that on rough roads the punishment is more than the batteries can stand, and where we have a case of heavy loads to be carried, necessitating the use of steel tires, we can well say that at this phase of the evolution the battery makes the electric truck an impossibility. It would lead too far to enter minutely into the matter of cost of operating electric wagons, but it may be stated that the best traction cell has only a capacity of about seven watts per pound of its weight, and with this as a basis, one can soon calculate how much dead weight a wagon would have to carry to propel a big load over a long distance with one charge. The "maintenance" of batteries, apart from the actual cost of charging, is seldom spoken of, though it is perhaps the most serious item.

Next to the electric wagon we have seen the "auto-truck," or, rather, have heard about it. It was stated that compressed air trucks would soon be operated in considerable numbers. Now, while it cannot be denied that compressed air would make an ideal motive power, we have still to look for a complete revolution in the construction of light storage tanks to render this power available for trucks, granting that other disadvantages inherent to the use of compressed air can be practically overcome. Weight for weight, stored electricity lends itself more readily to the propulsion of wagons, since it will, as it were, "keep pressure" until it becomes well nigh exhausted, while the air pressure falls gradually as the air is drawn from the storage tanks.

Carbonic acid has also been proposed for the operation of

wagons, but it suffers in common with compressed air, and, moreover, the raw material to be compressed is by no means cheap. It has been proposed to compress illuminating gas, and use it for the propulsion of gas motor-wagons. This system has, however, the disadvantage of seriously complicating the mechanism.

A great deal of experience has been gained with oil-motor wagons, though chiefly in the line of light pleasure vehicles; and France, in which country there are many thousands of these vehicles plying, has led the world in their exploitation. As regards freight vehicles, however, no important results have been obtained with the use of explosive motors. A motor-wagon, on account of its great weight and peculiarity of operation, must have an abundant supply of power; so great, in fact, as to puzzle the uninitiated observer. We find that a load which can be easily negotiated by one horse calls for a power equipment equal to about 14 h.p. on the part of a motor-wagon. While we commonly understand that 1 h.p. equals 33,000 foot pounds per minute, we should consider how great the work of a horse can be for a short while on the race track, or when he becomes infuriated, and with "blind staggers" dashes into destruction. A horse, when required to pull a heavy load out of a difficult position, will not only jerk and lift the shaft so as to bring the wheels out of a rut and get them on a level, but will momentarily exert power which has been, by means of dynamometer, shown to be adequate to a performance of what we commonly call 14-h.p. Some people, in fact, assert that the horse can for an instant by far exceed the latter figure, but we may be well contented to accept this as a basis of calculation for the supply of motive power. The same horse, having pulled his wagon out of the difficult position, is able to modify the output of his energy, propelling the wagon at a good rate of speed as soon as he reaches better ground. The "speed-changing device," which should as nearly as possible emulate the peculiarity of the horse's muscular system, is still the greatest problem with designers of oil motor-wagons. The most ingenious devices have been already tried with a view of filling this gap, and with more or less success. An oil engine to run a motor-wagon cannot well be designed to vary in speed, at least not in a wide range, and be satisfactory in other respects. Its construction necessitates its running at a constant speed, whilst the speed requirements of the wagon wheels, to which it is geared up, are ever changing. Clutch and shifting gear wheels are, therefore, essential parts of every oil motor-wagon, and their operation, on account of the impact of the moving masses, often gives rise to serious trouble. Non-reversible, an oil engine is by no means a flexible motor. It will not start under load, and when it is in running condition it is very dependent on an even influx of its explosive mixture, and is liable to come to a dead stop without warning when its capacity has been suddenly overtaxed. Anybody who may have got stuck with a motor-vehicle while ascending an incline will appreciate these remarks. In such a case it will occur to him that it is very difficult at the same time to release the brake and start the wagon "ahead" on slow speed. It need hardly be said that an oil vehicle is dependent on the weather, inasmuch as the action of the carburettor is influenced by the atmosphere. This latter idea leads to the subject of perfect or imperfect combustion and its attendant outward sign, which is an evil-smelling exhaust. The good behaviour of large oil engines on heavy trucks after an extended period of running has not yet been satisfactorily proved, and the deterioration due to the pounding on the frame is a serious drawback. The general use and handling of large quantities of petrol at this stage of evolution of the oil engine is by no means free from risk of explosion, and there is some danger of affecting perishable goods and food-stuffs by the odour, which would naturally permeate them, particularly while standing at the express company's dépôt. If it were possible to make a practical success of an oil motor-wagon, using crude oil, no doubt the scope of the oil motor-wagon for heavy duty would be considerably increased.

Having thus described the difficulties with which the electric and oil wagons have to contend, we may devote ourselves to the steam wagon, with which, undoubtedly, important results have already been obtained. We have found the steam wagon superior to its competitors for the following reasons:

* Abstract of a paper read by Mr. A. Herschmann, before the American Society of Mechanical Engineers.

1. It has the greatest load and mileage capacity, or, in other words, radius of action. 2. Its operation is independent of charging stations, and supplies necessary for the operation of the wagon can be easily procured and taken aboard quickly. The operating expenses in the case of an electric (or, in fact, of any power storage system) vehicle grow to be prohibitive as soon as a certain ton mileage capacity is exceeded, tending to keep such an electric wagon small in size. In the case of an oil motor-wagon such economic restrictions to the size do not exist, and the objections to an oil motor-wagon of large capacity are more by virtue of difficulties in operation. With steam the case is altogether different. The tendency is here to build a large wagon, since with a steam-wagon the weight of the machinery to be carried does not grow even in an arithmetical ratio to the carrying capacity. One advantage found in the operation of a large steam wagon may not be apparent to the casual observer. In the case of the horse-drawn wagon one has to discriminate in loading it with goods which are to be delivered only on the exact route covered by the wagon, seeing that the daily carrying capacity of a horse is limited, while in the case of a large steam wagon this would be less important, since the percentage of operating expense due to the actual cost of propulsion proper is infinitely smaller than in the case of traction with animal power.

I believe that if the steam motor-wagon is given an unobstructed field and fair play, it will hold its own and oust the horse-drawn truck in short order. The change must come, and with, perhaps, the exception of the harness-maker everybody will benefit by it. The main trouble seems that educated engineers have so far had little encouragement given them to develop the motor-wagon, and that confused efforts of amateurs and stock-jobbers have drawn the attention of almost everybody to their work except that of the transportation community, who had no accurate data before them to judge of the practicability of the motor-wagon. Opinions will, however, soon be decided and converge on certain lines, and this once being the case many a designer will be saved from exerting himself in a wrong direction.

PRINCE AND PRINCESS RADIZWILL have been seen on a Hurtu motor-car during the last few days in London, piloted by Mr. Rush.

THE New Era Automobile Company has been formed at Portland, Me., U.S.A., with a capital of £60,000, to manufacture and deal in automobiles, motor-wagons, etc.

AT a meeting of the Bristol committee of the 1,000-mile Trial held on the 21st inst. the profits on the exhibition at the Drill Hall were announced as amounting to £33 2s.

THE receipts on the Beach and Torry motor-car routes, inaugurated at Aberdeen the other day, have, so far, exceeded the expectations of the promoters of the service.

MESSRS. BANKER BROS., Highland and Centre Avenues, Pittsburg, Pa., announce that they have acquired the sole United States rights in the Werner motor-bicycle.

THE distance of the run from Dublin to Killaloe which is to take place on July 14th is 108 miles. Although most of the cars will return on the following day some are going on a tour through Kerry.

THE steam motor-van supplied by Messrs. Julius Harvey and Company, of 11, Queen Victoria Street, E.C., to Messrs. Harmsworth, of the *Daily Mail*, is now running very well in the Manchester district.

THE Committee of the Automobile Club is in correspondence with the commissioners controlling the tolls of Goring and Cookham Bridges, with reference to the heavy charges of 1s. per wheel and 1s. 6d. per vehicle respectively charged for the passage of a motor-vehicle over the bridges above referred to.

A PROPOSAL has been mooted in New York to form a national association of automobilists, organised somewhat on the lines of the League of American Wheelmen, and with similar objects in view. Circular letters have been sent to a number of automobilists and manufacturers, and the replies are reported to be encouraging. It is stated that a national convention for organisation will be called before long.

THE BRITISH MOTOR COMPANY.

THE following circular, signed by Messrs. M. Lachman, R. W. A. Jeffery, S. F. Edge, H. G. Thomas and Gordon Hunter, who describe themselves as cash shareholders holding £69,184 in debentures, preference and ordinary shares, and representing a further £33,098, has been issued to shareholders of the British Motor Company:—

In consequence of a private meeting of some of the largest shareholders in the above company, who have paid cash for their shares, held on May 21st, the committee has been inquiring into the present position of affairs of the company and its future prospects. The result of this inquiry has disclosed a state of things so important that they think it right to lay the same with their views before the whole body of shareholders for their serious consideration, and now, therefore, do so as follows:—The company's issued capital is as follows:—Four per cent. mortgage debentures, £100,000; five per cent. cumulative preference shares, £151,568; ordinary shares, £800,000; total, £1,051,568. The company owns the English, and in many cases the colonial, rights to all the best known systems in existence for automobile and motor propulsion, including the Daimler and De Dion systems, and as the company has the right in many cases to all improvements in these systems they are constantly getting the benefit of fresh patents—for example, they get the benefit of all the latest inventions in connection with the De Dion and Daimler systems, many patents in which have been taken out even in the present year. They also, apart from the main systems, own such important patents as the float feed patent, which is used by all leading systems of motor-cars.

The company's receipts are obtained mainly from four sources, namely:—(1) Royalties from licences; (2) the sale of free licences; (3) the promotion of companies to work under licence; (4) the purchase and sale of motor-cars; and it might also in the future add a fifth source of income—namely, the manufacture of automobiles, voiturettes, tri-cycles, etc. Now, having regard to the extraordinary recent progress of automobilism in this country, which is now seriously beginning to follow the Continent in this respect, it is clear that the time has arrived when this company should be making large profits. There is now, for the first time, a very large demand for automobiles, which demand should get larger every day, and we might also refer to the extraordinary interest shown in the recent 1,000-miles Trial promoted by the Automobile Club, which has done a great deal to spread over the whole country ocular proof of the capabilities of the motor-car.

But although the company has opportunities for making large profits, we find (and this is our reason for communicating with the shareholders of this company) that it is doing no manufacturing and practically no merchant's business, and that neither is it granting licences, for the reason that it is unable to provide the money necessary for the purposes, including the money necessary to protect its patents, by proceeding against numerous infringers mainly in the persons of importers of foreign-made cars. Under these circumstances it appears to us either that the shareholders must be content to stand by and let the company's business continue to depreciate, or they must make up their minds to find money to protect the patents, with a view to the sale of licences, and to enable the company to do a merchant's, and if necessary a manufacturing, business.

But if the shareholders do this, we, who are among the largest, think, as no doubt they will think, that concessions should be obtained from (a) the holders of the vendors' shares, who practically control the voting power of the company, but whose shares cannot become of any great value unless money is found, and (b) the debenture holders, whose security likewise cannot become of any great value unless the shareholders find money. The committee have, therefore, approached the parties in question, with the result that the following arrangement is suggested:—

A new company to be formed on the following lines:—Five per cent. mortgage debentures, £50,000, to take the place (by consent) of the existing £100,000 debentures; 5 per cent. cumulative preference shares, with a right to one-half of the further profits up to a further 5 per cent., £500,000. These preference shares will take the place of the £151,568 preference shares and the 300,000 ordinary shares held by others than the vendor.

The remainder of the shares representing the vendors' interest becoming deferred and receiving the remainder of the profits. The debenture holders, in consideration of the preference and ordinary shareholders putting up more money, to take a 5 per cent. 10s. debenture in place of a 4 per cent. £1 debenture. The preference and ordinary shareholders, other than the holders of the vendors' shares above referred to, to amalgamate and be entitled to exchange their shares for an equal number of preference shares in the new company, credited with 17s. paid, and having a liability of 3s., equivalent to a cash working capital of about £66,000, of which not more than 1s. (or about £22,000) should be called up in the first instance, and certain safeguards as to the calling up of the balance to be arranged.

The preference shareholders by this arrangement will get a more marketable share than that which they hold at present. The Board of the new company to be also re-arranged with the approval of the shareholders. If a scheme somewhat on the above lines can be put through, we should have no hesitation in recommending shareholders to pay up the 1s. assessment, and need hardly say we should certainly do so ourselves. In order that no more time may be wasted we have asked the directors (a) to call the shareholders together at once; (b) to get the accounts made out and audited; and (c) if sending out proxy forms, to send out one addressed to members of this committee, so that share-

holders, if they wish, can send their proxies to us, which we should strongly recommend them to do. From one source an offer has been received to underwrite the assessment on 300,000 shares at 1 per cent.

ASSAULT ON A MOTORIST.

IN the Court of Queen's Bench, before Mr. Justice Ridley and a Common Jury, the plaintiff, Mr. Robert Moffat Ford, the managing-director of the Motor-Car Company, Limited, of 168, Shaftesbury Avenue, has sued the Managing Committee of the South-Eastern and London, Chatham, and Dover Railways to recover damages for assault. It appeared that on December 20, 1899, the plaintiff went to Victoria Station to fetch away a motor-car which had been sent from Brighton. As he was leaving the station yard a boy threw a stone at the machine and it struck plaintiff in the eye. He dismounted, ran after the boy, caught him, and brought him back to the yard. A crowd assembled, the cabmen taking the part of the boy, and calling out that plaintiff had got the wrong lad. Plaintiff asked one of the station constables in the employ of the company to take the name and address of the boy. He was asked to take his machine out of the yard because it was suggested he was causing an obstruction of the traffic, and he said he would do so immediately the name and address was given or if a constable would hold the boy. Ultimately, according to his case, he was half lifted and half pushed out of the yard, and his motor-car was pushed out after him. This was the assault complained of. For the defence it was suggested that the company's constables, who were not sworn in, had no right to detain the boy, or to take his name and address, and that as the plaintiff was causing an obstruction, his motor-car was removed, and a servant of the company put his hand upon his arm, and left the place.

Mr. Justice Ridley, at the conclusion of the plaintiff's case, held that there was no question for the jury. The plaintiff had put upon the constable a condition that he should do that which he had no right to do, and as there was no suggestion that more violence than was necessary had been used in removing the plaintiff, he saw no cause for action. Judgment was therefore entered for the defendants, with costs.

FURIOUS DRIVING CASES.

MR. FREDERICK WILLIAM YOUNG, of New Oxford Street, was summoned by the police last week for driving a light locomotive, a motor-tricycle, at a greater speed than was reasonable and proper, having regard to the traffic in the highway. It appeared that on the 9th inst., the defendant was seen driving in High Road, Chiswick, in the direction of Kew, at the rate of eighteen miles an hour. Police-constable Alker, 517 T, who was in plain clothes riding a bicycle, said he followed the defendant over a mile. The Magistrate: At the rate of eighteen miles an hour? The Constable: Yes. The Magistrate: Very good work. (Laughter.) The constable further stated that the defendant increased the speed at Gunnersbury station. On nearing Kew Bridge the defendant was stopped. The defendant said the object of increasing the speed was to clear himself of cyclists who followed him. Mr. Lane remarked that cyclist objected to motors snorting and puffing along the road. He fined the defendant 5s., with 2s. costs.

AT the Bournemouth Borough Police Court last week Mr. Arthur Norman was summoned for furiously driving a motor-car on June 9th. James Thomas Jellicoe, a retired officer in the Indian service, stated about mid-day he was riding a bicycle up the Old Christchurch Road, and when near Holy Trinity Church he saw a motor-car driven by defendant coming down. As they neared defendant turned the car to the wrong side of the road as if to collide with him. Witness was forced off his bicycle and fell across the pavement. The handles of the machine were bent, and he received several bruises. The defendant then turned the car away and went on. Charles Francis Watson, who witnessed the occurrence, stated the machine was travelling about fourteen miles an hour. P.S. Littlewood stated on measuring he found the car went within ten inches of the kerb. Witness stated defendant told him a 'bus was in the way. Defendant stated he was behind a 'bus. The vehicle pulled up and he was obliged to turn out sharply to avoid striking the back. The accident then occurred. Superintendent Foster said the defendant was a very careful driver, and he was surprised to find him in that position. The Mayor said they were unanimous in convicting. The motor-cars did go at too great a pace down through the town, and defendant had better by far have erred in judgment by not going fast enough than to endanger the lives of people, whom they (the Bench) must protect. They did not want to be harsh with motor-car drivers. All they wanted was for them to do what was right and just. Defendant would be fined £1 inclusive, and he hoped it would prove a warning to all drivers.

AT Warwick Police Court on Monday, Mr. Frank Wilson, 5, St. Peter's Street, Bedford, was summoned for having about noon on June 12th furiously driven a motor-quadracycle, in West Street. P.C. Troman said defendant was coming from the direction of Stratford-on-Avon. He was driving, but there was another man on the front. They were going from twenty to twenty-five miles an hour when he first saw them. Witness put up his hand for them to stop, but they took no notice until they got to the West Gate. He told defendant he was going too fast—from twenty to twenty-four miles an hour—and he admitted it. Wm. Cooke, landlord of the Nelson Inn, said he should think the speed was quite twenty miles an hour. Defendant said it was a small engine, and it was impossible for it to go up the hill at that rate. The engine was revolving rapidly, but the machine was not going quickly. He stopped as soon as

he got to the top of the hill, although he could have got away with ease had he wished. He asked the Bench to see the motor-cycle, and ride one, to show the impossibility of ascending the hill at that speed. The Mayor: I don't care to risk it. (Laughter.) The Bench were of the opinion that at the bottom of the hill, when the policeman first saw him, defendant was going faster than he should, and ordered him to pay £1 ls., including costs.

AT Portsmouth Police Court on Monday, Mr. John Adolphus Koosens appeared to answer a summons for driving his motor-car at a furious rate. Detective Moth, accompanied by P.C. Wombell, saw defendant in his car going about seventeen miles an hour, between Clarence Esplanade and Eastney Barracks. The defendant pleaded not guilty, but had no witnesses to call. The Bench imposed a fine of 5s. 6d., with costs 9s. 6d.

AT Thetford Petty Sessions, on Monday, Mr. W. J. Boughton, builder, of King Street, was charged with furiously driving a motor-car in Guildhall Street, on the evening of Whit Monday. Mr. Day appeared for the defence. Police-sergeant Wilkin said about 8 p.m. he was in the Market Place, and saw defendant coming from Guildhall Street driving his motor-car at the rate of ten to twelve miles an hour. He slackened down to four or five near the post-office. There were a lot of people about, and the Salvation Army procession was going down King Street. Defendant followed, and kept on the near side of the road, and in passing knocked two women down, both being very much hurt. Police-constable Goodbrey and witness went to their assistance. He spoke to defendant, who said he was not on the wrong side of the road. He could not help it, as the people ran in his way. Cross-examined: Witness said defendant slackened speed in King Street. One of the women was knocked down in front of the motor-car, and the other got a knock on the ankle. Police-constable Goodbrey corroborated, and added that he heard Mr. Boughton, jun., tell his father he was not on the wrong side of the road. Cross-examined: The two women were in the procession. They had no chance to get away, as the car alarm bell was sounded near the market, and the occurrence took place opposite Mr. Green's shop. Mrs. M. A. Hensby said she was in the Salvation Army procession walking with Mrs. Crane very quietly. The motor-car knocked her down on to the footpath, and she was unconscious. It struck her on the back. She heard no alarm given. Mr. Day called defendant, who said he was only going four miles an hour. As soon as he saw the Salvation Army he slackened to one mile. He said there was a clear passage on their left and proceeded very slowly down with brakes fully applied. The two women rushed out of the procession and got pushed down. There was no room to pass on the other side. He considered he used all the precautions necessary. The Bench after consultation decided that the police were fully justified in bringing the case for the protection of the public, and in future the utmost care must be exercised in driving through the streets. They would inflict no fine, but defendant must pay the costs, 16s.

JOHN G. BROWN, cycle agent, was also summoned for furiously driving a motor cycle down Castle Street, on June 11th. Mr. Day defended. Police-sergeant Wilkin said he saw defendant coming down Castle Street just before seven o'clock at the rate of fifteen or sixteen miles an hour. Witness held his hand up and he slackened to ten miles an hour, and went down King Street. Witness followed and told him he was going too fast. He admitted going twelve or thirteen miles an hour, and said he was in a hurry. Cross-examined: There were no vehicles about, but there were several people. Defendant said he was not going at the rate of fifteen miles an hour. He thought he was going twelve or thirteen miles an hour, and rather faster than usual, but after consideration he did not believe he drove so fast as that. The Bench said they must convict for public protection and fined defendant 5s. and costs, and cautioned him against driving so fast in the future.

REFUSING TO STOP.

AT the Windsor Petty Sessions last week, Mr. Alfred Rawlinson, of 21, Ovington Square, London, was summoned for refusing to stop a motor-car he was driving on May 25th, when requested to do so in the usual way by Mr. Augustus Peppin, who was in charge of a restive horse. Superintendent Carter stated that defendant had written asking for an adjournment as he had been unable to get two witnesses for that day. The hearing was adjourned for a fortnight.

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COMMENTS.



TOGETHER with the tables published in these pages on June 16 the report of the Judges' Committee appointed by the Automobile Club in connection with the 1,000-mile Trial which appears elsewhere in this issue will present our readers with a full record of the performances of the competing vehicles. The general conclusions are confirmatory as to the steady progress of the automobile

industry in this country, but, while not going into detailed criticism of particular vehicles, something further might have been said as to the causes of failure—so as to have given useful advice to manufacturers in their future experiments. Very rightly do the judges call attention to the fact that some competitors neglected the rules laid down by the Club. Such lack of adherence to regulations will probably lead to disqualification in future competitions. Eight drivers are commended for their respect for the rules within the controls. The gold medal for the best vehicle has been awarded to the Hon. C. S. Rolls, and in the private owners' section ten silver medals were given. Mr. Kennard's 8 h.p. Napier won the silver-gilt medal of the Automobile Club de France, and the silver cup presented by Mr. Ernest Owers has gone to the Hon. C. S. Rolls. In the manufacturers' section the Benz Ideal, Locomobile steamcar, New Orleans voiturette, Wolseley voiturette, Motor-Car Company's Triumph, De Dion voiturette, the Daimler Company's cars, the Motor Manufacturing Company's cars, the Ariel quadricycle, the Ariel tricycle with Whippet trailer, and the Century tandem attained distinction, as did some others that were entitled to the *Daily Mail* prize for vehicles successfully completing the journey. The report should furnish interesting matter for a meeting of the Automobile Club in the winter.

A Motorist not Convicted.

WHENEVER a motorist appears in a police-court charged with driving at a speed not appreciated by a policeman he may usually expect to be convicted, fined, and threatened by the magistrate. Therefore we would congratulate Captain Langrishe on having been acquitted of such an offence when he was summoned to the West London Police-court the other day for alleged furious riding on a motor-tricycle. The policeman said he heard a hissing noise, but it was clearly proved that the compression tap was open, and that the captain—who is a J.P. for Kilkeny, a master of hounds, and who also drives a four-in-hand as well as a motor-car—was pedalling at the time he was committing the alleged offence. Mr. Staplee Firth defended and the Hon. C. S. Rolls was prepared to give his testimony but was not called. Strange to relate, the case was actually dismissed.

A Forty-mile Drive.

ON Thursday last our yellow car—which, by the way, is pulling remarkably well just now—was driven to the Fair Mile, on the Ripley Road, and back. In the course of the run more than thirty cars (mostly voiturettes) were counted. Many were in and about town, several were in Hyde Park, including a French Panhard with a glass screen in front. The run to the Fair Mile is a favourite one with the ladies of our party, as a stop can be made by the common to pick the wild flowers and heather, which grow so luxuriously on this favoured spot. Notwithstanding the recent heavy rains the roads were very dusty.

Under the Hammer.

THE first great automobile auction in this country was held on the 29th ult. by Mr. Ernest Owers, at Messrs. Taylor and Town's livery stables, near the Finchley Road station (South Hampstead) of the L. and N.W.R. The locality is a capital one for such a sale, it being but a short ride from Baker Street station, and the venue was admirably adapted to the purpose. Mr. Ernest Owers is an automobilist himself—the owner of a Parisian Daimler car—and was able to include thirty-two vehicles in the first of his automobile sales. These he proposes to hold monthly, and as the enterprise becomes known he hopes to see a large attendance of private as well as trade buyers. Naturally the gathering on the 29th ult. was largely composed of those in the trade, and to give the names of the gentlemen present would be a catalogue of all the names familiar in the commercial circles of the London automobile industry. In addition there were several enthusiastic automobilists.

Sales and Prices.

RECOGNISING the character of the company, Mr. Owers had no need to dilate upon the advantages of automobilism. The first lot was rather old-fashioned—a 3 h.p. electric "Sherinette" car to seat two persons—and it was regarded as somewhat of a curiosity. Lot 2 was a similar car, and fetched £18. A 4 h.p. electric victoria, with a body that was built for the Queen of Spain, realised £47 10s., and a 3 h.p. Daimler-Peugeot mail car to seat two persons and fitted with an Estcourt patent cooler was sold at £60. The two succeeding lots were 2½ h.p. motor-tricycles, made by the Motor Manufacturing Company, each of which was sold for £47 10s. A 5½ h.p. Daimler victoria having failed to attract a purchaser, a motor trade van in a very rough state was knocked down at £4. Several lots were unsold, these including two 6 h.p. Daimler phaetons fitted with Estcourt's patent cooler, a motor brewer's van, a French voiturette, and some motor-tricycles etc. In addition to those already mentioned, the other sales included a Benz car at £117, and a 6 h.p. Daimler wagonette to seat seven persons, which resulted in the best bid of the day, viz., £235. Chatting with Mr. Owers after the sale, we learned that the opportunity for trial trips during the two days prior to the event had been

well used, nearly every car having been out three or four times. The next sale will be held on the 28th inst., when a varied catalogue should prove attractive.

Angling and Automobilism.

HUNTING, racing, touring, and pleasuring generally will all bring the automobile into requisition, and we notice that the quiet, peaceful pursuit of angling is being facilitated by the motor-car. The *Field* gives a case in point. A well-known automobilist, Mr. C. Johnson, who is also fond of angling, left his flat on a recent Saturday afternoon, and drove his 6 h.p. car to Wheathampstead for the evening rise. He slept there, but sent the car back to town by his man. The next morning the latter drove the owner's wife to Henley, by way of Cookham and Great Marlow, and after lunch brought the lady back to town. The man then went off to Wheathampstead, and the owner drove the car back to London the same evening. To the angler especially such independence of train service is invaluable, for the lateness of a train, or the absence of one at a suitable hour, may cause him to lose the best of the fishing. Another performance of the same car may be chronicled with advantage, as illustrating its mobility. The owner left Cambridge with a friend one morning, at ten o'clock, and drove across country to Oxford, and thence to London. They had about two hours for meals *en route*, covered 150 miles of road, and arrived in town in time for dinner at eight. Such freedom of movement is in marked contrast to the limitations of the horse-drawn vehicle.

Cars at Worthing.

At the annual licensing meeting of the Worthing Town Council applications were received for licences for fifteen stage carriages, five omnibuses, sixty landaus—all drawn by horses; twenty-five pony chaises, four saddled asses, nine goat chaises, and two motor-wagonettes. Thus two mechanically propelled vehicles were desired as compared with 118 carriages, etc., drawn by animals. And although the disproportion was so great Councillor Ovenden moved an amendment asking the General Purposes Committee to reconsider its decision to recommend the renewal of the licences to Mr. A. H. Collis and Mr. A. Palmer for their motor-wagonettes. This was seconded by the Mayor, Alderman Parish. Fortunately the Council recognised the injustice of the proposal, and by a large majority consented to the licence being granted. And so Worthing will continue its patronage of the automobile.

French Enthusiasm.

FRENCHMEN are not only enthusiastic with regard to the pastime of automobilism, but they can also become enthusiastic in the pursuit of automobilists. The other day the employee of a motor-car establishment near the Bourse took a trip on a car, going along the Rue Réaumur at a break-neck speed. He knocked a pedestrian down, and continued his pace unslackened. Those who saw the incident chased the automobilist, who was stopped by a block in the traffic at the corner of the Boulevard Sébastopol. There his pursuers seized him, tore him from the machine (which the bystanders proceeded to smash, ultimately pouring the petrol over the frame, and setting it on fire), and beat him with fists and sticks. Then he was handed over to the police, and is to be charged with furious riding. Such incidents should do something to cause a slackening of the speed which has apparently increased the risk of accident in the streets of Paris.

Meet at the Ranelagh Club.

AN automobile gymkhana will be held at the Ranelagh Club, Barnes, S.W., on Saturday, the 14th inst., entries for which are to be sent to the Secretary of that club not later than Thursday morning next. The entries are open to members of the Ranelagh and the Automobile Clubs, and the wise

provision has been made that no second prize will be given unless there are five entries. The full course is about half a mile over the grass, and there will be six events. There will be a ladies' race, for which Mrs. Kennard and Miss Weblyn have entered, a bending race for motor-carriages, an obstacle race, a starting and stopping handicap, a motor-tricycle coat and waist-coat race, and a contest for vehicles with tube ignition only, in which the driver is to start on foot twenty yards to the rear of the carriage, run to the vehicle, light the lamps, start the engine, and race round the full course. Acting on a suggestion made by the Master of the Rolls, an arrangement has been made by which members of the Ranelagh Club may send their horses to Ranelagh on Saturday morning next to be trained in the presence of motor-cars.

The Bachelor's Chance.

AMONG the advantages of automobilism that indicated in the following advertisement from a daily paper has hitherto been overlooked:—"To Motor-Car Owners.—A lady will give board and lodging at a lovely seaside place to anyone who will bring their motor-car and give use of it for a few weeks. Most popular place. No other car. Many visitors. Good change of air for manager of a company.—Address, —, —." The possibilities involved in this connection are manifold. Firstly, the owner of a car may secure board and lodging in return for the pleasant privilege of taking his landlady out for a drive. That is the suggestion that will be made by some. Others, however, will see in the advertisement the possible opening for a good motor-vehicle service. There is no car at present in the place; or, to express it another way, there is no rival in the field. There are many visitors; it is a popular resort; and if it would be a "good change of air for the manager of a company," it should prove reinvigorating and refreshing for a director or anyone else who has a car. Sir Francis Jeune may make a note of the advertisement to utilise in his next speech on the blessings of automobilism and the opportunity it presents for the cultivation of friendship and sociability.

Registered Competitors.

AUTOMOBILISTS intending to take part in competitions should register themselves with the Competition Committee of the Automobile Club. Up to the present time the following gentlemen have done this:—Messrs. R. Moffat Ford, E. Campbell Muir, A. E. J. Steele, Stanley Lambert, Victor Lee, E. Buck, S. Rowbottom, F. F. Wellington, C. Machin, C. Jarrott, J. Cusins, Claude Johnson, Mark Mayhew, S. F. Edge, Harvey Du Cros, Hugh Weguelin, and Harry Lee. The following are the cars and motor cycles which have been registered:—16 h.p. Napier car, 2½ h.p. Ariel tricycle, and 6 h.p. De Dion tricycle, S. F. Edge; 80 mm. Ariel tricycle, Harvey du Cros; 6 h.p. De Dion tricycle, C. Jarrott; 2½ h.p. Gladiator tricycle and 7 h.p. Phœbus tricycle, F. F. Wellington; 80 mm. Ariel tricycle, J. Cusins; 2½ h.p. De Dion, De Dion Syndicate; Iveagh Phaeton No. 299, Motor Manufacturing Company; 3½ h.p. Delaugere tricycle and 8 h.p. Panhard car, Mark Mayhew; 6 h.p. Daimler Parisian, Claude Johnson; Simms Motor Wheel, Motor Carriage Supply Company; M. M. Company's Panhard, Motor Manufacturing Company; Strickland tricycle, A. E. J. Steele; Comiot tricycle, Stanley Lambert; M. M. Company's 3½ h.p. tricycle, Motor Manufacturing Company; 12 h.p. Panhard, Hugh Weguelin.

The National Trust.

PARLIAMENT not having seen its way to protect places of general interest, the National Trust for Places of Historic Interest or Natural Beauty—could not a shorter title be found?—is performing a work that should commend itself to automobilists in common with others who delight in the scenic glories of the country and the historic associations of notable buildings. During the last twelve months the Trust has rescued several places of interest, including fifteen acres of wooded hillside at Ide Hill

Kent, and Wicken Fen, as well as Kanturk Castle, county Cork. It is now desired to raise £350 for the purchase of the old courthouse at Long Crendon, Buckinghamshire, and £200 for the old post-office at Tintagel. The preservation of such buildings is desirable in more ways than one; but our readers will mainly recognise the increased interest the presence of such historic structures gives to their trips in the country.

A 100 h.p. Motor-Car.

A MOTOR-CAR with a motor of 100 h.p. is now an actuality, if *La France Automobile* is to be believed. Our contemporary, a member of whose staff has seen the car at a distance, states that it is a Peugeot, the engine having eight vertical cylinders. The vehicle, which belongs to M. Lemaitre, is fitted with an aluminium body and 150 mm. pneumatic tyres. It is to be subjected to trial shortly, the results of which will be eagerly awaited.

In Essex.

HAD Alderman Bond, of the Chelmsford Town Council, been one of the party who journeyed from Chelmsford to Burnham-on-Crouch the other day he would probably have restrained his feeling of alarm at the pace of motor-cars. At a recent meeting of the Council he said, "something ought to be done to prevent that sort of thing," i.e., the speed of cars. The Association of Old Chelmsfordians, however, are less nervously inclined, and held their summer meeting at Burnham-on-Crouch, whither they journeyed, some on cycles and others on a motor-car lent by Mr. C. P. Knights, and also a Daimler wagonette. Later, some of the party went on to Southminster. The trip was a capital one.

The Automobile and War.

If it takes the British public one generation to grasp an idea, how long will be required to get a reasonable notion into the War Office? That is a conundrum propounded some months ago, when the suggestion was made that the adoption of the automobile in connection with the transport service in South Africa would have been of considerable advantage. Even now the lesson has not been appreciated by the military authorities. The few experiments that have been made with traction engines, however, have had a good effect, and we note that 900 marines just sent off to China are accompanied with a traction engine to haul the guns. With so many disturbing elements in the international outlook the authorities at home should watch and encourage the development of automobilism as a means of assisting the army.

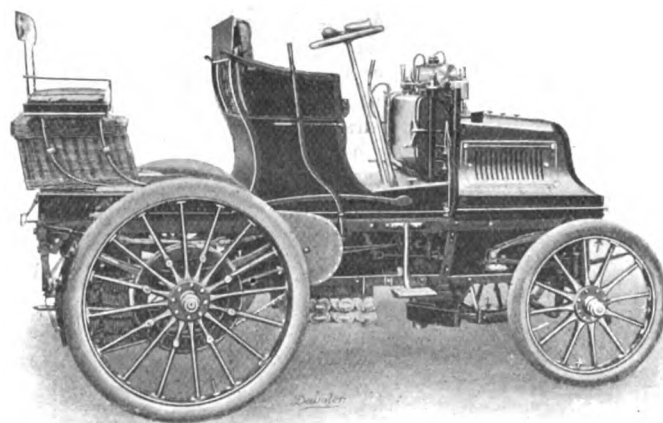
A Motor-Car as a Shooting Box.

THE *Durham Chronicle* thus records an incident which has lately taken place in one of the streets of the ancient city: "A large motor-wagon, of a type built to the order of the Government for the carriage of mails in some of the country districts, by way of experiment, was being driven over Elvet Bridge towards the Market Place, and on reaching the steep ascent opposite Mr. Jeckell's tobacconist's shop the big machine came to a standstill, the wheels evidently failing to grip the granite setts. Several attempts were made by the driver to reach the top, but without success, the traffic meanwhile being blocked at both ends. On taking off the brake to make a further attempt, the wagon began to run backward. Unfortunately, a dozen yards behind the car was a small cart carrying two four-oared racing craft belonging to the Tyne A.R.C. In his efforts to keep control of the machine, the driver turned it into the gutter directly opposite a public-house. The result was that the bows of the boats were crushed between the back of the car and the house side, causing damage to the craft to the extent of some £20. But for the gutter and the projecting signboard, which acted as a buffer, there is every reason to believe the car would have backed through the public-house window. It is said the car belongs to

a gentleman who intends using it as a shooting box during the coming season, and was on its way north."

A Klondyke Story.

SOME time ago we announced that MM. J. de Lamare and R. Merville intended to journey across the Klondyke region in an automomile. They have made the trip from Fort Bennett to Forty-Mile River in four months, and M. Lamare has been telling a pressman of his adventures. "There were many rough places where we could not run the machine," he said, "but most of the way we were able to do so. We were followed by a sledge drawn by oxen, on which were the supplies and the gasoline for the automobile. We would go ahead in the motor-car as far as we could and then wait for the sledge and replenish our supply of gasoline. Once, while crossing an unusually rough pass, we broke one of the supply tubes of the machine and were forced to take a tow from the sledge. Fortunately, however, there was a blacksmith's shop in the Chilcoot Pass. At another time we were so far ahead of the sledge that we were without food for more than fifteen hours. Our longest day's run was 110 miles. Most of the runs fell far short of that figure. We had with us an arrangement of skates to fasten to the machine in crossing ice. We were not obliged to use them as we found the automobile could run well on the ice where the snow was not too thick. The ordinary rubber tires held excellently, and kept the car from slipping. We visited Tagish Lake, Marsh Lake, Aplin Lake, and Taku. Some of the people who had never



A 12 H.P. TWIN DAIMLER CAR.

seen an automobile looked on the machine with awe and wonder. At Fifty Mile River we turned back because we found the river open. Our large automobile we left behind us, but we have still in our possession the light electric machine we had with us."

Motor-Cars and Market Gardeners.

WITH the advent of the fruit season that well-known gooseberry, the sending of fruit by motor-car, has again received attention in the London Press. The idea is, of course, quite feasible, and if adopted would prove very economical, but we have not heard of it having got beyond the point of suggestion. Seeing what is being done in connection with the Heavy Traffic Trials at Liverpool, might it not be possible to promote something of the kind in the south of England? In the market gardens round London there ought to be many good opportunities for utilising the motor-car in bringing produce to the metropolitan markets.

THE Automobile Club is organising a three days' trial of electrically propelled vehicles for the 1st, 2nd, and 3rd October next. At the same time it is proposed to carry out some tests of the horse power of motors and the horse power given off at the road wheels of automobiles.

A RUN TO GUILDFORD.

BY "WHYBROW."

ACCORDING to many, automobilism is associated with all the delights and the glorious uncertainty of other sports. You decide to journey by motor-car, and once aboard the chances of reaching one's destination are variable. Such is the opinion long held and now being quickly dispelled. Driven from their opposition on that ground, opponents of the motor-car talk glibly of its noise, vibration, evil perfumes, and other matters which have been associated with such vehicles in their primitive stage of development, but which are now only found with the more antiquated vehicles; for the development of the industry is proceeding rapidly, and the motor-car is going fast.

The other day I accepted a seat on the boiler of a Locomobile—about as comfortable and reassuring a position as one could wish. The modern journalist has to encounter risks both at home and abroad, and some of my colleagues kindly offered to watch for me from a balloon should I be sent high into air on the journey. They have since seemed disappointed that I did not visit them in their elevation; but I stuck to the car and returned home whole. More than that, I am convinced that the fears of those who pretend to fancy there is risk in a steam vehicle are about as groundless as the alarm of the old lady who declined to



go into the subway in front of the Mansion House because she did not know where the steps ended, and said she preferred this mundane earth to a dark dip into an unknown futurity.

Anyhow, I have done the deed, and if "Whybrow"—to say nothing of several dukes and others who own Locomobiles—could trust himself on such a vehicle, who need fancy mishap! With Mr. H. N. Searles at the helm I left Sussex Place, South Kensington, on a Locomobile the other afternoon at 2.15 p.m., ten minutes having been occupied in getting the car ready. The day was bright and the sun shone out with a determination that did him credit. There was a bit of a breeze blowing, and over the wood pavement we went in and out the traffic with an ease and grace not usually associated with mere mechanical things. Within a quarter of an hour we had the Thames to the right and left, and then into the High Street, Putney; up Putney Hill we went behind a wretched pantechicon that "dragged its weary length along" and caused us to follow slowly. The sharp easing of speed as we drew close to the van showed the obedient character of our vehicle, and then seeing a safe chance of going to the front we veered to the right, and in a few seconds were back on our own side of the road and quickly finished the ascent. After a good run along a level road we came up with a quadricycle, and then while passing Wimbledon Common saw the steam delivery van of a great London firm coming our way. That and a wagonette on the Benz system that we met at Barnes on the return

journey were the only automobiles we saw—a rather rare occurrence on that popular road. We were going along steadily and running without any perceptible vibration. In fact, I had already proved two things to my satisfaction—viz., that the Locomobile is an excellent car for either doctors or invalids, as the latter feel no vibration and the former can have the car ready for immediate running by the application of an idea which Mr. Searles told me has been adopted by the head of the Fire Department in New York. That gentleman goes to fires—not in a cabas is frequently the case in older and more traditional London, but on a Locomobile. A small gas jet is kept burning so that there shall be no delay in getting about his business.

But I am leaving my road, which lay through Norbiton and into Kingston, where we came in view of the Thames again two or three minutes over half an hour after crossing it at Putney Bridge. So far we had had 18lbs. air pressure in the petrol tank, and that was not exceeded the whole of the way to Guildford. In fact we went from Ripley to our destination with an air pressure of only 15lbs. Leaving the ancient town of Kingston we were quickly into Ditton where the quietness and solitude were very different to the animated scene always to be found there on Sunday mornings. And then leaving Sandown Park racecourse on the right we went into Esher, and turned into the yard of the Bear for water, as the tank, which has a capacity of fifteen gallons, had only been half-filled at the start. A full drink having been given our car—an operation which would have been more quickly performed had a hose been provided, as is done at some of the hotels on the road—we resumed our journey with cheerfulness. The scenery was delightful, and around Esher the flowers seem particularly rich and varied, while the ferns clustering around the trees on the heath and woodlands presented a wealth of foliage that added to the enjoyment. Mr. Searles came to London from America last August, and leaving again towards the end of the year returned to England in January. He is delighted with the pleasant lanes of Surrey, and enraptured with the good roads that abound—so different to the ill-conditioned highways of usually wideawake America. We had had a steady breeze which developed strongly as we crossed Esher Common into Cobham. Just before reaching the wide street of the latter place motorists and cyclists were warned to drive slowly as there was an open trench at the side of the road. So far we had met few carriages, but just before reaching Ripley—which we did at five minutes to four—a coach-and-four gave us some entertainment. Quite three hundred yards away one of the leaders was restive, and the grooms were endeavouring to hold its head. Frantically it passed, and we then encountered a strong head wind the rest of the way. At seven minutes past four we were four miles from Guildford, where we arrived at 4.20 p.m.

Descending the hill into the town we put up at the Angel, where the water supply was replenished, and the requirements of mortal man attended to in the hotel itself. The combined operations took time, and while the air pressure was being pumped up to 35lbs., I had an inspection of the car, which was fully described and illustrated in the *Motor-Car Journal* of December 8th. Not only is the general appearance good, but the ingenuity of the design is shown even in the sheet of leather suspended from the seat in which are placed, in proper position, the various tools required for tightening nuts, cans for lubrication, etc.

At five o'clock we passed through the Angel yard, and turning to the left went to the front of the hotel and up the steep hill in grand style. It had been market-day at Guildford, and the droves of sheep and cattle seemed to have had a good education in proper behaviour in the presence of motor-cars. The cattle regarded us with nonchalance and the sheep with less timidity than appeared natural—probably owing to the quiet and easy going of our vehicle. Thanks to the increased air pressure, a good speed—quite up to the legal limit as they were wont to chronicle on the 1,000-mile Trial—was obtained, and we got to Ripley by a quarter past five, where we filled the water tank, and prepared for a non-stop run to town. On the way several carriages drawn by horses and driven by men who were more nervous than their animals were passed, and so good was the running of the car that

we got to Esher just after six o'clock and were in Kingston an hour after leaving Ripley, where we had spent quite fifteen minutes. As we steamed along by the Thames the coolness of the evening was apparent, and there was almost a wintry aspect as we went through Richmond Park, where two or three little short stretches of newly laid road were met with. Out of the park and along Priory Lane into the Upper Richmond Road Mr. Searles directed his Locomobile. Then skirting Barnes Common we were over Hammersmith Bridge by ten minutes to seven. As Bridge Road was being repaired—a piece of good news to cyclists and motorists alike—we turned to the left and thus into the Broadway, and in a few minutes had reached Sussex Place again. With the help of a man we raised the vehicle from the side roadway into the show-room, and my afternoon's experience was at an end. If asked to give my opinion of the Locomobile I should say it is a capital car for a day's run at a pace to allow the passengers to revel in the beauties of the country, and that is, as Sir F. Jeune has observed, one of the great virtues of the automobile. There is only one disadvantage about such a trip as that I have chronicled. Everything went so well and without a hitch that there is little to describe save a continuance of pleasant reliable running. Still to the ordinary unjournalistic person that is something deserving consideration.

THE New York Motor Vehicle Company has been registered in New Jersey, with a capital of £100,000.

ON Saturday last two motor-wagons belonging to the Newcastle branch of the Co-operative Wholesale Society were on exhibition in Green Street, Sunderland.

A CLUB badge has been designed and will soon be executed for the members of the Automobile Club of America. A wheel entwined with a ribbon bearing the name of the club is the design adopted.

AN automobile will run between Onteora Park and Tannersville, N.Y., this summer, for the purpose of carrying the Onteora Park mail.

THE numerous complaints in the newspapers by persons whose horses have been frightened by motor traffic on country roads are, says the *Western Mail*, the most significant evidence of their increasing popularity.

A MEMORIAL is to be presented by the Automobile Club committee to the authorities controlling the tolls on Cookham and Goring bridges. The committee are also taking action in respect of the toll at Maidenhead Bridge.

ARRANGEMENTS have been made that there should be an enclosure at Sandown Park racecourse specially reserved for members of the Automobile Club on the day of the Eclipse Stakes Meeting—viz., Friday, 20th, and Saturday, 21st July.

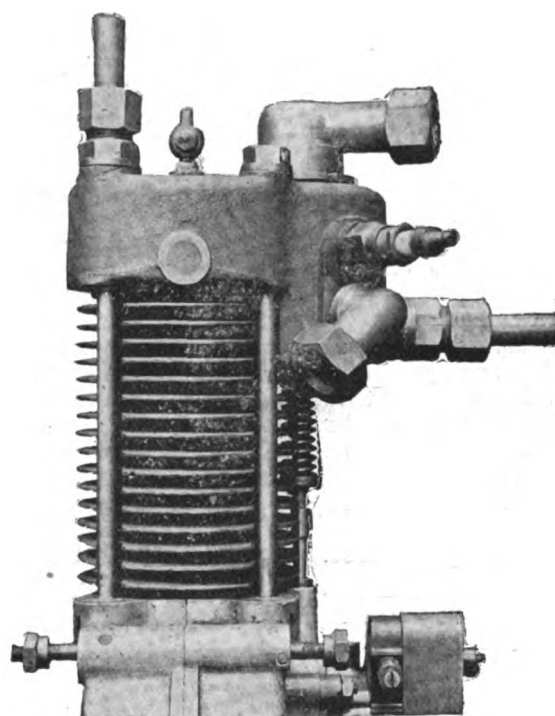
TO the particulars of the Irish motor-car meet already published in our columns we would add that Messrs. Hutton and Company will store a quantity of petroleum spirit at the Lakeside Hotel, Killaloe, and will also send a mechanic to be in attendance on the arrival of the cars.

M. L. DUMONT, of 55, Rue Sedaine, Paris, has recently introduced a new water-circulating pump for petroleum spirit motor-cars. The body of the pump is made of aluminium, thus reducing the weight as much as possible. The pump is arranged to be driven by a strap off the motor shaft or off one of the transmission shafts.

A STEAM carriage of the Stanhope pattern is being introduced by the Oxford Automobile Company, of 53, State-street, Boston, Mass. One of the special claims made for this style of automobile is that the steam is so condensed within the vehicle that none is visible without. The method of starting or firing-up is very simple. The boiler is of the usual tubular form, and is fitted with a regulating device for controlling the supply of petrol to the burner. In addition to the water gauge, there are three gauge cocks so placed as to indicate the amount of water in the boiler. The engine has cranks and rods covered. The storage tanks hold twenty-four gallons of water and five gallons of petrol. The car, when ready for the road, weighs about 950 pounds.

THE BRISSARD WATER-JACKETED COMBUSTION-CHAMBER FOR DE DION MOTORS.

IN our issue of the 23rd ult. we referred to a new water-jacketed combustion-chamber suitable for De Dion motors, which has been put on the market by the London Autocar Company. Curiously enough particulars of another device of the kind have this week been sent us by Messrs. H. Brissard and Fils, of 11, Rue du Colonel-Oudot, Paris. The new water-jacketed combustion-chamber, of which an illustration is given herewith, can, it is stated, quickly be substituted for the ordinary chamber of any air-cooled De Dion motor. The form of the new *culasse* is such that the water-jacket completely surrounds the valve-chamber, thus protecting the latter and also reducing the chance of breakage of the sparking plug, which often takes place owing to excessive heat. The circulation of the water is maintained on the thermo-siphon system, and the installa-



tion can be adapted to a tricycle or a voiturette at a small cost. Messrs. Brissard inform us that their new combustion-chamber has already met with a large adoption in France.

THE Honesdale Automobile Vehicle Company, of Scranton, Pa., has been incorporated with a capital of £20,000.

MESSRS. DE DION, BOUTON AND COMPANY, of Puteaux, have, states *La Locomotion Automobile*, just finished their first electrical car.

L'AUTOMOBILE CLUB DE BELGIQUE is reported to be organising an automobile *caravane* across Belgium on the lines of the 1,000-mile Trial.

THE Chief Constable of Surrey has issued a warning to cyclists and drivers of motor-cars against reckless riding and driving respectively.

Two motor-cars commenced running on Monday last on the route between Downfield and Fairmuir, N.B. The cars are intended to supersede the bus service.

IN order to assure its customers of the best possible value in every respect, the Fadie Manufacturing Company, of Redditch, has effected arrangements with the Motor Manufacturing Company, of Coventry, for the supply of motors of 2½ h.p., made by the latter concern upon the lines followed by Messrs. De Dion, Bouton, but of British workmanship throughout.

CORRESPONDENCE.

THE FIRST PUBLIC SERVICE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your last issue there appears a paragraph entitled "Motor-Car Trips," in which you refer to "the Motor Touring Company—the first company, it is said, formed for the purpose of working a passenger service." The claim may be correct as far as mere registration is concerned, but the Blackpool Motor-Car Company, of Blackpool, were undoubtedly running cars for public service long before the Llandudno people had a car on the road. This is proved by a letter sent to one of the journals by, I think, Mr. Aldred, in which he admitted they, unfortunately, could not obtain delivery of the cars they had on order, otherwise they should have had cars running before the Blackpool company. I may be pardoned for referring to so small a matter in that I myself claim to have been the first manager of the first company running public service cars in this country.

7, Liverpool Street, London, W.C. Yours truly,
July 2nd, 1900. A. W. GOODALL.

MOTOR RACING TRACK.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR.—In view of the recent correspondence as to a motor racing track, I went on Saturday to the Crystal Palace to watch the motor-tricycle racing, and came to the conclusion that there is nothing sufficiently attractive about the sport to warrant the scheme suggested. More than that, the limited number of motorists who go in for racing is convincing the public that no fresh men are coming out, and so the same half-dozen riders who raced last season promise to become the mainstay of motor-cycle racing on the track.

It is very clear that there is nothing in motor-car racing either. In France great speeds have practically killed the business, and unless we adopt tricks on motor-cars in connection with competitions I do not see how the public is to be drawn to see automobile competitions. The public is interested in observing various types of cars travelling at reasonable rates of speed, but motor racing is as uninteresting as bicycle racing has become.

Yours truly,
Penge, S.E., July 3rd, 1900. A NOVICE.

A GERMAN DAIMLER RACING CAR.

THE illustration on the opposite page shows one of the racing cars built by the Daimler-Motoren Gesellschaft, of Cannstatt, Germany, for the recent automobile season at Nice. The vehicle, which has accommodation for four persons, is provided with a four-cylinder Daimler motor, capable of developing up to 28 h.p. Four speeds forward and reverse motion are available, the transmission of the power to the rear axle being on the well-known Daimler system. Special attention has been paid to the water-cooling and braking arrangements. The car, which is fitted with wooden wheels shod with stout pneumatic tires and inclined wheel steering, is stated to be capable of attaining a speed of from fifty to sixty miles per hour on the level. We are indebted to the *Motorwagen* for the illustration.

TEN entries have, we understand, been received for the English Motor Club's hill-climbing competition at Tilburstowe, near Godstone, at four o'clock this (Saturday) afternoon. The contest will be held under the rules of the Competition Committee of the A.C.G.B.I. as a class B competition.

M. P. FAGEOT AINÉ, of Neuilly, near Paris, has sent us a copy of his latest catalogue of motors, voiturettes, and motor-car and cycle accessories and parts of every kind. Prominence is given to the Fageot vertical petrol motor, which is made in sizes from $2\frac{1}{2}$ to 5 h.p. The list is most complete, and should be in the hands of all interested in the motor trade.

THE AUTOMOBILE CLUB'S 100-MILE TRIAL.

THE quarterly 100-mile Trial of the A.C.G.B.I. was held on Wednesday, the 27th ult., when three competitors presented themselves. The Automobile Association kindly placed their premises at the disposal of the club, and Mr. Wyatt and Mr. Buttemer assisted as observers. The usual route was followed, viz., from the second milestone from the Marble Arch, *via* Ealing, Uxbridge, Beaconsfield, High Wycombe, and Stokenchurch to the fifty-second milestone (outskirts of Oxford) and back. Total 100 miles. The condition of the roads was fair, although dusty at places and loose on Dashwood Hill. The weather was fine. Wind light from the westward. The hills on which hill-climbing trials took place were:—(a) Dashwood Hill, commencing at the thirty-third milestone and terminating at the thirty-fourth milestone, having a total rise of 241ft. in 1 mile, including 275yds. of a gradient of 1 in 21.7, and 600yds. of a gradient of 1 in 11. (b) Aston Hill, on the return journey. Distance 1 mile 1,100yds., having a total rise of 386ft. and including 1,910 yds. of a gradient of 1 in 21. The following are the records of the three vehicles which competed:—

The Motor Manufacturing Company's Motor-Tricycle.—Motor: $2\frac{3}{4}$ h.p., 79 m.m. cylinder, with 85 m.m. stroke. Quantity of petroleum spirit used on the journey: 1 gallon 3 pints. Speed up to the legal limit of twelve miles per hour. Number and cause of stoppages: (1) At the end of fifty miles, stopped $10\frac{3}{4}$ min. to fill carburettor, the pipe leading from spirit reservoir to carburettor having become unscrewed and lost. (2) At end of sixty-third mile, stopped 6 min. 10 sec. for same reason and purpose. (3) Stopped at ninety-fifth mile to obtain a lamp, "lighting up time" having arrived. Hill-climbing speeds: (a) Dashwood Hill: 14.40 m.p.h., without pedalling. (b) Aston Hill: 13.9 m.p.h., without pedalling. General remarks: The observer states that no pedalling came under his notice, except for starting purposes.

The Motor Manufacturing Company's Iveagh Phaeton.—Motor: two cylinders of 90 m.m. with 120 m.m. stroke. Quantity of petroleum spirit used on the journey: $4\frac{1}{2}$ gallons. Quantity of water used on the journey: 2 gallons. Speed up to the legal limit of 12 miles per hour. Number and cause of stoppages: (1) during fifteenth mile pressure was lost in spirit tank; stop of eight minutes in finding cause. Hill-climbing speeds: (a) Dashwood Hill, 6.42 miles per hour; (b) Aston Hill, 6.68 miles per hour. General remarks: Except for the one stop above recorded, the vehicle ran steadily and well, especially on the return journey.

The Motor Carriage Supply Company's Simms Motor-Wheel.—To carry two passengers, $2\frac{3}{4}$ b.h.p. motor, one cylinder $2\frac{3}{4}$ in., with $3\frac{1}{4}$ in. stroke. Quantity of petroleum spirit used on the journey: 1 gallon $7\frac{1}{4}$ pints. Speed up to the legal limit of 12 miles per hour. Number and cause of stoppages: (1) On Dashwood Hill, where passenger alighted and walked to the top; (2) at 56 miles, stopped 2 minutes for restless horse; (3) at 62 miles, stopped 13 minutes to replenish petroleum spirit tank and lubricator. Hill-climbing speeds: (a) Dashwood Hill, 6.66 miles per hour, passenger alighted; (b) Aston Hill, 9.75 miles per hour, pedals not used. General remarks: At fifty-second mile, right-hand stay of mudguard broke; at fifty-third mile, left-hand stay of mudguard broke. The vehicle ran steadily and satisfactorily. It was in passing another vehicle by which the Simms' motor-wheel was forced on to the loose portion of the road on Dashwood Hill that the stoppage occurred which necessitated the passenger alighting.

THE Police Board of Hartford, Conn., U.S.A., has been asked to appropriate the sum of £800 for a motor patrol wagon.

THERE are on view at the Automobile Club the handsome challenge cups, which have been presented in connection with the motor-cycle meeting held at the Crystal Palace on the 30th ult.

A MOTOR-CAR tour in Algeria is projected by *La France Automobile*. The distance would be 900 kilomètres, and February next is the date proposed for the tour.

PARIS EXHIBITION NOTES.



(FROM OUR OWN CORRESPONDENT.)

I SUPPOSE that there is any number of people in England whose original intention it was to visit the Paris Exhibition not later than the end of last month, and who subsequently decided, consequent upon the reports as to the unfinished condition of the big show, to postpone their visit until towards the close of the summer. The premature opening of the Exhibition has proved to be unfortunate from every point of view, for the early visitors went away firmly convinced that the installation of many of the sections could not possibly be completed in less than three months, and advised their friends accordingly. The result to-day is that the number of foreigners and provincials visiting the show has by no means come up to expectations, and that the predominating element in the crowd is Parisian. But there is really no need now to postpone one's visit: indeed, to my mind, it would be better to make it at once. Certainly the Annexe at Vincennes is not anything like complete, nor will it be for some time to come, but the motor-man can already see an enormous variety of vehicles there, and the automobile class in the Exhibition proper is entirely installed. Come at once then, I say, for shortly we shall be entering upon that spell of trying heat which renders Paris almost unbearable during July and August, while later on there is sure to be a great influx of visitors anxious to view the last of the Exhibition, and the corresponding annoyance in the matter of accommodation, etc., will be experienced. Of course Paris is crowded now—

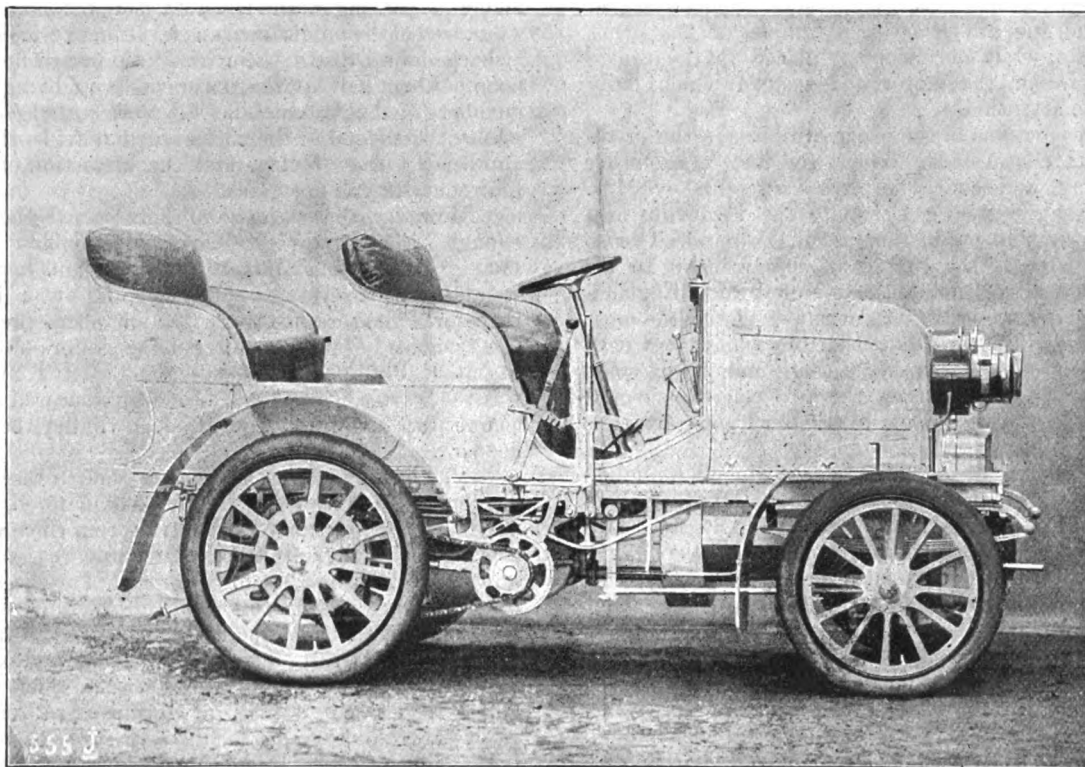
greatly crowded; and one should certainly engage rooms before coming over, as otherwise a long and trying search would probably result, but I think that in September the difficulty of securing accommodation will be even greater. If you intend to see the Exhibition, then, visit it now, for it is ready; and as you may not be quite certain as to its whereabouts I will endeavour to tell you exactly where one must look for

CLASS 30 AT THE CHAMP DE MARS.

Broadly speaking, the Exhibition proper is divided into three great sections, viz., Esplanade des Invalides, Trocadero, and Champ de Mars, the last-named being the furthest from the grand boulevards. At Champ de Mars, in Group VI., the group reserved for civil engineering and means of transport exhibits, there is to be found the automobile section, the number of the class being 30. Group VI., Class 30, at Champ de Mars, then, is the exact address at which the motor-man will find examples of some of the newest types of automobiles, and I will now endeavour to lead him there by the best and quickest routes. If a cab be taken, the driver should be told to go to the entrance in the Avenue de Suffren. There are several entrances to the Exhi-

bition in the avenue, but none of them are very far from the automobile class, and the nearest to it is the one about half-way down. No money is taken at any of the Exhibition gates, admittance being by ticket only. These tickets are on sale all over Paris, and vary in price from 45c. to 75c. each, according to the market quotation. Usually there are a dozen vendors hanging round every entrance, but it is a good plan to buy at one time as many as you are likely to require, and so be independent. The number of tickets given up at the entrance depends upon the day, but generally speaking one ticket only is required when entering between ten o'clock in the morning and six at night. To reach the Exhibition by train, one should travel from the Gare St. Lazare to the Gare du Champ de Mars. Upon alighting at the latter station one has but to cross the Avenue de Suffren and enter by the gate almost in front of the station. If the river be preferred—and to my mind it is the most delightful if not the quickest means of transport—one can go on board at any of the piers, bearing in mind that the boats never cross the river, but always keep to one side. The side upon which the Opéra, etc., is found is known as the *rive droite*, the other side the *rive gauche*. Leave the

boat at the Pont d'Iéna, where one enters direct into the Exhibition. It is better to be provided with entrance tickets, as one may not be able to procure them on the boat, and there are no vendors on the piers. Should you wish to take an omnibus or a tram you are more likely to find a seat on those going to the Trocadero than those to Champ de Mars, and it is not far to walk from the former place to the automobile section. The big green tramcar leaving the Madeleine for Auteuil by way of the Boulevard



A 28-H.P. GERMAN DAIMLER RACING CAR. (See opposite page.)

Hausmann will take you to the Trocadero, and there is also an omnibus which passes by the Gare St. Lazare and labelled "Gare de l'Est—Trocadero." The omnibuses which go direct to Champ de Mars are the Gare St. Lazare—Javel and the Porte St. Martin—Grenelle, but unless you go to the starting point it is always difficult to secure a place. Once in the Champ de Mars section, and facing the wonderful fountains known as the Château d'Eau—that is, with one's back to the Trocadero—one finds the automobile class on the right. The entrance to it is about half way down the long building which reaches from the one foot of the Tour Eiffel to the Château d'Eau, and the imposing gateway bears, among other titles, "Génie Civil, Transports, Travaux Publics." Enter there, and to right and to left one finds automobiles galore, while erected against the walls of this splendid hall are cases containing a great variety of accessories necessary to the existence of a motor.

And now, having safely placed you there, O man of motors, I would say commence with the exhibition of the Musée Centennial des Voyages et du Tourisme, for after an inspection of the

exhibits there you will be in a fit frame of mind to appreciate the progress made during the last fifteen years. This small collection of antiquities is found on the left of the passage which runs direct from the entrance into the body of the hall. Consisting for the most part of cycles of the bone-shaker and hobby-horse types, it includes, however, three very interesting automobiles. First of all there is an enormous steam diligence, built by M. Amedée Bollée in 1885 for the Marquis of Broc, of the Château des Perrais, at Parigné le Pôlin, in the Sarthe district. It is of truly huge proportions, and appears to bear its fifteen years of existence with ease and contentedness. Then there is the first petrol motor-cycle manufactured by MM. De Dion and Bouton, and, screened by the giant diligence, there is a weird collection of boilers, taps, and cocks, the whole mounted upon three wheels, and bearing an inscription to the effect that it is the initial effort of the same Puteaux firm to produce a steam motor-tricycle.

Turn from that and its petrol relative and have a look at the stand of MM. De Dion and Bouton, which is upon the same side of the central passage, but nearer to the door by which we entered, and then you can see what a few years have done for automobilism. Look at those beautiful "quads" with grace and strength shown in every line, and compare them with what has gone before. It seems almost incredible in such a short space of time. On this stand, too, are to be seen samples of the firm's well-known voiturette, while conspicuously placed in the centre is a snowy white frame, the motor and gear of which daily attracts considerable attention.

The modern productions of the other exhibitor in the retrospective section, viz., M. Amedée Bollée, are just on the other side of the gangway, and consist of five cars built by MM. Dietrich and Co. on his system. Certainly the Lunéville firm has not a very great annual production, perhaps a hundred or so vehicles, but all the same it is a matter of astonishment to me that the type is practically, if not entirely, unknown in England. One of the handsomest cars in France, it is also one of the most reliable; indeed, you will find many authorities who regard it as equal to any vehicle produced this side of the Channel. If some of the English firms trading between the two countries would take some measures to exploit the car in England good business ought certainly to result.

A stand which is very conspicuous in the immediate neighbourhood is that of the Société des Chaudières et Moteurs Scotte, for there one sees three giants of the automobile world. Two mighty Scotte trains, each fitted with a thirty horse-power engine, and a third provided with a ten horse-power, go to make up this interesting collection. The prices of the larger trains are about £1,100, and the firm have a new twenty horse-power type in course of construction. In dozens of places these tractors are doing excellent work, and I may cite the services in the Ardèche, in the Saône-et-Loire, in the Ain, Isère and Drôme, at Bougie and Sétif, at Buxy, Roubaix and Tourcoing, etc. Not the least noteworthy feat achieved by a Scotte train was performed this spring, when the railway carriage exposed by the Compagnie Internationale des Wagon-Lits in the Russian section of the exhibition, and actually intended for use on the Trans-siberian Railway, was towed by a Scotte tractor from Saint Denis to Paris in three hours. This railway car brings down the scale at 35,000 kilogrammes, no light weight to tow up what in places are grades of 8 per cent.

Just in front of the Scotte exhibits a well-known name catches the eye. It is the name of Otto, and the productions exposed are a couple of vehicles built by the new company in the huge works of the parent concern, where for so many years the "Otto" gas engines have been constructed. One naturally takes a keen interest in anything emanating from this company, for was not Gottlieb Daimler a collaborator of Otto, whose system is now represented in Europe by some 50,000 gas engines? The cars exposed are unfortunately not finished, and as they lack in several interesting details it is only possible to give a general description of them. Built on Panhard lines, the motor is carried in front in a very similar bonnet; indeed, the whole car resembles very closely in appearance the productions of the Ivry firm. The motor is of the two-cylinder vertical type. It is provided with electric ignition, and a Longuemare carburator is used. The

smaller of the two cars shown is fitted with three speeds and reverse, and the larger vehicle four speeds and reverse. The motors develop 6 h.p. and 10 h.p. respectively. The usual pedal and hand brakes are attached—the former acting on the differential shaft, while the latter operates upon the sprocket wheels. The application of either of these brakes also throws the engine out of gear. Altogether the car has a smart and attractive appearance, and the long experience of its constructors should be an excellent guarantee of its construction and of its effectiveness.

(To be continued.)

MOTOR RACING AND CLIMBING.

AT THE CRYSTAL PALACE.

SATURDAY was a dull day at the Crystal Palace. The weather frowned unkindly, and from the terrace of the great glasshouse a mist was seen enveloping the grounds that are ordinarily so beautiful and attractive. It saddened those who had entered for the motor-cycle races on the track, and it—or something else—kept the spectators away. Certainly the cars that went on the 1,000-mile Trial could have carried all the on-lookers as passengers and left not a score behind. At one time about a hundred of the public lined an elevation overlooking the track, but a sharp shower drove them away to return no more that afternoon. About half a dozen motor-cars brought sightseers, and a few members of the Automobile Club were seated on the grand stand, while others stood in the enclosure; but evidently touring is more appreciated than racing, and the attraction of ten entrants for four contests was not great.

However, those who were there passed the time pleasantly enough. There was good sport in the first half hour of the racing, as Messrs. Jarrott and Machin kept together with wonderful tenacity, alternately leading by a few lengths; and there was good company in the members present. But when tire troubles began the interest of spectators obviously slackened. Mr. R. E. Phillips was the judge and Mr. T. W. Staplee Firth was the starter, while Mr. C. Johnson appeared in the capacity of competitors' steward, Mr. H. J. Swindley being official time-keeper.

The first event was a one hour scratch race for the *Autocar* challenge cup, but of the six who had entered, only Messrs. F. Wellington (unfortunately suffering from rheumatism in the right arm and riding against the doctor's orders), C. Machin, C. Jarrott, and E. Buck turned out for the race. For the first four laps the order of going was Jarrott, Machin, Wellington and Buck, and then the positions of the two leaders were reversed for a lap or two, when Jarrott again led. An interesting competition for third place was going on between Buck and Wellington, which continued until the former's retirement a few laps later, something going wrong with the machine. Wellington then went steadily along, and Jarrott and Machin fought hard for the first place, there being never more than eight lengths between during the first half-hour, when twenty miles had been covered. Unfortunately in the next mile Jarrott's tire was punctured, and the race was virtually over. Within ten minutes he was again on the track, but left ere the hour was up, and the result was as follows:—C. Machin, 1; F. F. Wellington, 2; C. Jarrott, 3. The former, riding a 7 h.p. Aster, covered 39 m. 234 yds., as against M. Rigal's record of 38 m. 1,372 yds. on the same track on Whit-Monday. Towards the end of the race his tire showed signs of wear, and but for that he might have reached the forty miles. Anyhow, Machin's was an extremely good performance. Wellington, who rode a 7 h.p. Phœbus Aster, was heavily handicapped in that, as in subsequent races, by his rheumatism. Jarrott's machine was a 5 h.p. De Dion.

In the five-mile scratch race for motor touring cycles, for the *Motor-Car Journal's* challenge cup, the six entries were reduced to three starters—Messrs. Wellington, Buck, and A. E. J. Steele. This proved a win for Steele (Simpson and Strickland tricycle), Wellington (2½ h.p. Phœbus) and Buck (Motor Manufacturing Co.'s tricycle with Soncin motor) being placed second and third respectively. The winner's time was 11 min. 2 2-5 sec., and he won by over a lap.

Owing to the absence of the competitors the three miles Club motor-cycle handicap, which was to have concluded the meeting, was not run, and the ten mile handicap for the *Auto-motor* challenge cup brought the racing to an end. Here again Jarrott had bad luck, his machine breaking down after he had led a considerable distance and had lapped Steele. The result was as follows:—E. Buck, 5 laps start (3 laps to the mile), 1; A. E. J. Steele, 9 laps, 2; F. F. Wellington, 2 laps, 3; C. Machin, scratch, 0; C. Jarrott, scratch, 0. Buck's time was 14 min. 2-5 sec., and Machin's time 14 min. 55-1-5 sec.

Half a dozen cars were in the grounds of the Palace. Mr. C. Johnson had his Daimler, Mr. Burgess was on a Motor Manufacturing Company's vehicle, Mr. W. J. Peall had come on his Daimler, Captain Langrishe was on his car, and Mr. Cordingley on his Marlborough phaeton. The racing over, a start was made for Westerham, the nasty incline leading from the Palace grounds necessitating the lightening of some of the cars. A short distance from the Palace we (on Mr. Cordingley's car) passed Mrs Kennard on her Benz, and then a good run was enjoyed to Bromley, where tea was hastily partaken, and across Hayes Common we enjoyed a lovely prospect. This route was a couple of miles longer than by the main road to the left of the railway station, but the prettiness of the view was worth the detour. Right across the common was a wealth and profusion of ferns such as is not often seen so near London. Half way across Messrs. Edge and Napier on the 16 h.p. Napier car dashed by, their onward track being clouded in dust. In some of the lanes beyond parties of bean-feasters were met, and the usual ejaculations were heard; otherwise the ride was delightful. The evening was cool, not cold; and some of the lanes through which we rode not unlike those leafy, grass-grown walks of Devonshire which give that county its joy and pleasure. Tall were the hedges and fragrant the smell of the hay that came with every freshening breeze, while here and there between graceful beeches we saw fields of wild flowers—and only an hour's journey from town. Thence to Westerham the way was uniformly delightful, a cheering ending to a dull afternoon.

AT WESTERHAM.

Here a hill-climbing competition for automobiles had been arranged by the Catford Cycling Club, under the A.C.G.B.I. rules, with Mr. Robert Todd as judge and Mr. Alex. Slimon as secretary.

At the top of the hill were several cars that did not venture down. Mr. C. Johnson and Mr. Worby Beaumont walked along looking for the steepest gradient, and forgetful of the car the former had entered. Mr. T. B. Browne's party were on his Panhard. A Richard car was there, affording an opportunity for a reminiscence of the 1,000-mile Trial. Mr. Weguelin's Panhard racing machine—once belonging to a leading French *chauffeur*—was, we heard, at the foot of the hill, whither the Napier car had gone to the wonderment of a few natives in the crowd of cyclists and motorists. To enumerate all who were present would be impossible, as the hill was long and the motorists stragglers as they footed up and down watching with interest the struggles of vehicles to the summit. But it was a fairly representative company, and some local owners of cars had appeared to give volume to the scene. The *Daily News* of that morning had had something to say about motor-men's garments. We wish the writer could have seen one gentleman on his car with his top-hatted groom demurely sitting beside him, looking for all the world as though he had lost the pony. Very sedate, very lonely he looked.

Down to the bottom of the hill we trudged, determined to see all that could be seen. A returning party of motorists warned us that the way was long and the return was steep. We waited awhile until a welcome "teuf, teuf" announced that something was coming. It was a motor-tricycle, the rider looking pale and determined. He had no number, and so his identity must remain obscured. Then Mr. Harvey Du Cros, jun., whizzed by. Later he returned to enjoy another trip to the hill top. Then was the noise of the first car heard in the stillness of the evening—for it was growing late—and with a plodding, persevering persistency Mr. F. Wellington's 6-h.p. Daimler car hove in sight with Mr. Swindley aboard. They turned the bend slowly, and slowly they finished the ride at a pace which occasioned no alarm and would have

disturbed no policeman, had such an official been present. Mr. Edge and Mr. Napier came up in good style, but not far from the summit left the beaten path, and striking a hedge decided to go no further, one of the brakes giving way. The car was reversed, and went down the hill more slowly than it ascended, and we saw it no more. Then ten minutes of patient watching until Mr. C. Jarrott hove in sight, closely followed by No. 25, both pedalling hard. The performances of the motor-cyclists came into prominence at this point. No. 28 went up and 25 came down again, followed by 28 a few minutes later. Then 27 pedalled upwards and 32 and 26 returned to the bottom—whether for the fun of another effort or to beat the record we could not say, and did not trouble the riders to inquire. They were all intent about their business.

After the motor-tricycles the coming of a car was interesting as a relief to the monotony. It proved to be Mr. Weguelin's Panhard, and went up well. A few minutes later it came down the hill splendidly under control. Then came V. Lee on Mr. Edge's Ariel tricycle in the smartest time of the day—an exceedingly good performance; and the last we saw of the trials was Mr. T. B. Browne's Panhard, having been relieved of passengers, being coaxed from the rear. Strong shoulders and willing hands helped it to reach the top. The whole course up the hill was a mile in length, and the times of those who made the ascent are given below.

		Mins.	Secs.
32. V. Lee...	Ariel tricycle	2	58 $\frac{1}{2}$
25. F. F. Wellington's representative	do.	3	7 $\frac{3}{4}$
27. B. Hopps	do.	3	28
26. Harvey Du Cros, jun.	do.	3	29 $\frac{1}{2}$
28. Roger H. Fuller	Tricycle	3	38 $\frac{1}{2}$
38. H. Weguelin	12 h.p. Panhard	3	49 $\frac{1}{2}$
30. Chas. Jarrott	Ariel tricycle	4	32 $\frac{3}{4}$
36. F. F. Wellington's representative	Daimler car	11	45

At half-past eight we turned our car about and started for home. There was still a breeze, which was as pleasant as ever, and having shaken off a few cyclists, who would keep at a dangerous proximity, we travelled the high road, keeping off the common we had crossed earlier in the day, and observing a small triangular cemetery in pleasant seclusion and delightful location. Clean, businesslike Bromley, that had appeared so cheerful on the outward journey, was now full of people marketing and waiting in its streets, and then a long stretch of open country separated us from purely London suburbs. We had a taste of the dust shortly after leaving Bromley, Mr. Weguelin's car kicking its heels violently as it rushed by and giving us a cloud that could be felt and tasted, but not appreciated. We had appetites, for the fast had been long; but suburban dust is not satisfying. Nor is the odour of the establishments for purveying the flesh of sea fishes to Londoners any more appetising. Of that we had plenty as, through Deptford and New Cross, we went into the Old Kent Road on the way to Westminster. Big Ben was pointing ten minutes to ten o'clock as we crossed the Thames, beyond which our route lay through familiar paths.

The conclusion of the whole matter is that motor-tricycle racing is all very well, and that motor hill-climbing is rather better, but that motoring across the country for purposes of enjoyment only is the preferable pastime of the three.

AN ordinance has been passed in Newport, R.I., U.S.A., restricting the speed of motor-vehicles in that city to six miles an hour in the business section and ten miles an hour in the outer portions.

THE Daimler Motoren Gesellschaft, of Cannstatt, Germany, have sent us a number of separate circulars illustrating and describing their latest types of motor-vehicles, including delivery van, omnibuses, etc.

PROFESSOR R. W. WOOD and Mr. Joseph Jastrow, of the University of Wisconsin, rode in a Locomobile car from Milwaukee to Madison, Wis., on the 8th ult., covering the eighty-five miles in 5 $\frac{1}{2}$ hours. So far as known this is the first long-distance trip made in Wisconsin.

THE 1,000-MILE TRIAL.

—8—

THE REPORT AND AWARDS OF THE JUDGES' COMMITTEE.

THE Judges' Committee, in arriving at their decisions, have allotted marks under the following amongst other headings:—Price; weight; horse-power, shown by performance; persons carried; price in proportion to seating capacity occupied; price in proportion to power of motor; power in proportion to seats occupied; power in proportion to weight; mechanical efficiency as shown by hill-climbing trials; simplicity of transmission; accessibility of mechanism; quality and sufficiency of speed gear; easiness of adjustment; steering gear; brakes and brake gear; ignition arrangements and apparatus; general design, mechanically; general design, appearance; average speed on Trial out of control in proportion to average of legal limit; workmanship, especially of machinery; condition of car at end of trial; regularity of running on Trial; breakages and defects not previously mentioned; general observance of Trial regulations.

ENTRIES.—Eighty-three vehicles in the various classes were entered for the Trial, but some of these were not completed, or from other causes did not appear at the time of the start on the morning of the 23rd of April. Sixty-five started, and, with the exception of a few vehicles, most of which ought never to have started, all covered the whole or greater part of the course. The analysis and the tables* given in the appendix to the report show the performance of all the vehicles which returned to London and were exhibited at the Crystal Palace.

All the vehicles were examined at the Agricultural Hall on Saturday and Sunday, the 21st and 22nd of April, by some of the judges, and stamped for identification in several places.

On their return to London, those of the vehicles which completed the whole tour were exhibited at the Crystal Palace, where they were re-examined for identification, and records were taken of the condition of the gear and other working parts.

The judges do not propose to enter into any detailed criticism of the performance, structure, and condition of the vehicles before and after the Trial, as all these questions have been separately considered with respect to every car, and numerical value given to each in making the awards under the above headings, but they wish to draw attention to the extremely satisfactory progress which has been, and is being, made in the construction not only of the carriages generally, but in the arrangement, accessibility, and workmanship, particularly in this country, of the transmission and other gear of many of them. Marked improvement has also to be noted in the carriage-builders' work of several automobiles, the carriage builders having realised the possibility of and necessity for lightness of construction, combined with comfort and elegance. Aluminium has been used successfully in making the bodies, and the same metal has been largely employed in the fixed parts of the machinery.

The reduction in weight which has been thus effected by some British manufacturers has had a marked effect upon the hill-climbing powers and efficiency of the cars as a whole.

SPEED IN CONTROLS.—The rules for the 1,000-mile Trial specially provided that a competitor should not drive his vehicle at a speed exceeding eight miles an hour through towns and villages, which were specially indicated in the official programme, and by flags exhibited by timekeepers on the road side. An examination of the time-sheets shows that, while some competitors have adhered scrupulously to the rules, and others have evidently adhered to the spirit of the rule by moderating their speed, but not sufficiently when passing through controls, on the other hand certain competitors have almost entirely disregarded the rules which were made to prevent the possibility of accidents or annoyance to the inhabitants of towns and villages situated on the route of the Trial.

The Judges' Committee, in order to mark their appreciation of the conduct of drivers who showed self-command and respect

for the rules by proceeding at a very slow speed through controls, have, in making their awards, allotted marks in accordance with the behaviour within controls of the driver of each vehicle.

The following drivers are to be commended for their adherence to the rule as to speed within controls. The highest possible number of marks was 100.

The Hon. C. S. Rolls (No. A17)	93.22
The driver of the New Orleans Car (No. 28)	76.08
" " " " Brown-Whitney car (No. 23)	74.64
" " " " Mr. Mayhew's Peugeot (No. A29)	72.88
" " " " Cordingley's car (No. A23)	72.76
" " " " the Benz Ideal (No. 2)	69.78
Mr. Edge, who drove Mr. Kennard's car (No. A10)	69.41
The driver of the Marshall Carriage (No. 24)	69.41

The Judges' Committee recommend that if any road trial of a similar nature be organised by the club, competitors should be warned that failure to observe strictly the rule as to speed within controls will undoubtedly involve disqualification, and, further, that disqualification should ensue from a practice, which was only too common during the recent Trial, and which tended to make the Trial a nuisance to other users of the road, viz., the breaking of single file and crowding of vehicles across the whole width of the road while awaiting despatch from the outward control, or awaiting registration at an inward control.

CAUSES OF FAILURE.—The Judges' Committee wish to place on record that enquiries tend to show that most of the failures of vehicles to obtain good records on various stages were due, not to the failure of motor or of the transmission gear, but to structural weaknesses in other parts of the carriage. For example, breakage of axles took place in three instances, and the puncture of pneumatic tires was especially responsible for delays. It is well, then, that the general public, when forming an impression of the Trial, should bear in mind that a large proportion of the delays cannot properly be put down to what are usually known as "breaks down" of the motor.

The Judges' Committee trust that manufacturers of wheels, springs, axles, and tires will specially turn their attention to the manufacture of parts of suitable material, design, and proportion, for use in the construction of motor vehicles.

PUBLIC SERVICE VEHICLES.—Special prizes were offered for public service vehicles, it being evident that there is, and is likely to be, a considerable demand for this class of vehicle; and that the transmission gear used in the ordinary light, privately-owned vehicle is not suitable for use in cars constructed to carry large numbers of passengers.

The Daimler Company entered a vehicle (No. 38) specially designed for public service, which being the first of its sort, may be looked upon as experimental, and, as such, gives promise of this company being able to provide shortly a thoroughly sound and suitable vehicle for the conveyance of at least a dozen passengers.

THE CLIPPER TIRE.—The Judges' Committee wish to notice the earnest attention which the Clipper Tire Company is giving to the manufacture, in this country, of pneumatic tires suitable for use on automobiles. This Company submitted to trial a set of pneumatic tires, and these tires were under the observation, during the 1,000-mile Trial, of official observers acting on behalf of the club. This set of tires did not wear well during the Trial, but other tires manufactured by the same company were fitted to vehicles which went throughout the Trial, and were in fair condition at the conclusion of it.

AWARDS.—The recommendation of the Judges' Committee as to awards and an analysis of the running of the various vehicles entered for the Trial are appended hereto:—(Signed) Archibald Barr, Hudson Beare, W. Worby Beaumont, C. Vernon Boys, D. S. Capper, Dugald Clerk, Bryan Donkin, H. S. Hele-Shaw, H. C. L. Holden, Wm. H. Preece, Boverton Redwood, David Salomons, Bart., James Swinburne, Wm. C. Unwin, A. F. Yarrow, Judges' Committee.

Sir David Salomons signs and approves the Report and awards subject to dissent from placing the Locomobile carriage for a prize, on the grounds that at the present time the "Locomobile" produces visible steam, contrary to the 1896

* These were published in our issue of 16th June.—[Ed. M. C. J.]

Locomotives on Highways Act. Also the boiler interior is virtually inaccessible; consequently, until these defects are remedied, the carriage should receive no mark of commendation whatever.

AWARDS.

The Judges' Committee recommend to the Club Committee that the following prizes should be awarded in connection with the 1,000-mile Trial of 1900:—

SECTION I.

(Vehicles entered by Manufacturers or Agents.)

Class A. (Vehicles declared at a selling price of £200 or less).—First prize (10 per cent. of prize fund), No. 2, Benz Ideal; second prize (each 5 per cent. of prize fund), No. 5, Locomobile steam car; No. 27, New Orleans voiturette.

Class B. (Vehicles declared at a selling price of more than £200, but not more than £300).—First prize (10 per cent. of prize fund), No. 40, Wolseley voiturette; second prize (5 per cent. of prize fund), No. 31, Motor Car Company's Triumph; third prize (3 per cent. of prize fund), No. 15, De Dion voiturette.

Class C. (Vehicles declared at a selling price of more than £300, but not more than £500).—First prize (10 per cent. of prize fund), No. 35, Daimler Company's car; No. 36, Daimler Company's car; No. 37, Daimler Company's car. Second prize (5 per cent. of prize fund), No. 9, Motor Manufacturing Company's car; No. 8, Motor Manufacturing Company's car.

Class D. (Vehicles declared at a selling price of more than £500).—No awards.

Class E (a) (Motor-cycles carrying one person only).—No awards.

Class E (b) (Motor-cycles carrying two persons).—First prize (10 per cent. of prize fund), No. 3, Ariel quadricycle; second prize (each 5 per cent. of prize fund), No. 4, Ariel tricycle with Whippet trailer; No. 39, Century Tandem.

Class F (Public service vehicles).—No award.

27 per cent. of the prize fund is reserved for Section II.

It is recommended that the *Daily Mail* prize of £10 for every vehicle successfully completing the Trial in Section I. should be awarded in respect of the following vehicles:—

Class A.—No. 1, Benz Ideal; No. 2, Benz Ideal; No. 16, Gladiator voiturette; No. 27, New Orleans voiturette; No. 34, Decauville voiturette; No. 41, International Victoria; No. 44, International Victoria.

Class B.—No. 15, De Dion voiturette; No. 40, Wolseley voiturette; No. 49, Marshall carriage.

Class C.—No. 8, Motor Manufacturing Company's 6 h.p. phaeton; No. 9, Motor Manufacturing Company's Iveagh phaeton; No. 26, Friswell, Limited, 8 h.p. Peugeot; No. 35, Daimler Company's 6 h.p. car; No. 36, Daimler Company's 6 h.p. car; No. 37, Daimler Company's 6 h.p. Parisian; No. 46, Richard car; No. 47, Richard car.

Class D.

Class E. (b).—No. 3, Ariel quadricycle; No. 4, Ariel tricycle with Whippet trailer.

The judges have made several recommendations to the proprietors as to the award of the *Daily Mail* prize to vehicles in respect of which records are not absolutely complete.

SECTION II.

(Privately-owned Vehicles.)

It is recommended that:—

The Gold Medal for the vehicle which, in the opinion of the judges, is the most meritorious irrespective of class (the owner having accompanied the vehicle throughout, and having driven and steered at least half the distance), should be awarded in respect of vehicle No. A17, a 12 h.p. Panhard car, owned by the Hon. C. S. Rolls.

The Silver Medal for vehicles which have successfully accomplished the trial (the owners having accompanied their vehicles throughout, and driven and steered at least half the distance) should be awarded in respect of the following vehicles:—

Class A.—No. A25, Mrs. Bazalgette's Benz Ideal.

Class B.—No. A24, Mr. Robert Phillips's Mors voiturette.

Class C.—No. A2, Mr. Frank H. Butler's 6 h.p. Panhard; No. A3, Mr. T. B. Browne's 6 h.p. Panhard; No. A21, Mr. Ernest Pitman's 6 h.p. Daimler; No. A26, Mr. C. K. Gregson's 6 h.p. Daimler; No. A30, Mr. J. D. Siddeley's 6 h.p. Daimler; No. A31, Mr. Wm. Exe's 6 h.p. Daimler.

Class D.—No. A22, Mr. J. A. Holder's 12 h.p. Daimler; No. A28, Mr. E. M. Iliffe's Enfield quadricycle.

Bronze medals for vehicles which successfully accomplished the Trial, and in respect of which neither a gold nor silver medal has been awarded, should be given in respect of the following vehicles:—

Class C.—No. A7, Mr. Alfred Harmsworth's 6 h.p. Daimler, driven throughout by Captain H. R. Langrishe; No. A10, Mr. Edward Kennard's 8 h.p. Napier, driven throughout by Mr. S. F. Edge; No. A12, Mr. H. Edmund's 6 h.p. Daimler.

Class D.—No. A11, The Hon. John Scott Montagu's 12 h.p. Daimler.

The Judges' Committee have decided that the following are the first and second in order of merit in their classes in Section II.:—

Class A (vehicles declared at a selling price of £200 or less).—No award.

Class B (vehicles declared at a selling price of more than £200, and not more than £300).—First, No. A24, Mr. Robert Phillips's Mors voiturette.

Class C (vehicles declared at a selling price of more than £300, but not more than £500).—First, No. A10, Mr. Kennard's 8 h.p. Napier; second, No. A30, Mr. Siddeley's 6 h.p. Daimler, and No. A3, Mr. T. B. Browne's 6 h.p. Panhard. Mr. W. Exe's car (No. A31) was withdrawn from competition for a place.

Class D (vehicles declared at a selling price of more than £500).—First, No. A17, The Hon. C. S. Rolls' 12 h.p. Panhard; second, No. A22, Mr. Holder's 12 h.p. Daimler.

Class E (a) (motor-cycles carrying one person only).—First, no award; second, No. A20, Mr. Ashby's Empress motor-tricycle.

Class E (b) (motor-cycles carrying two persons).—First, No. A28, Mr. Iliffe's Enfield quadricycle; second, no award.

SECTIONS I. AND II.

Medals of the Automobile Club de France.

The Judges' Committee recommend that the medals given by the Automobile Club de France be awarded for the three vehicles which in their opinion are, irrespective of section or class, the second, third, and fourth in merit, viz.:—First, silver-gilt medal, Mr. Kennard's 8 h.p. Napier (No. A10); second, silver medal, Wolseley voiturette (No. 40); third, bronze medal, New Orleans voiturette (No. 27).

SECTION II.

Mr. Owers' Cup.

The judges award the silver cup, presented by Mr. Ernest Owers, for the best vehicle in Section II. to the Hon. C. S. Rolls' 12 h.p. Panhard.

ANALYSIS OF PERFORMANCES.

Analysis of performances of the vehicles entered for the Trial:—

A. The following vehicles completed the entire Trial, having maintained a speed of not less than the legal limit (*i.e.*, 12 miles an hour in England and 10 miles per hour in Scotland) throughout, viz.:—

Section I. Class A.—No. 16, Gladiator voiturette; Class B.—No. 15, De Dion voiturette; No. 40, Wolseley voiturette; Class C.—No. 9, Motor Manufacturing Company's Iveagh phaeton; No. 35, 6 h.p. Daimler; Class E (b).—No. 3, Ariel quadricycle; No. 4, Ariel tricycle, with Whippet trailer.

Section II. Class C.—No. A3, 6 h.p. Panhard (Mr. T. B. Browne); No. A10, 8 h.p. Napier (Mr. E. Kennard); Class D.—No. A11, 12 h.p. Daimler (Hon. J. S. Montagu, M.P.); No. A17,

12 h.p. Panhard (Hon. C. S. Rolls); No. A22, 12 h.p. Daimler (Mr. J. A. Holder).

B. The following completed the entire Trial, having maintained an average speed up to the legal limit, except on the undermentioned stages, respectively, viz. :—

SECTION I. CLASS A.

No. 1, Benz Ideal, second stage, $9\frac{1}{2}$ m.p.h.; sixth stage, $11\frac{1}{2}$ m.p.h.; eighth stage, 11 m.p.h.

No. 2, Benz Ideal, tenth stage, $11\frac{1}{2}$ m.p.h.; thirteenth stage, $11\frac{1}{2}$ m.p.h.

No. 27, New Orleans voiturette, fourth stage, $11\frac{1}{2}$ m.p.h.; eighth stage, 11 m.p.h.; ninth stage, 11 m.p.h.; tenth stage, 10 m.p.h.

No. 34, Décauville, fourth stage, 11 m.p.h.

No. 41, International Victoria, fourth stage, 10 m.p.h.; eighth stage, 11 m.p.h.; ninth stage, 11 m.p.h.; tenth stage, $9\frac{1}{2}$ m.p.h.

No. 44, International Victoria, ninth stage, 11 m.p.h.; tenth stage, $10\frac{1}{2}$ m.p.h.

SECTION I. CLASS B.

No. 49, Marshall Carriage, first stage, $7\frac{1}{2}$ m.p.h.; second stage, $9\frac{1}{2}$ m.p.h.; third stage, 11 m.p.h.; fourth stage, 11 m.p.h.; eighth stage, 11 m.p.h.; ninth stage, $11\frac{1}{2}$ m.p.h.; tenth stage, $5\frac{1}{2}$ m.p.h.

SECTION I. CLASS C.

No. 8, Motor Manufacturing Company's 6 h.p. phaeton, second stage, 11 m.p.h.; third stage, 10 m.p.h.; fourth stage, 10 m.p.h.; eighth stage, 11 m.p.h.; tenth stage, 10 m.p.h.

No. 26, 8 h.p. Peugeot, second stage, 9 m.p.h.

No. 36, 6 h.p. Daimler, fourth stage, 10 m.p.h.; eighth stage, $11\frac{1}{2}$ m.p.h.

No. 37, Daimler Parisian, eighth stage, 10 m.p.h.

No. 46, Richard car, fourth stage, $6\frac{1}{2}$ m.p.h.; ninth stage, 10 m.p.h.; tenth stage, $9\frac{1}{2}$ m.p.h.

No. 47, Richard car, fourth stage, $11\frac{1}{2}$ m.p.h.

SECTION II. CLASS A.

No. A25, Benz Ideal (Mrs. Bazalgette), first stage, $11\frac{1}{2}$ m.p.h.; second stage, $7\frac{1}{2}$ m.p.h.; third stage, $10\frac{1}{2}$ m.p.h.; fourth stage, $10\frac{1}{2}$ m.p.h.; sixth stage, 8 m.p.h.; eighth stage, $8\frac{1}{2}$ m.p.h.; ninth stage, $8\frac{1}{4}$ m.p.h.; tenth stage, 9 m.p.h.

SECTION II. CLASS B.

No. A24, Mors voiturette (Mr. Phillips), tenth stage, $11\frac{1}{2}$ m.p.h.

SECTION II. CLASS C.

No. A2, 6 h.p. Panhard (Mr. Butler), fourth stage, 11 m.p.h.; eighth stage, 11 m.p.h.; tenth stage, 11 m.p.h.

No. A7, 6 h.p. Daimler (Mr. A. Harmsworth), eleventh stage, 5 m.p.h.

No. A12, 6 h.p. Daimler (Mr. H. Edmunds), second stage, $11\frac{1}{2}$ m.p.h.; third stage, $11\frac{1}{2}$ m.p.h.; sixth stage, 5 m.p.h.; seventh stage, $9\frac{1}{2}$ m.p.h.; eighth stage, 10 m.p.h.; ninth stage, 10 m.p.h.; tenth stage, $9\frac{1}{2}$ m.p.h.

No. A21, 6 h.p. Daimler (Mr. E. Pitman), eleventh stage, $9\frac{1}{2}$ m.p.h.

No. A26, 6 h.p. Daimler (Mr. C. K. Gregson), eighth stage, 11 m.p.h.; tenth stage, 10 m.p.h.

No. A30, 6 h.p. Daimler (Mr. J. D. Siddeley), sixth stage, $8\frac{1}{2}$ m.p.h.

No. A31, 6 h.p. Daimler (Mr. W. Exe), ninth stage, $9\frac{1}{2}$ m.p.h.

SECTION II. CLASS E (b).

No. A28, Enfield Quadricycle (Mr. E. M. Iliffe); fourth, $11\frac{1}{2}$ m.p.h.; eighth, 11 m.p.h.; ninth, 11 m.p.h.; tenth, $11\frac{1}{2}$ m.p.h.

C. The drivers of the undermentioned vehicles have failed to supply the official records for the following stages, viz. :—

Section I. Class A.—No. 33, Décauville; no records concerning five stages, viz. : first, third, eighth, ninth, and thirteenth; on three of the remaining stages the average speed was below the legal limit, viz. : second, 11 m.p.h.; fourth, 10 m.p.h.; tenth, $9\frac{1}{2}$ m.p.h. No. 5, Locomobile steam carriage; no official records concerning one stage, viz. : tenth stage; on five of the remaining stages the average speed was below the legal limit, viz. : first,

$11\frac{1}{2}$ m.p.h.; second, 9 m.p.h.; third, 9 m.p.h.; eighth, $9\frac{1}{2}$ m.p.h.; thirteenth, $11\frac{1}{2}$ m.p.h. No. 51, Star voiturette; no official records concerning first stage, viz. : fifth stage; on one of the remaining stages the average speed was below the legal limit, viz. : sixth, 11 m.p.h.; broke swivel of axle, and consequently spring, two spokes, and two lower frame tubes, between Preston and Lancaster.

Section I. Class B.—No. 14, De Dion voiturette; no records concerning two stages, viz. : fourth and eighth; on one of the remaining stages the average speed was below the legal limit, viz. : thirteenth, $11\frac{1}{2}$ m.p.h.; broke axle between Matlock and Buxton. No. 31, Motor Car Company's Triumph; no official record concerning one stage, viz. : the fifth stage, but average speed stated by makers to be 6 m.p.h.; on one of the remaining stages the average speed was below the legal limit, viz. : tenth, 11 m.p.h. No. 24, Marshall carriage; no records concerning three stages, viz., third, fourth, and thirteenth; on nine of the remaining stages the average speed was below the legal limit, viz. : first, $7\frac{1}{2}$ m.p.h.; second, 9 m.p.h.; fifth, $11\frac{1}{2}$ m.p.h.; sixth, $10\frac{1}{2}$ m.p.h.; seventh, $9\frac{1}{2}$ m.p.h.; eighth, 9 m.p.h.; ninth, 9 m.p.h.; tenth, $5\frac{1}{2}$ m.p.h.; eleventh, $8\frac{1}{2}$ m.p.h. No. 32, Motor Car Company's Triumph; no records concerning eighth stage; on six of the remaining stages the average speed was below the legal limit, viz. : fourth, 10 m.p.h.; fifth, $9\frac{1}{2}$ m.p.h.; seventh, 9 m.p.h.; ninth, 11 m.p.h.; tenth, $8\frac{1}{2}$ m.p.h.; eleventh, $11\frac{1}{2}$ m.p.h.

Section I. Class D.—No. 22, Lanchester carriage; no official records concerning two stages, viz. : tenth and thirteenth.

Section I. Class E (a).—No. 39, Century tandem; no records concerning one stage, viz. : the first; on one of the remaining stages the average speed was below the legal limit, viz. : tenth, 11 m.p.h.

Section I. Class F.—No. 38, Daimler public service vehicle; no records concerning two stages, viz. : seventh and eighth; on eight of the remaining stages the average speed was below the legal limit, viz. : first, 9 m.p.h.; second, $5\frac{1}{2}$ m.p.h.; third, 7 m.p.h.; 4th, $6\frac{1}{2}$ m.p.h.; 6th, $8\frac{1}{2}$ m.p.h.; 9th, 11 m.p.h.; 10th, 8 m.p.h.; 13th, 8 m.p.h.

Section II. Class C.—No. A23, $6\frac{1}{2}$ h.p. Motor Manufacturing Company's phaeton (Mr. Cordingley); no records concerning six stages, viz. : first, fifth, sixth, eighth, tenth, and thirteenth; on one of the remaining stages the speed was below the legal limit, viz. : 2nd, $6\frac{1}{2}$ m.p.h.

Section II. Class D.—No. A29, 7 h.p. Peugeot (Mr. Mark Mayhew); no records concerning three stages, viz. : third, eleventh, twelfth.

Section II. Class E (a).—No. A20, Empress tricycle (Mr. H. Ashby); no records concerning one stage, viz. : the fourth.

D. The following completed only a portion of the Trial, viz. :—

Section I. Class A.—No. 19, Orient Express; broke piston-rod near Manchester; Sunday, April 29th, was occupied in repair; on Tuesday, May 1st, the counter-shaft broke on the journey from Kendal to Carlisle; it is said that between Carlisle and Edinburgh the car ran into a ditch, sustaining serious damage; it was withdrawn near Edinburgh; averages were up to the legal limit for the three days for which records are complete. No. 29, Eureka car; in difficulties several times; disappeared after Kendal; did not follow official route between Carlisle and Newcastle, for which part of the journey it has no records; has records for only five stages out of thirteen, viz. : second, 8 m.p.h.; fifth, 12 m.p.h.; sixth, $11\frac{1}{2}$ m.p.h.; eleventh, $9\frac{1}{2}$ m.p.h.; twelfth, 12 m.p.h. No. 30, Eureka car; obtained a record for the second stage only, viz. : 7 m.p.h. No. 52, Roots and Venables; a swivel axle arm was broken at Bolton, and driver sent car by train to London; has records for three stages only, two of which were up to the legal limit and remaining one $10\frac{1}{2}$ m.p.h.

Section I. Class B.—No. 11, Motor Manufacturing Company's Princess car; this car joined the Trial on the last stage only. No. 53, Wolseley carriage; ran over a few of the early stages of the Trial, but obtained no records.

Section I. Class C.—No. 45, S.S. carriage; broke front axle by running into a wall, before Manchester; has records for three stages only, two of which were up to legal limit, and

remaining one, viz.: third stage, 8½ m.p.h. No. 23, Brown-Whitney steam car; there were several mechanical defects which required remedy, the consequence being that there are, concerning this car, records for only six out of thirteen stages, two of which were up to the legal limit, the remaining four being as follows respectively, viz.: First stage, 11 m.p.h.; second stage, 6½ m.p.h.; fourth stage, 10 m.p.h.; eleventh stage, 8 m.p.h.

Section I. Class D.—No. 17, 8 h.p. Napier fitted to Panhard carriage; retired before arriving at Bristol through failure of gear. No. 21, Lanchester carriage; ran over a portion of two of the earlier stages, but was then withdrawn.

Section II. Class D.—No. A4, 8 h.p. Panhard (Mr. Mark Mayhew); no records concerning four stages, viz.: first, sixth, seventh, and eighth; on one of the remaining stages the average speed was below the legal limit, viz.: fourth, 11 m.p.h.

Section II. Class E (a).—No. A16, Ariel tricycle (Mr. A. J. Wilson); no records concerning seven stages, viz.: seventh, eighth, ninth, tenth, eleventh, twelfth, and thirteenth.

E. The following vehicles were withdrawn from competition for the reasons stated below, viz.:—

Section I. Class A.—No. 28, New Orleans Car; this vehicle completed the Trial, but was withdrawn by the owners at the Crystal Palace; there are no records of this car on five stages, viz.: third, sixth, seventh, eighth, and ninth, and of the remainder three were below the legal limit, viz.: Fourth stage, 7½ m.p.h.; fifth, 6 m.p.h.; tenth, 7½ m.p.h.; thirteenth, 11½ m.p.h.

Section I. Class A.—No. 42, London Motor-Van and Wagon Company's 3½ h.p. voiturette; on the first stage the crank shaft broke off close to the fly-wheel; crank shaft was repaired, but the vehicle did not continue to run in the Trial on account of what appears to have been some misunderstanding as to the rule as to partial records.

Section I. Class C.—No. 43, London Motor-Van and Wagon Company's Phaeton; this car ran well on the first stage, but was withdrawn at Bristol owing to withdrawal of No. 42, Section I., Class A.

Section I. Class E (a).—No. 12, Motor Manufacturing Company's Tricycle; new frame and wheels were substituted at Manchester, and a new motor was fitted to frame at Nottingham; this tricycle has since been withdrawn from the competition by the makers; No. 20, Simms' Motor Wheel; capsized on tram lines both at Bath and Bristol, and was withdrawn from competition at Gretna Green.

Section II. Class D.—No. A19, 12 h.p. Daimler (Mr. J. Hargreaves); ran through the greater portion of the Trial, but the owner does not wish to claim any records; No. A27, 12 h.p. Daimler (Mr. J. Hargreaves); ran throughout, but the owner does not wish to claim any records.

THE Aberdeen Motor Service Company are to run cars between Ballater and Braemar. As the railway terminus is at Ballater, and Braemar is largely visited by tourists, the service should prove successful.

MR. LENDON, of Beckenham, has expressed his intention of initiating a crusade against motor-cars on the ground of their alleged smell and noise. Will the automobile movement survive such a crusade? We rather fancy it will.

THE Tramway Committee of the Southampton Corporation has recommended the Council to make further investigation into the most suitable form of motor-vehicle to be placed upon the omnibus route in the town.

AT the weekly meeting of the London County Council on Tuesday an application of the Strand District Board for the loan of £1,500 for the purchase of two motor dust vans for use in the district was, on the recommendation of the Finance Committee, acceded to.

A GARDEN fête is being held at Sheen House, Richmond, in aid of the Marchioness of Lansdowne's Officers' Families Fund, and some vehicles belonging to members of the Automobile Club are taking visitors for drives in Richmond Park on the afternoon of Friday and again to-day (Saturday), the proceeds going to the fund.

THE KÜHLSTEIN ELECTRIC MAIL COACH.

IN addition to petroleum-spirit motor-cars, the Kühlstein Wagenbau Gesellschaft, of Charlottenburg, Germany, has lately been devoting attention to electrical vehicles, the accompanying illustration showing a large mail coach capable of accommodating no less than eighteen persons, lately constructed by this firm. For the propulsion of the vehicle two electro-motors of 7½ h.p. each are used—one for each of the rear wheels—and the power is transmitted by encased cog wheels. The motors are hung on the under-part of the carriage by means of springs, which thus protect the delicate parts of the mechanism from the vibration caused by the inequalities of the road. The battery is composed of eighty cells, the weight of which is 3,000 kilos., and the capacity being stated to be sufficient for a five hours' run; it can be charged 110 or 220 volts. As much depends upon the weight of the accumulators and that they should be as light as possible, this carriage is built on the principle, the relative weight of the accumulators and the carriage being 1—1; that is to say, the battery and the carriage are the same weight, namely, 3,000 kilos. each. The controller is adapted to give six speeds forward, three electric brakes and a reverse motion. The battery is arranged in two sets, and they can be rendered



quite independent of each other if necessary. The steering is effected by means of a hand-wheel in front of the driver's seat. The makers state that it has been proved by experiments with this coach, that it requires from 15 to 20 per cent. more energy to drive it when mounted on rubber tires than it does when steel tires are used; but, on the other hand, the vibration caused by the steel tires is very destructive to the machinery. The vehicle will, it is claimed, carry eighteen people a distance of sixty kilometres on one charge of the battery.

THERE is no industry at the present moment, says the *Westminster Gazette*, which gives more promise of rapid development and profit than the motor industry.

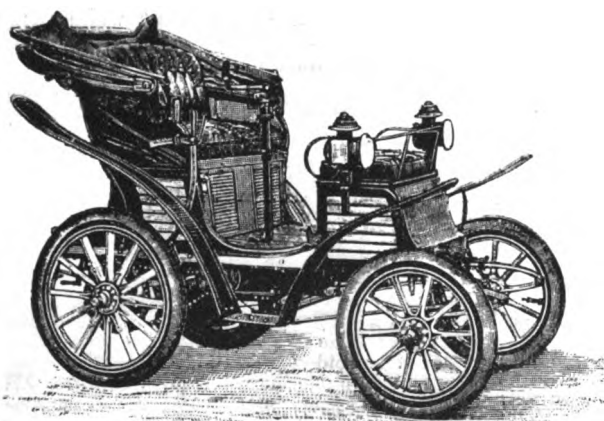
THE International Motor-Car Company announce that they are prepared to sell automobiles on the deferred payments system, and intend developing this plan of business on a large scale.

THE address of Mr. A. I. Greenwood, the hon. sec. of the Yorkshire Automobile Club, the formation of which was referred to last week, is 5, Woodhouse Lane, Leeds. The next meeting of the club will be held at the Mitre Hotel, Commercial Street, Leeds, at 8 p.m. on Friday next, and all Yorkshire automobilists are invited to attend.

MOTOR-CARS ON THE CONTINENT.

An Italian-built Motor-Car.

THE accompanying illustration shows the light three-seated car which has lately been put on the market by La Società della Fabbrica Italiana di Automobili, of Turin. The feature of the car, which is known as the "F.I.A.T.," is the location of the motor, which is placed in the rear of the frame, at right angles to the position adopted in the Benz type of cars. The engine is of the horizontal two-cylinder type, and is stated to be capable of working up to 4 h.p.; the ignition is electrical, while the cylinders are water-jacketed, a special form of pump being employed to keep up the circulation. Three speeds forward are available, a reverse motion not being fitted unless specially ordered. The location of the motor transversely in the rear of the frame is claimed to reduce the amount of vibration transmitted to the riders. The fly-wheel forms part of a friction clutch, through which the power is conveyed to a shaft in line with the motor



shaft. At its forward end this shaft carries three pinions, enclosed in an oil-containing gear case. In the latter is a small countershaft provided with three large spur-wheels, any one of which can be brought into mesh with its corresponding pinion on the main shaft. The countershaft has fitted at its rear end a bevel gear, which transmits the power to a differential cross shaft, the usual sprocket wheels and chains conveying the power to the rear road wheels. The speed and other control handles are mounted at the side of the steering pillar, steering being controlled by a bar. Ample brake power is provided, there being a pedal-operated band brake on the differential shaft, and band brakes on drums attached to the hubs of each of the rear wheels, operated by a hand lever. The frame of the car is built up of channel steel; the road wheels are of wood, shod with pneumatic tires. The car can, it is stated, attain a maximum speed of 45 kilometres per hour.

The Moto Club of France.

THE composition of the various committees of the Moto Club of France has now been in part published, and although these elections are but provisional, I quote them as giving English readers some idea as to who are really the moving spirits of the new society. The administration, or first section, is in the hands of MM. Pierre Giffard, Gobron, Trouette, Vignat, and Darracq, while MM. René Varennes, Collin Scotte, and Hérard will give their attention to all technical matters. Section number three will be devoted to the sporting side of automobilism, and to this committee MM. Paul Rousseau, Riguelle, and Archdeacon have already been elected. Touring will be looked after by MM. Lemoine, Corlin, Gautier, Cadier, and Léon Petit, and to the legal questions MM. du Laurens de la Barre, Delaunay, Nivert, and Nantet will devote their energies. Naturally, the president, M. Serpollet, and the secretary, M. Paul Meyan, will serve upon all committees. There seems to be a

good strong *Vélo* flavour in the organisation, and that paper would appear to be the official organ of the new society.

Racing in Germany.

WHILE in France automobile racing has, for the time being at any rate, sunk into nothingness, in Germany the sport is gaining ground and a number of events are set down on the automobile fixture card. Not the least interesting of these will be a motor-car race upon the track of the Frankfurter Renn Club, at Frankfort, in which it expected that some of the leading *chauffeurs* will be seen competing against such crack German racers as Held, Tischbein, and Skarisbrick. This is arranged for the 29th inst. The touring amateurs, too, have recently had an opportunity of demonstrating their skill and the speed of their cars in a race from Nuremberg to Kitzingen and back, a total distance of 160 kilometres (100 miles). This event was won by Errhard, driving a two-seated car, in 4h. 45min., the other placed men being:—Schutte (four-seated car), in 5h. 50min., Beissbarth (two-seated car), in 5h. 51min., and Kurz (two-seated car), in 6h. 25min.

Racing at Salon.

THE Automobile Club of Salon is fortunate in possessing in the immediate neighbourhood one of the most magnificent stretches of road in France, for that in itself is sufficient to tempt racing men to enter for any event promoted by this "cercle." Already this year one most successful meet at Salon has been recorded in this column, and now the history of another has to be written. It was on Sunday last that this second gathering took place, and thanks to glorious weather and capital organisation the races scored a great success. The three events set down for decision were:—1, Cars weighing 400 kilos. and upwards; 2, Motor-cycles weighing less than 250 kilos.; 3, Voiturettes weighing less than 400 kilos. Considerable disappointment was felt at the non-appearance of MM. Levegh and Antony, the two Mors champions, for a keen race between them and M. Jenatzy had been anticipated. In their absence there was really nobody to seriously extend the Belgian, who was mounted on the car which recently made such extraordinary fast time at Brussels. Among the motor-cycles Béconnais and Marcellin were installed hot favourites, but neither finished the course, the former breaking his electric connection, and the latter an induction valve. Marcellin, too, was generally expected to win the voiturette race, for his 6 h.p. was known to be capable of making 70 kilometres per hour, but here again trouble was the order of the day, and after reaching Miramas the favourite was helplessly *en panne*. By the bye, the winner in this category, Camus, was driving a voiturette of Lyonnaise construction. This car was provided with a single cylinder water-cooled motor of only 3 h.p., and yet with two persons up the hundred kilometres was covered in 1 h. 58 min., or at an average speed of 51 kilometres per hour. The route followed by all categories was from Salon to Arles and back, with a *détour* by way of Calaman and Miramas in order to make up the hundred kilometres exactly. The voiturette race was the first decided, the competitors in this class being despatched at 8 o'clock in the morning. By 11.15 five out of the six starters had accomplished the journey, the sole absentee being Marcellin. The official returns are as follow:—

			WEIGHT.	H.	M.	S.
1. Camus	...	3 h.p.	...	320 kilos., in	1	58 3 $\frac{1}{2}$
2. Hachel	...	5 h.p.	...	328 kilos., in	2	43 9 $\frac{3}{4}$
3. Chevallier	...	3 h.p.	...	400 kilos., in	2	54 21 $\frac{1}{2}$
4. Montel	...	4 h.p.	...	260 kilos., in	2	59 5
5. Felix	...	3 h.p.	...	355 kilos., in	3	15 5 $\frac{1}{2}$

The big cars left at two o'clock, and the order at the finish was—

				H.	M.	S.
1. Jenatzy	...	30 h.p.	...	in	1	20 15 $\frac{1}{2}$
2. Cûchelet	...	15 h.p.	...	in	1	33 15 $\frac{3}{4}$
3. Vagliano	...	12 h.p.	...	in	1	39 15 $\frac{3}{4}$

The average speed of Jenatzy was 75 kilometres (47 miles) per

hour. Finally the motor-cycles got under weigh, and the placed men were—

			H.	M.	S.
1. Vitalis ...	5 h.p.	...	in 1	41	28 ³ / ₅
2. De Sylvabelle ...	3 h.p.	...	in 1	44	18 ³ / ₅
3. Donjou ...	4 h.p.	...	in 1	59	16 ³ / ₅
4. Bonnard ...	motor-bicycle	...	in 2	18	24 ³ / ₅

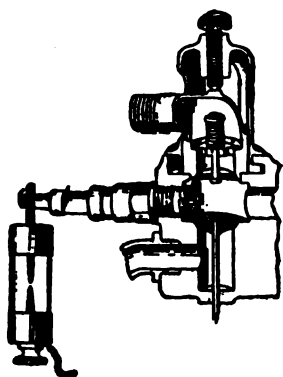
Marcellin and Bonnard both decided to endeavour to set up new records for 100 kilomètres, each in his own particular class, and accordingly they stayed at Salon until the following day. Then Marcellin discovered his voiturette to be in too bad a condition to give him a chance of success, so Bonnard started alone. Selecting a stretch of road of 25 kilomètres in length the trial was duly commenced, and the motor-bicyclist made the following times:—25 kilomètres, 29min. 30sec.; 50 kilomètres, 63min.; 100 kilomètres, 133min. 19sec. The record of 137min. 11sec. made by Bucquet on May 31st on the Etampes road was therefore beaten by nearly 4min.

The Paris-Toulouse-Paris Race.

THIS race, which is organised in connection with the Paris Exhibition, will be run as follows:—Wednesday, 25th July, start from Montgeron at 3 a.m. for Toulouse, in one stage, 427 miles; Friday, 27th July, Toulouse to Limoges, 190 miles; Saturday, 28th July, Limoges to Montgeron, 237 miles, a total of 854 miles. The vehicles will be displayed at the Exhibition at Vincennes on the 29th, 30th, and 31st July, and 1st and 2nd August. Bronze medals will be given in respect of vehicles which complete the journey at an average speed of 24.8 miles per hour, and silver medals in respect of vehicles making an average of not less than 49.6 miles per hour. There will be three classes, viz.: carriages, voiturettes, and motor-cycles.

THE HERMITE ELECTRIC SPARK INDICATOR.

A FRENCH firm has recently introduced a device intended to show the driver of a motor-car or cycle, at a glance, the behaviour of the electric spark in the explosion chamber of the motor by causing a reproduction of it outside of the motor, and in the interior of a small glass tube mounted upon the igniter. The apparatus consists essentially of two insulated metallic rods placed in the centre of the tube and fixed to the top and bottom caps of the latter by one of their extremities, which is threaded so as to permit the distance apart of their tips to be regulated. One of these rods is secured to the sparking plug, and the other to the wires of the induction coil, by a simple arrangement. There is no danger of the occurrence of a fire, since the spark produced is protected on all sides from contact with external objects.



As the apparatus remains permanently fixed to the plug, it allows the driver, while on the road, to keep himself constantly informed as to the working of the ignition apparatus, and thus to avert the necessity of occasionally dismounting and remounting the wires of the plug or the plug itself, and consequently to avoid stoppages of his car. It permits, too, of noting the length of the spark, and thus tends to prevent the occurrence of those electric shocks that sometimes give the automobilist a painful reminder of the physiological effects of a high tension current. The device has just been introduced into this country by the London Autocar Co., of Gray's Inn Road, W.C.

EFFORTS are, it is stated, being made to organise a service of motor-omnibuses in the Spanish town of Barcelona.

THE BRITISH MOTOR COMPANY.

AN extraordinary general meeting of the British Motor Company, Ltd., was held at the Hotel Cecil, Strand, W.C., on Monday, for the purpose of considering a scheme for the reorganisation of the company. Colonel Josiah Harris, who presided, said the shareholders had been called together at the express desire of the committee of gentlemen who had investigated the affairs of the company. He formally moved the following resolutions:—(1) That the reorganisation scheme sent to the share and debenture holders, dated June 23, 1900, and the conditional agreement dated June 23, 1900, referring to the same, made between this company and Charles Osborn, as trustee for the proposed new company referred to in the said scheme (the original of which is now produced to this meeting), are hereby approved. (2) That, having regard to the said scheme and agreement, it is desirable to wind up this company, and accordingly that the British Motor Company, Ltd., be wound up voluntarily. (3) That the liquidator or liquidators of this company be, and are hereby, authorised to carry the said scheme and agreement, when approved by the debenture-holders, into effect, with such modifications (if any) as shall be agreed upon, and that he or they be authorised and required to distribute in kind amongst the members of this company, in proportion to the number of shares held by them respectively, the 451,568 shares in the new company of £1 each, credited with 17s. per share as paid up thereon, referred to in the said scheme and agreement; so that each member of this company shall be entitled to have his or her proportion thereof allotted to himself or herself or his or her nominees on claiming the same in the manner and within the time required by the liquidator or liquidators, in accordance with the said scheme and agreement.

Mr. Gill seconded the resolutions.

Mr. Harry J. Lawson said the shareholders were not met together that day because there was any falling off in the prospects of automobilism, or in the popularity of the automobile; neither were they met because the company's great patented systems—the Daimler and the De Dion—were in any less demand. They had met because the outlook at the present moment, and the popular demand for automobiles, especially their own systems, was so large and so increasing that it was a matter for immediate and serious discussion what was best to be done. He supposed all the shareholders would admit that stupendous work had been already accomplished, although it had not yet resulted in the return of any great profits to either the company or the shareholders. A little over three years ago there was not one single motor-car of English make, and there were no English factories for their manufacture. He could assure the shareholders that their work had been a most arduous and difficult one. In the short period of a little over three years factories and large mills had been equipped with special machinery working under the company's licences. It was once ignorantly believed to be one of the most simple and easy matters to build a motor-car, and that the streets would be soon full of them. He confessed that at first he was a little too sanguine on that point. They told the shareholders, three years ago, that they believed they had in their patents the very best automobile system that had been invented, and they now, at the end of the first three years, saw that their Daimler, the Panhard Daimler, and the De Dion systems were completely triumphant. Those were the three acknowledged systems which were carrying everything before them, and the patents were the property of this company. The point which they had to consider now was how they could best utilise these important inventions. The British Motor Company had never had any considerable working capital. This was a syndicate formed to hold and to develop patents, and to try and obtain a monopoly of the whole system of patents in motor-cars. It had been stated several times that private enterprise would have been sufficient; but they spent months trying what private enterprise would do. The British Motor Company, therefore, was left with only one alternative, and that was to try and obtain capital from the public to start this great industry. They managed to raise £100,000 for the Daimler Motor Company, and that company was the very first to manufacture motors in England. Its work was quite equal to Continental work. The next step they took was to form the Great Horseless Carriage Company, which was now called the Motor Manufacturing Company, and they succeeded in raising £400,000. The Motor Manufacturing Company was still going on improving its position every day. If anyone went down to Coventry, and looked at the great works there, he would see what had been done. Having learned, and being in a position to deal with the matter, a number of the shareholders lately co-operated with the directors, and insisted that the board should take some more active steps both to protect the company's patents and to start a definite policy, with which he thoroughly agreed.

Mr. Munton declared that the speech they had just listened to was an extraordinary one. With some of the remarks he concurred. For instance—that the whole thing was a speculation; and, secondly, that Mr. Lawson's main object was to make the deferred shares of value. There was no opportunity at the present time to examine the accounts. They ought to have been presented before this extraordinary meeting was held to wind up the company. He also protested against the meeting being held at eleven o'clock on Monday morning, when it was very difficult for country shareholders to attend. He knew it was useless to attempt to thwart the resolutions before them, because they would be outvoted by the proxies; but he would move: "That the meeting be adjourned for a month, and that, in the meantime, a meeting be called for the presentation of accounts, so that they might be studied by the shareholders, who would then be able to arrive at a decision whether the scheme should be carried or not."

Mr. J. R. Stevens seconded the amendment.

Mr. Wright inquired whether, in the possible event of the scheme not being carried, the directors could, adequately and properly, protect in law the patents of the company and carry on the business; or whether it was absolutely necessary that the resolutions should be passed if the business was to be continued.

Mr. Edge said he was a member of the committee, and also a proprietor in various companies which paid this company considerable sums of money every year in royalties. At this time there was a vast importation into this country by people who were infringing the patents, for which he, in his connection with other companies, was paying royalty. He therefore approached this company, and pointed out that those other companies were not prepared to go on paying large sums by way of royalty unless the British Motor Company protected its patents. The reply was that although large sums had been spent in fighting various patents, as far as the patents under which he was working were concerned they had not been fought for want of money. It was unreasonable to suppose that he and those with him in the other companies would go on paying their royalties without protection; for if the patents were not protected they became worthless. If the money were not found for their protection he and those with him would cease paying royalties, and in place of being friends of the British Motor Company would become enemies. Therefore the matter should be very seriously considered. Infringement was going on in every direction, and no action was being taken. He had looked very carefully into the patents of this company, and was satisfied they were good; but those he represented were not going to pay large sums for royalties if the patents were not going to be protected.

Mr. Hopkins asked if there would be any difficulty in presenting the accounts before the confirmatory committee, supposing the proposal for adjournment were withdrawn. He thought that that would be a more business-like proposal than to adjourn the meeting for a month. If a scheme of a more practical character than the one now submitted could be suggested, there might be some advantage in an adjournment. He was prepared to support the scheme, but he did not think money should be put up by the ordinary and preference shareholders without some guarantee that they would have control over the management.

Mr. W. A. Davis said it had been publicly reported that Mr. Lawson had parted with his interest, and severed his connection with the company. He wished to know if there was any truth in that statement. It was stated in the circular issued by the board that the new company was to take over the principal patents and assets of the company. He should like to know whether the new company intended to purchase the whole of the interests of the old company or only a portion of them.

Mr. Lawson, in reply, said the most vital question asked was whether the vendors were going to contribute any funds towards the new company. Personally, he would have to pay 3s. on nearly 50,000 preference shares, apart from the other vendors, who held 9,000 or 10,000 shares. It might be asked why the company had not gone in for omnibuses. Two omnibuses, which had taken over a year to build, were now running in London, and he had now one built which, he thought, would be far superior in every respect. He hoped it would arrive next week, and he believed it would prove a perfect success. It ran comparatively silently, and would carry thirty people. Those omnibuses took nearly a year to build, and at the present moment they cost about £1,000 each. It would require a capital of £100,000 to put fifty of those omnibuses on the streets, because half of that amount would have to go in machinery and plant, and they would probably have to wait a year and a half before they were built. It had been suggested that the directors might send out the balance-sheet to every shareholder before the confirmatory meeting. If that would meet the difficulty, he was quite willing to do so. Of course, it would not be a very rosy statement; it would not show large profits, because the principal item consisted of a long series of actions which were brought against the company over the London Steam Omnibus Company's prospectus. Hitherto they had not attempted to produce motor-cars; but, of course, if they had capital they would be able to do so. The company had the right to purchase the works in Coventry, on which a deposit had been paid; he believed they had cost £10,000 or £15,000 altogether. The lease was for a period of over eighty years, and the rent was about £40 per annum. The new company would take over the whole of the Daimler and De Dion patents, and also those patents which were more or less valuable. There were a large number of patents on which they had to pay very large renewal fees, amounting to thousands of pounds a year, and it was proposed to allow those which were not thought of any value to expire. The company had received seven new patents from the Daimler Company, and these gave the company the control of the market. He had retired from the board because he was advised that probably if he brought off a deal for this company he would get involved by being on the board, and also being a promoter of the company; at the same time, he was quite willing to join the board again the moment he had made any money for the shareholders. There was no possibility of the company being able to protect the patents unless the scheme went through and funds were provided. After some further discussion the amendment for the adjournment of the meeting was put and lost, and the original resolutions were afterwards put and carried, with a few dissentients.

A meeting of the debenture-holders was subsequently held for the purpose of considering, and, if thought fit, passing the resolutions as set forth in the notice. The Chairman formally moved the adoption of the resolutions, and, on their being put, they were declared carried by about fifty votes to seven.

FAILING TO STOP.

At Windsor, on Monday, Mr. Alfred Rawlinson, of 21, Ovington Square, London, was summoned by a van driver for an offence against the Light Locomotives Act. The complainant alleged that when the horse he was driving bolted he held up his hand and shouted to defendant to stop his motor-car, but he did not do so. Defendant denied that he saw the van-driver's signal. He stated that he headed the horse after it had bolted in order to try and stop it, but seeing that the animal continued restive he went right away from it, as he thought the horse disliked the noise of the car. The magistrates dismissed the case on the ground that defendant had not noticed the van-driver's signal, but they pointed out that a motor-car driver was bound to stop when the driver of another vehicle or a policeman held up his hand.

FRIGHTENED BY A MOTOR-CAR.

At the Atherstone County Court last week, Mr. Brydon Minion Miles, coal merchant, Atherstone, claimed £21 10s. from Mr. Walter Macfarlane, engineer in the employ of the Daimler Motor Company, Coventry, for damages to a horse. Plaintiff's case was that on April 4th his horse, whilst in Coleshill Street, became frightened, bolted and fell, by the noise of a motor-car, and that defendant did not stop when signalled to do so by plaintiff's man. The defence was that plaintiff's man did not hold up his hand until the horse had bolted. £7 10s. of the claim, for horse hire, was abandoned, as it was shown that plaintiff did not hire another horse after his own had been injured by the fall. The jury found a verdict in favour of plaintiff for £13 10s. with costs.

FURIOUS DRIVING CASE.

At the Haywards Heath Petty Sessions last week, Mr. Alfred Bunn, of Burnes, was summoned for driving a motor-tricycle at a greater speed than twelve miles an hour. P.S. Curtis said on June 3rd, on Handcross hill, he saw defendant riding a motor-tricycle. He was going very fast, from eighteen to twenty miles an hour. P.C. Adams said he saw defendant come down the hill, and signalled to him to stop. He admitted going eighteen miles an hour. Defendant said the machine was running free, and he could stop within a foot. Fined 10s. and 11s. costs.—Mr. William Duck, of Cambridge, was also summoned for driving a motor-tricycle at a greater speed than twelve miles an hour. Defendant did not appear, but sent a letter to the Bench. P.S. Curtis said on June 3rd he saw defendant come down Handcross hill. He timed him for a quarter of a mile, which he did in 45secs.—about twenty miles an hour. There was another man on the motor with defendant. Fined 15s. and costs 9s.

A COLLISION CASE.

At the Coventry County Court on Monday, Norman H. Burden, fitter, Foleshill, by his father, claimed from Thomas S. Stevens, son of Mr. J. Stevens, of Earlsdon, the sum of £9, personal injuries and damages to his cycle, caused by the defendant negligently driving a motor-cycle in Hertford Street on May 21st last. There was a counter claim by the defendant, who sued for £9 17s. 6d., damages caused to the motor-cycle by reason of the negligent riding of Burden. The jury found that the accident was caused by the negligence of the driver of the motor-cycle. They put the damages at £5 2s., judgment for plaintiff for that amount being given.

THE municipal authorities of Milan have granted a concession to Messrs. Turinelli and Company to introduce an experimental service of electric cars in the city.

AN attraction for the Manchester Wheelers' seventeenth Annual Race Meet, to be held on the 14th inst., will be a couple of motor-tricycle races. As such well-known riders as Messrs. S. F. Edge, C. Jarrott, J. W. Stocks, and F. F. Wellington are expected, the meet promises to be an interesting one.

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COMMENTS

MR. J. GRANT-LAWSON, M.P., has been addressing the patrons of the Malton Agricultural Show on the subject of motor-cars, being constrained to speak thereon owing to the interest of his hearers in horse-breeding. He declared that mechanical vehicles were apparently increasing in number in the streets of London, and that there seemed to be some change in their character.

Four or five years ago they were competing in the cab and omnibus trade. That was a very important trade to the breeders. They did not aim at the cab and omnibus market, but every horse-breeder must sometimes fall into that market when they possessed horses with a past or horses that seemed to have no future. The competition had, however, apparently ceased. The electric cabs that once plied in the streets must have run down, and the motor-buses seem to have burst also. In place of them they saw light vans belonging to private firms who were trying the experiment of sending their parcels round in them, and the other motor-cars were largely the property of well-to-do gentlemen who always wanted to have the latest novelty. These new vehicles were seen in the parks, and even in Palace Yard, waiting to take home members of Parliament for non-horse producing districts. And after some more in the same strain Mr. Grant Lawson reminded his hearers of the Englishman's love of the horse in a way that may be taken as though he believed the motor-car to be prejudicial to the future of the horse. As a matter of fact, the motor-car is the horse's great friend, relieving him of burdens that are distressful to himself and to all who love animals.

The London Pageant.

CONSIDERABLE interest appears to be taken in the great pageant which is being organised in London on behalf of the War Funds, and so great has been the number of offers of help that it has been decided to hold the affair in September. Holidays in July and August would probably have detracted from the result of the collection, and the postponement is doubtless in the interest of the Fund. A large number of automobiles will take part in the procession, and Mr. R. W. Wallace, Q.C., the president of the Automobile Club, has joined the committee. We understand that those motor-carriages participating need not be decorated, although, of course, such ornamentation would be desirable, and that arrangements will be made for the automobiles to be kept together in the procession.

In Ireland.

TO-DAY (Saturday) the first motor-car procession from Dublin takes place, the destination being Killaloe. Having this in view and also the suggested tour of the Automobile Club in the Emerald Isle, the experience of Mr. J. W. Stocks, who has been touring the south of Ireland on a motor-quadricycle, is not without interest.

He says that generally speaking the roads are not so bad as some have pictured, but, of course, they are rather different to those enjoyed by automobilists in this country. But if the newspapers in Ireland will continue to impress the local authorities with the necessity of improving the roads a permanent good may be done to the country.

The Liverpool Self-Propelled Traffic Association.

A MEET and run of members' private carriages is being organised by the Liverpool Self-Propelled Traffic Association for Saturday, the 28th inst. The start will be from Birkenhead about noon, lunch being at Hoylake or West Kirby. Afterwards the run will be continued on through Caldy Village, along the banks of the Dee, to Heswall and Queensferry, returning to Birkenhead via Hooton. Tea will be partaken of at the Hooton Park Club.

The Motor-Vehicle Users' Defence Association.

A MEETING of the committee of this Association was held on the 10th inst. at the Automobile Club, and amongst those present were Mr. Wallace, Q.C. (in the chair), Major H. C. L. Holden, and Messrs. C. Cordingley, C. Johnson, F. F. Wellington, E. R. Shipton, and T. W. Staplee Firth. The committee voted a substantial sum towards the expenses incurred by a member who was summoned by the Lowestoft police. A large amount of general business was done, and Mr. G. R. Helmore reported a considerable accession of members.

A Parisian Passenger Service.

SOME weeks ago an automobile passenger service was established in Paris between the Gare du Nord and the Pont de l'Alma, the vehicle employed being a Scotte train. Quite recently the Prefet of Police ordered the temporary suspension of this service, but now the car has blossomed forth again, although operating in another quarter of the city. The new route is from the Place Pigalle, that spot beloved of Montmartois, to the Trocadero, and as the exterior Boulevards are followed, the distance traversed is considerable. Under existing circumstances, when all the principal Boulevards and streets of Paris are simply seething with traffic, the action of the Prefet is a wise one, for, however navigable a car of this description may be, its very bulk is a serious encumbrance in the streets. Banished temporarily to the exterior Boulevards, where the traffic is comparatively insignificant, the Scotte can yet do excellent work, and that it will perform its duties creditably no student of steam locomotion can for one minute doubt.

A Revival of Old-Time Pleasures.

AN article on electric carriages by Mr. W. Fletcher in the *Engineering Times* for July encourages the *Manchester Guardian* to hope that the day of journeys by road and of prosperous wayside inns may again be dawning. Unfortunately, the electric car can only run from thirty to fifty miles without re-charging, and thus it is at present almost useless for tour-

ing. But one need not despair of seeing the old posting inns revive with engineers and accumulators instead of horses and ostlers. The stages will be longer and the speed greater; but, remarks our contemporary, the pleasure of travelling in this way should be no less than in the days of which Dickens and Washington Irving wrote with such enthusiasm. The difficulty lies in the beginning; charging stations would not pay without numerous motors, and electric cars are useless without charging stations. Probably some great motor-car company will attack this dilemma, as has been done on a smaller scale with electric launches on the Thames. It would be easy to begin by providing stations near the large towns, which could be extended as the demand arose until the country was covered with a network of them and the roads were again as gay and thick with traffic as in the days of Mr. Weller.

An Innovation in Hunting.

A NOTABLE feature of the annual winter meeting of the Meadow Brook Hunt Club on Long Island, in the United States, was the presence of several automobiles. This was the first occasion in the American history of the sport on which the popular modern vehicle has taken its place in line with the road coach, the brake, and the whole range of sporting and road vehicles. A sight so novel naturally attracted much attention. Even the fashionable participants in the hunt, to whom automobiles are as familiar as four-in hands, could not refrain from some expressions of surprise when they saw the noiseless vehicles speeding over the Long Island roads. Before and behind the automobilists were persons in coaches, buggies, and other varieties of horse-drawn vehicles, all of whom watched them with keen interest as they skilfully steered their carriages.

Unreliable Estimates.

THE difficulty of accurately gauging the speed of vehicles when on the road has been often pointed out in police courts and elsewhere. In a case heard at Lowestoft which was defended by Mr. Staplee Firth—"solicitor to the Automobilists' Association" as he was described in the local paper—the varying estimates of much simpler matters showed to the magisterial mind the uncertainty of evidence. The length of the court room was 34 ft. When asked by Mr. Firth for the length of the room the police sergeant gave it as between 25 and 28 ft. and another witness as 48 ft. With such discrepancies in the length of a room, no wonder the Bench considered these witnesses unreliable judges of the speed of a motor-car on the public highway. At Warwick, the Borough Bench is apparently more inclined to give heed to the imagination, and evidence having been given that a motor-cycle was being driven from twenty to twenty-five miles an hour the rider was convicted despite the fact that expert evidence and the records of the 1000-mile Trial were produced. Alas! for the vagaries of those in authority.

Automobiles and Market Gardeners.

LAST week we referred to the opening that exists for motor-wagons in connection with market gardening and, curiously enough, the new number of the *Automobile Magazine* has the following on the same subject:—Whoever has seen or heard the long strings of heavily laden market-wagons lumbering their toilsome way into a great city in the wee small hours of the day, moving at a pace slower than cold molasses, will appreciate the improvement that will come with the application of the automobile to that phase of transportation. These heavily burdened teams are powerful factors in wearing out the highways, and in these days theirs is a most wasteful form of locomotion. A good strong automobile market-wagon could be constructed with sufficient motive-power to take two or three of these ordinary wagons behind it in a train and move over the ground at least twice as fast, enabling marketmen to set out at a much later hour and yet arrive with their produce at the same time as before. The cost of transportation would also be very greatly reduced.

One automobile wagon would do the work of a considerable number of horses. The introduction of the fore-carriage, which can be speedily manufactured and applied at once to existing vehicles, would greatly accelerate the change in fields of transportation like this.

Agriculturists on Automobiles.

It was last week that MM. Vilmorin and Andrieux, the well-known French horticulturists, of Verrières and Juvisy, invited the members of the International Agricultural Congress, then sitting in the Palais des Congres, in Paris, to visit their establishments. As would be expected, both plantations are rurally situated, and the railway journey being an inconvenient one to make MM. Vilmorin and Andrieux were somewhat in a quandary as to how to convey the hundred and fifty members of the congress, and it was not until an application to the Scottie Company had been made that the difficulty was solved. That society readily placed four cars at the disposal of the congress, and by this means the crowd of members were conveyed to Verrières. After lunch there the steamers carried the agriculturists to Champagne, and then on to Juvisy, the latter place being reached at six o'clock in the evening. This excursion was made on Thursday last week, and three days later a similar outing was made to the agricultural school at Grignon.

Ladies Against Unionism.

A CURIOUS question has arisen in connection with the lady automobilists of America, whose enterprise has carried them far afield. Mrs. J. J. Astor, Mrs. Gould, and Mrs. Vanderbilt recently qualified for the licence without which no motorist is allowed in the streets of New York. Now, it happens that the Engineers' Union, a branch of the Central Federated Union of America, is one of the strongest trade unions in the country, and makes a practice of driving into its fold engine-drivers of every description who dwell within the range of its jurisdiction. The ladies in question were accordingly served with the customary papers by the union, and invited to pay their subscription and sign the necessary formula of agreements and obligations. Otherwise, they were warned, they would be classed as non-unionist engineers. Mrs. Astor and Mrs. Vanderbilt were inclined to join the society if Mrs. Gould would complete the trio. That lady, however, declined the invitation, with the result that all three have decided not to comply, although it is understood the adhesion of one would secure the capitulation of the remaining two. It is a pretty little dispute, such as will afford amusement to leaders of American society, and do harm to no one.

Motor Haulage for Millers.

THE National Association of British and Irish millers have been holding their annual conference at Scarborough, where Mr. E. C. Skurry, of Swindon, read a paper on "Motor Haulage for Millers." The whole question, he said, was an important one for the trade, for if any means could be found to lighten the present very heavy animal cost of horse haulage, so much the better for their business generally. He treated the subject from a miller's point of view, and related the experiences of his firm in connection with a three-ton oil-fired steam-wagon, and compared the statistics of the cost of motor haulage in comparison with horse haulage. The figures showed a saving, roughly speaking, of £122 per annum in favour of the motor. In large businesses the balance in favour of the motor would be very large. To show the utility of a motor-vehicle and the many uses it could be put to, Mr. Skurry gave a typical week's run from the log-book. As compared with the work previously done by five horses, it showed a saving of £2 per week. The speaker discussed the various systems of motor haulage, and said that in his opinion motor haulage must be adopted by millers who wished to keep to the front in the fight against imported flour and that sent by rail from distant mills, as it enabled the miller on the spot to deliver to the customer at a less cost to himself, and a greater convenience to the buyer.

Common-Sense on the Bench.

A COUNTY-COURT judge in the United States has just given a decision in terms which might usefully be considered by similar functionaries in this country. The proprietor of a wagon brought an action against Mr. J. West, the inventor of a gasolene automobile, at Rochester, N.J., for damages caused by the former's horse being frightened by the latter's vehicle. The judge pointed out a difficulty arising from the uncertain nature of the horse. If one should find it desirable to go back to primitive methods and trek along a city street with a four-ox team and wagon of the prairie schooner variety, it would possibly cause some uneasiness in horses unused to such sights. Yet it could not be actionable, said the judge, if a runaway should result, provided due care were shown not unnecessarily to interfere with the use of the highways. Horses may take fright at conveyances that have become obsolete as well as at those which are novel; but this is one of the dangers incidental to the driving of horses, and the fact cannot be interposed as a barrier to retrogression or progress in the method of locomotion. Fancy Justice Bigham taking such a view.

The Literature of Automobilmism.

THE literature of automobilism is growing in this country, and the forthcoming publishing season will see three or four important publications on the subject. Among these will be "Horseless Carriages, Automobiles and Motor-Cycles," by Mr. G. D. Hiscox, who is preparing a profusely illustrated octavo volume. An interesting work just published is a translation by Mr. R. B. Marston from the German. Some time ago Colonel Otfried Lauviz of the German army wrote a book on the utilisation of the automobile by the military authorities for transport purposes, and this has been translated by Mr. Marston. It is published under the title of "Mechanical Traction in War for Road Transport."

Advising Buyers.

FREQUENTLY we receive letters from readers asking for advice as to which is the best motor-car, the most suitable vehicle for invalids, the car that is specially adapted for country lanes, etc. All such queries however cannot be answered in our columns for the simple reason that so many circumstances have to be considered. The prices of cars have a long range; some may be ideal vehicles for ordinary work in fairly level country, and prove considerably less efficient when used in hilly districts with twice as many passengers aboard. Then, too, the mechanical aptitude of the intending purchaser should not be overlooked, and, altogether, any particular opinion cannot be regarded as so satisfactory as a personal trial of a car. Manufacturers now issue such full particulars of their vehicles and afford opportunities for trials that buyers can easily make a selection of the leading types, and personal experience should do the rest.

An Interesting Volume.

MESSRS. HUGUET AND MINART, of Paris, have sent us a copy of the "Grand Album Illustré de l'Industrie Automobile" they have recently issued. The work, which is elaborately got up, is devoted to a review of the latest productions of the leading automobile constructors in France. The left-hand pages are occupied with large-size illustrations of the various vehicles—petrol, steam, and electric—while the description of the same is given on the right-hand pages in three languages—French, English, and German. The book opens with a chapter devoted to some historical notes on the progress of the automobile movement, including some interesting pictures, as, for example, a Panhard car built as far back as 1880, a Serpollet steam car, a Peugeot car built in 1891, and the original Benz motor-tricycle. Then follow a couple of pages of amusing caricatures dating from the early part of the present century. Altogether, the work is most interesting; and though its size is rather large, it should form an attractive addition to the automobilist's reference library.

Satirical.

WE learn from a Transatlantic source that the Automobile Club of Columbia University has elected Mr. J. W. Masury to membership on the ground that although he has had his automobile only two weeks he has been arrested twice for "scorching," and has participated in four accidents.

A Jumping Automobile Wanted.

IT is commonly and rightly assumed that the limitations of the automobile are such as to render it of value for military purposes mainly in connection with transport arrangements. The same fact is gratifying to huntsmen, who recognise the advantage possessed by the horse in his ability to leap over obstacles and to jump ditches where the motor-car would prove worse than helpless. Already some of the journalists not engaged in looking after war news are making suggestions for the greater usefulness of the motor-car, and one has proposed that a fence-jumping attachment should be fitted. It should be arranged so that by pressing a button the machine would instantly leap over a fence instead of jumping into it. Not at all a bad idea; but its realisation is, like the task of teaching certain writers to regard automobilism as a serious matter, a rather long and tedious experiment.



MR. STAPLEE FIRTH AND MR. C. CORDINGLEY ON A LOCOMOBILE STEAM CAR.

The Great North Road.

THE old North Road went through Royston, Huntingdon, Newark, Worksop, Doncaster, and Tadcaster to York; subsequently the route was taken through Hatfield, Baldock, Newark, and Retford to Doncaster. The present route by Hitchin went at one time by Upper Caldecote, but it is now taken through Langford. Famous as it once was for coaches, the great North Road is likely to be much used by motorists; hence the value of the Great North Road map which Mr. H. R. G. Inglis has published through Messrs. Gall and Inglis. The first part takes us as far as York, and although the map is 8 feet in length, it is small enough for the pocket. It contains an index, measurement table, notes on scenery, objects of interest, and a list of hotels. There are interesting notes regarding the old coaches on the road, which show that in 1889 the fastest cyclist from London to York did not beat the daily record of the mail coach. Travellers to York will find this a most useful companion, as this one map will give all that is required on the journey.

AN AUTOMOBILISTS' GARDEN PARTY.

THE weather has recently been so fitful and unsettled, rain and wind dispiriting pleasure seekers and disappointing those who have endeavoured to minister to the amusement of others, that it was rather a daring thing for Mr. and Mrs. Herbert de Stern to have invited the members of the Automobile Club to a garden party at Strawberry Hill, Twickenham, on Tuesday last. Fortunately, however, they were warmly favoured, and the afternoon chosen for the pleasant function was one of those rare times pictured by Shelley—

When the soft winds and sunny skies
With the green earth harmonise.

There are literary associations about Twickenham, where Pope lived, and at Strawberry Hill House, which is not far away, equally interesting are the recollections of the eighteenth century poets and their friends. Strawberry Hill House, where Mr. de Stern now resides, was built by Horace Walpole on land purchased in 1747, and completed in subsequent years, the library or great parlour being finished in 1753, and the gallery round tower seven years later. In more recent years the late Countess Waldegrave considerably enlarged the house, and in 1842 the traces of Walpole's residence were removed, the great collections which he had formed being then sold by auction. All the furniture and art treasures had been of the greatest elegance and beauty, and although experts have differed as to the architectural features of Strawberry Hill House the testimony to the delightful taste with which it was decorated by its famous owner was universal, even among the most captious eighteenth-century critics.

Very different was the scene presented on the lawn last Tuesday to that which the house had seen in earlier days, although the desire of the noble owner to have given entertainment to his guests could not have exceeded that shown by Mr. and Mrs. de Stern. All members of the Automobile Club owning vehicles were invited to the party, and invitations were also given to a luncheon.

The afternoon was simply an ideal one for such an affair, and the scene on the springy lawn, which is admirably bounded by trees, was one of unusual brightness, the keenness of the sun's rays lighting up every bush and branch and sending long shadows across the short cropped grass. Within the house was much to be seen and enjoyed in the way of furniture and ornamentation, whilst clairvoyance, palmistry, and simultaneous violin and piano playing attracted many to seek the coolness of the splendid apartments. On the lawn a fountain was playing, and Signor Bocchi's orchestra of thirty-five artistes discoursed a long programme of classical music, while "The Follies" (a quintet of talented artistes) gave a varied programme of songs, duets, mandoline solos, etc., in delightful fashion. Under a tent many found cooling delights and light refreshments, and conversation made the hours fly swiftly enough.

As the cars arrived they were driven to a shady corner, from whence several made trips round the lawn during the afternoon, their owners exhibiting driving prowess and informing visitors as to various points of mechanism, although it must be confessed the fun of a sharp run round an awkward corner or circling in and about two rows of dummies which had been set up along the short avenue of trees at the lower end of the lawn seemed the favourite pastimes of the fair visitors—of whom there were not a few.

As drivers two ladies specially distinguished themselves, Mrs. Mary E. Kennard driving her De Dion voiturette and Miss Butler driving Mr. F. H. Butler's 6 h.p. Panhard, which, with its white paint, was one of the most effective-looking cars on the lawn. Captain Langrishe was also prominent among the drivers, careering around on his Peugeot accompanied by one or more ladies, and evidently regarded, as he really is, as one of the experts present. Mr. Edmunds came on his Daimler, Mr. C. Cordingley on his Marlborough phaeton, Mr. T. B. Browne on his Panhard, Mr. Arthur Mulliner on his Daimler, Mr. Ledger on his Daimler, and Mr. Grahame White on his Twin Daimler. Mr. Johnson drove Mr. Hutton's Mayfair voiturette, in which he had made an appearance at the Godstone hill-climbing on Saturday. The Hon. C. S. Rolls came on his

Panhard, the neat, stylish finish of which was much admired. There were also present a De Dion voiturette, a quadricycle, a motor-tricycle, a Clift electric car, and two other Benz cars. The Hon. Cecil Duncombe was one of the later arrivals, coming to Strawberry Hill on his Delahaye car; Mr. Hodges drove his voiturette; a 6 h.p. Benz victoria and Mr. Buttemer's car completed an enumeration of the cars we made about six o'clock. Later, Mr. Mark Mayhew arrived. Thus it will be seen that the invitations were accepted by many leading automobilists, and with Mr. Roger Wallace arriving later the Automobile Club was able to congratulate itself on a representative muster.

It had been arranged that three races should be run between six and seven o'clock for three silver cups presented by Mr. de Stern, but the preliminaries took some time, and it was nearly eight o'clock ere the competitions were in full swing. The first contest was a ladies' race in and out among half a dozen dummies placed in a row and, having turned, to return in a straight line to the starting point. There were only two entries, Mrs. Kennard and Miss Butler. At the first try the latter got well away, but Mrs. Kennard's machine declined to move, and a second start was ordered. This time Miss Butler's Panhard proved refractory, and again it was decided to make a fresh attempt. But, alas! the Panhard had not been coaxed enough. On the fourth start both ladies got away together, Miss Butler ultimately winning by about the length of her rival's car.

Then came the contests limited to gentlemen, and Mr. Hodges, on his Brierre voiturette, and Mr. Lyon Sampson, on his Benz victoria, faced the course, the former winning in good style. In the next contest, between the Hon. C. S. Rolls and Mr. Mark Mayhew, great interest was evinced, but unfortunately the latter was late in getting away at the first start, and a restart was made, when the winner of the gold medal of the Automobile Club's 1,000-mile Trial achieved distinction.

The concluding competitions were in the nature of control contests. Starting from the lower end of the lawn the competitors had to bring the front wheels of their machines over a rope and stop dead in front of a row of sticks placed parallel to the rope, but about three feet beyond. For this contest six cars appeared. Two heats were arranged, the result of the first heat being—1, Captain Langrishe, with two passengers; 2, Mr. Mark Mayhew; 3, Mr. Buttemer. The second heat resulted as follows:—1, Hon. C. S. Rolls; 2, Mr. T. B. Browne, with one passenger; 3, Mr. Frank H. Butler, with one passenger. The came the final between the Hon. C. S. Rolls and Captain Langrishe, the former again securing a first position.

With that the sports ended, and the gathering, which had been gradually melting away, dispersed altogether, the motorists going on their cars and a large contingent returning to town by train. The evening was becoming delightfully cool, and the ground presented a beautiful aspect, the darkening tints of green growing deeper and deeper with the waning of the sun. Although nearly a score of cars had been running round the lawn four or five hours the marks were few, save at one corner, where the softness of the ground led to a few slight ruts. Thanks to pneumatic tires the lawn was practically undisturbed—a fact that should be recognised by those who try to see in automobilism a means for destroying the roadway and highway of our country. Had only one or two horse-drawn vehicles been making a few journeys across the greensward the result would have been far more distressing to the gardeners of Strawberry Hill House, a spot that is now well placed among the pleasant memories of those associated with the Automobile Club.

THE members of the Manchester Automobile Club are to-day (Saturday) participating in a run to Nantwich.

THE Frankfort Automobile Club is organising a decorated automobile parade, to be held in Frankfort-on-Main, Germany, on the 22nd inst.

THE attractiveness of the motor-car as a stage feature finds another instance in its use in the spectacular operetta "The World Reversed," which is being played to crowded houses at a Berlin theatre.

THE PARIS-SINGER PETROLEUM-SPIRIT MOTOR-VOITURETTE.

THE other day a representative of the *Motor-Car Journal* paid a visit to the works of Messrs. Paris Singer, Limited, of Manor Street, Clapham, in order to inspect the new light voiturette the company has lately completed, and of which an illustration is given herewith. The car being out in use at the time we arrived, the interval of waiting for it was pleasantly filled up by the kindness of Mr. R. M. Campbell, M.I.M.E., the works manager, who conducted us over the workshops, and pointed out the various motors and cars in course of construction, of which there are not a few.

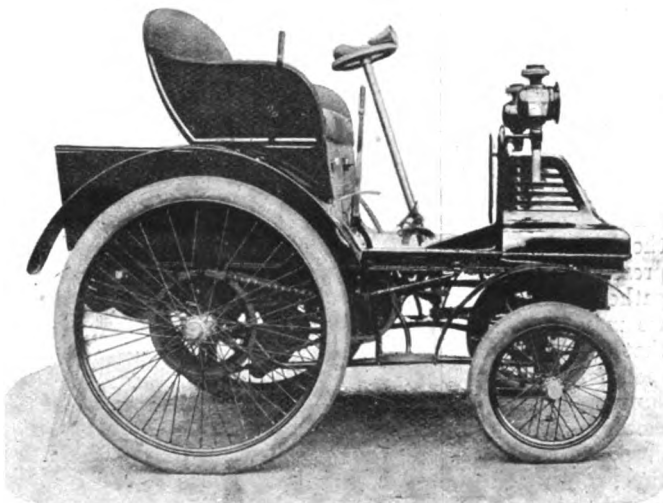
The voiturette is a comfortable two-seated vehicle, and that it is quiet in its running we can affirm as a result of the trip we took on the car. The motor is of the horizontal, two-cylinder type of $4\frac{1}{2}$ h.p., the diameter of the cylinders being $3\frac{1}{2}$ in. by $4\frac{1}{2}$ in. stroke. The normal speed of the engine is 760 revolutions per minute, the ignition is electrical, while the cylinders are water-jacketed. The inlet valves are operated automatically in the usual way. The exhaust valves are actuated independently by means of separately driven cams, which are placed—together with their gear wheels—inside the crank chamber; by this arrangement they are not only kept free from dust and grit, but are, it is claimed, rendered more silent. The valves can be readily removed for inspection, etc., at any time by merely unscrewing two bolts. The motor is fitted with a centrifugal governor which is attached to the fly-wheel, and which controls the explosive mixture supply to the admission valves; the governor acts upon a double-ported valve, of the piston type, and can be adjusted to any desired speed; it thus noiselessly controls the quantity of explosive mixture which passes into the combustion chambers centrally. The motor is located at the rear of the car, and is supported on a channel steel frame. The exhaust box or silencer is of a special pattern, and consists of a large and a small chamber and of baffling arrangements, which produce a very effective result without causing any undue back pressure.

The water for cooling the cylinder is carried in a tank, holding about five gallons, which is fixed inside the ventilated bonnet in the fore part of the car. An annular space is provided round the tank, and the ventilators are designed to admit as much air as possible when the car is running. A radiator is placed immediately under the water tank, and the water is circulated from the tank through the jackets, and through the radiator back to the tank by means of an aluminium rotary pump, driven from the motor shaft by means of a chain.

Coming now to the transmission gear, three speeds forward, six, eleven, and twenty-three miles per hour are provided; two of these speeds are obtained by $1\frac{3}{4}$ -in. belts, running on fast and loose pulleys, and the lowest gear is of the epicyclic type, although it is not arranged in quite the usual manner. The belts transmit the power direct from the crank-shaft of the engine to a counter-shaft, and the latter, which is fitted with a differential gear, drives the rear wheels of the car by means of roller chains. Provision is made for readily taking up any slack, either in the chains or the belts. The two belt pulleys on the crank shaft are arranged one on each side of the motor, while with the view of reducing the weight the loose pulleys on the differential shaft are made of aluminium. The second and third speeds are controlled by a hand lever at the side of the car, working in a rack. The belt-shifting forks are carried on a spring bar in such a way that both belts cannot be put on the fast pulleys at the same time. One of the interesting features of the car is the first speed; this is controlled by a special foot-pedal, and is so arranged as to give, by the pressure of the foot, any desired speed from nil to six miles per hour. It forms one of the best devices of the kind we have met with for driving through traffic, as, without moving anything but the foot-pedal, the car can be stopped and driven up to six miles per hour. The hand-lever at the side need only be touched when it is necessary to throw in or out the second and third speeds. Unfortunately we are not able to describe clearly how this is effected, but we may

mention that it is achieved by means of the epicyclic gear contained within the slow speed pulley on the differential shaft, the foot-pedal retarding by means of a band brake that concentric element of the gearing which causes the epicyclic train to transmit energy to the counter-shaft. The brake, which can either be made to entirely prevent this element from revolving, or can be caused to vary its speed of rotation, enables the car to be started gradually, and to travel at any desired speed of the limit of 6 h.p., the speed of the engine remaining constant.

Steering is controlled by means of a wheel mounted upon a sloping standard, the latter being entirely free from any other mechanism-controlling attachments. The method employed for communicating its movement to the front road wheels is of the double chain and chain wheel variety. The frame is spring suspended on the axles, the road wheels are of the cycle type, shod with pneumatic tyre. The petrol is carried in two tanks, which are placed on either side of the car, inside the body. The tanks are interconnected by means of an equalising pipe, and are arranged so that the motor will still continue to obtain its fuel, whether the car is on a flat or arched road, so long as there is any petrol left in the supply tanks, the capacity of which is sufficient for a run of 100 miles. As we have stated, the voiturette runs exceedingly quiet, in fact it is almost as noiseless as many electrically-propelled vehicles. Its length over all is 6ft. 8in.; width over all, 4ft. 6in.; while the wheel base is 3ft. 9in. The weight complete is about $7\frac{1}{2}$ cwt.



While at Messrs. Paris Singer's works we were shown a new two-cylinder vertical motor, of 9 h.p., the company are building. In this engine each of the exhaust valves are being separately operated, the cam gear being contained within the crank chamber. The two cylinders are cast in one piece, while a new feature is the provision of a central bearing for the crank shaft within the oil chamber. The engine has cylinders $4\frac{1}{2}$ in. in diameter by $6\frac{1}{2}$ in. stroke, the normal speed being 760 revolutions per minute.

LIVERIED MENIAL: "Me lud, the carriage waits without." Lord Fitz Josher: "Without what?" L. M.: "Without horses, me lud: 'tis an automobile."—*Chicago Record*.

MR. W. NISBET BLAIR, engineer and surveyor to the St. Pancras Vestry, is of opinion that so long as horse traction continues we shall be unable to keep our streets in a condition undeserving complaint. He fears there will be no material improvement in the cleansing of our streets until motor traffic becomes general.

CALLING in at the Automobile Palace, on Holborn Viaduct, the other afternoon, we found that Mr. Friswell had just returned from Paris, bringing with him a large assortment of accessories for the various carriages upon the English market. Mr. Friswell also informs us that he has secured the sole agency for Great Britain for the popular Renault voiturette, and for the Brierre car, both of which have been illustrated in these columns.

HILL-CLIMBING AT GODSTONE GREEN.

FAVOURED by good weather the initial effort of the recently-formed English Motor Club, on Saturday last, proved an unqualified success. By noon several cars and cycles had already arrived in order to take part in, or be present at the hill-climbing competition at Tilburstow Hill, and all through the afternoon the "toot-toot" of the motor horns was a familiar sound which found many an echo from among the members of the numerous beanfeasting parties met with between Purley and Godstone. By the time we reached the latter place, at about half-past three, the old hostelry, the Clayton Arms Hotel, which formed the club's headquarters for the time being, presented a very lively scene. Quite a number of the local inhabitants turned out for the event, including several gentlemen on horseback, who between themselves were speculating as to the chance of the "motors" getting up the hill at a speed of more than four miles per hour. Another gentleman who watched the proceedings with interest was Mr. J. George-Powell, the district surveyor, and from what we could gather it will not be long before he joins the ever-increasing army of automobilists. It would be impossible for us to give the names of all those who were present at the gathering, but we may remark that it was exceedingly well supported by motor men. Indeed, at one time, in the yard of the Clayton Arms we counted no less than sixteen motor-cycles and ten motor-cars, and although the hostelry is one of the oldest in the district, dating from the days of Richard II., it is doubtful if its courtyard ever presented such a picture of animation as it did on Saturday last.

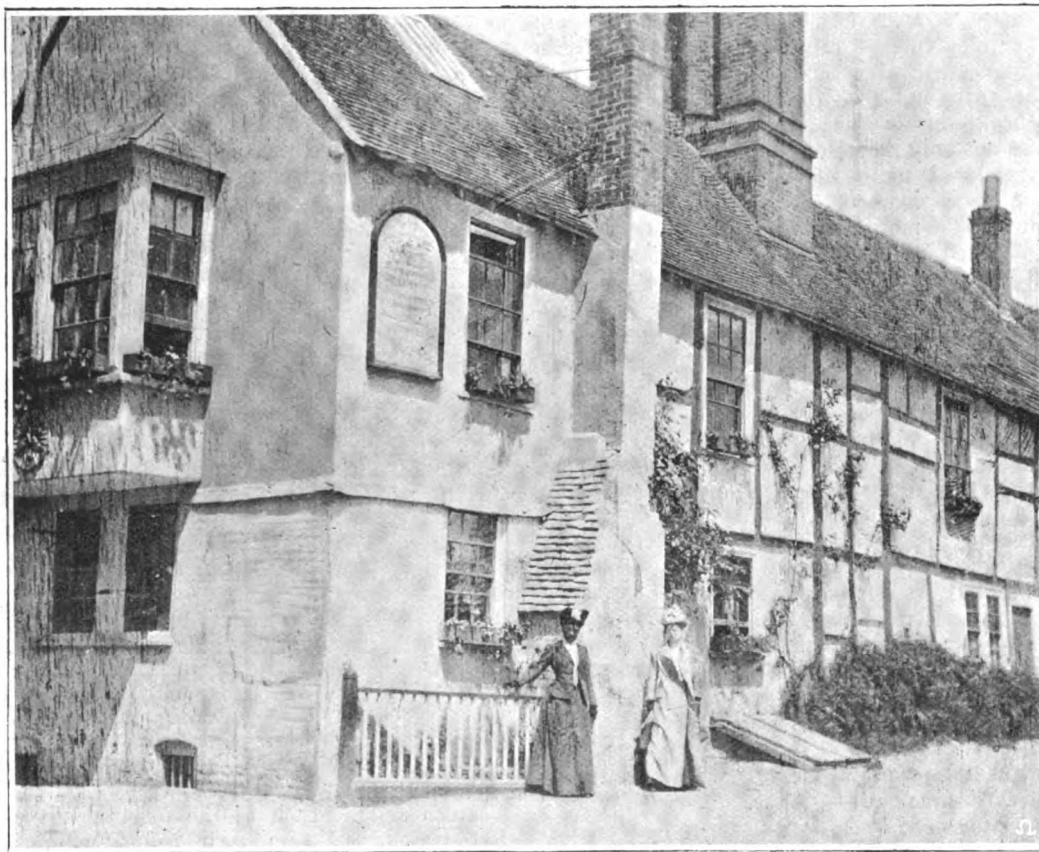
The *locale* of the competition was Tilburstow Hill, and about four o'clock a move was made to the starting point at the foot, the interested spectators taking up positions at points of vantage along the course. The gradients of the hill from the bridge at the foot are—1 in 17 for 408 yards, 1 in 13 for 333 yards, 1 in 11.9 for 175 yards, 1 in 11.5 for 38 yards, and 1 in 87 for 260 yards to the summit. To make the course just two-thirds of a mile the finishing point was fixed 41 yards short of the summit.

As has already been stated in these columns, the competition was divided into the following sections:—(A) tricycles and quadricycles, list price of which shall not exceed £140; (B) voituresses, list price of which shall not exceed £150; (C) voituresses, list price of which shall not exceed £250; (D) cars, list price of which shall be between £250 and £500; (E) any car costing more than £500. When the list of entries was closed it

was found that in Class A seventeen machines had been entered, in Class B nil, in Class C four, in Class D two, and in Class E three, a total of twenty-six, out of which twenty-three actually started.

Taking up a position on the short, stiff portion of 1 in 11.5, not far from the finishing point, we had an excellent opportunity of watching the behaviour of the cycles and cars which were despatched from the bridge at intervals of three minutes. The cycles led off, and here the high-powered machines—some being fitted with motors of from 5 to 6 h.p.—were easily distinguishable by the ease with which they ascended the hill; the riders of most of the lower-powered tricycles finding it, of course, necessary to pedal for all they were worth. Some amusement was afforded the spectators in one of the intervals by the arrival of a tandem tricycle of the early eighties, ridden by two country joskins—one of whom, by the way, had a wooden leg—who had affixed a numbered card to their machine. Although not favoured by an up-to-date cycle with pneumatic tires, it was

evident that the two riders felt extremely proud of their performance on their old solid-tired crock. The first of the cars to pass us was No. 21, a Delahaye voituress, driven by Mr. G. D. Barnes, who had a gentleman at his side. Then came Mr. A. W. Goodwin on a De Dion voituress (No. 33), fitted with a Motor Manufacturing water-cooled motor, followed quickly by Mr. V. Lee on another De Dion voituress (No. 20). Then came the car which during the whole afternoon was the centre of attraction—No. 32, the 16 h.p. Napier. Mr. S. F. Edge was the driver and only



THE CLAYTON ARMS HOTEL AT GODSTONE.

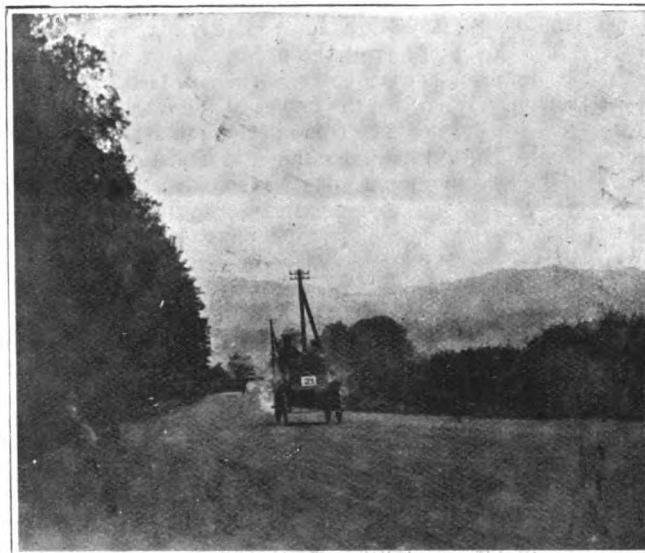
passenger—if we omit the dog—the vehicle taking the hill at a good speed. Mr. Edge gone, the next car to come into view was the Rougemont wagonette (No. 26) of the Daimler Motor Company. The vehicle was carrying a load of six persons, including the driver, and although the pace was rather slow the summit was reached without it being necessary to "shed" any of the passengers. Just by where we were standing Mr. Lord's 12 h.p. Peugeot (No. 30) passed by No. 26, and although somewhat noisy was travelling at a fair pace. The cars were now coming along in rapid succession, for quickly on the heels of No. 30 came Mr. H. Weguelin's 12 h.p. Panhard (No. 31), with two up, and Mr. F. F. Wellington's 6 h.p. Daimler wagonette (No. 25). Although the speed of the latter was slow it is noteworthy that this car safely carried its heavy load of eight persons to the top of the hill. Finally the youngest of the competitors came along—Master Cusins—on a De Dion trike (No. 12), but although he succeeded in reaching the top it was with great difficulty, owing to the traffic, for the spectators had begun to make their way back to Godstone on motor-cars, cycles, and afoot as soon as Mr. Wellington's car had passed.

On reaching the Clayton Arms we found that the number of visitors on cars had largely increased, and a pleasant hour was spent, awaiting the results of the competition, in chatting over the events of the day. Ascertaining the results was not a matter of a few moments, for in each section they were determined not merely by taking the fastest time, but by taking the best time in relation to the selling price of the car and the number of passengers carried, a special prize being also offered to the driver of

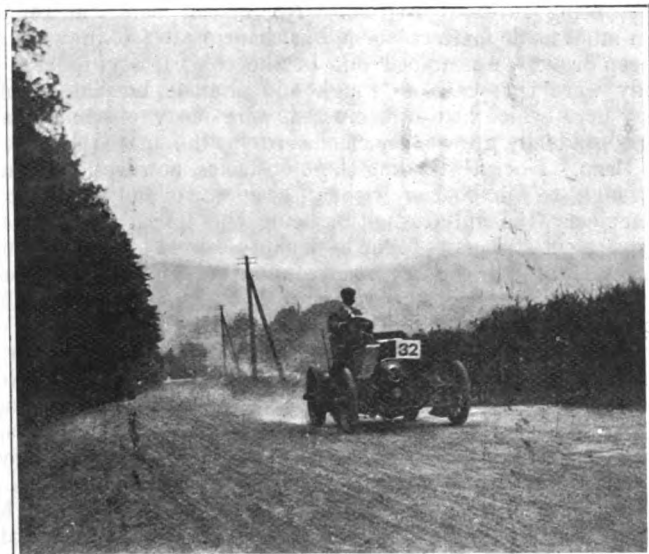
— 13. R. Fuller	De Dion tricycle ...	—	1	2	33½
— 8. H. J. Lawson, Jr.	"	£75	1	2	40½
— 11. C. Machin	Gladiator	£73 10s.	1	2	41
— 6. E. W. Hart	Phebus	£73 10s.	1	2	48
— 12. S. F. Edge (ridden by Master Cusins)	Ariel	£84	1	2	52
— 9. T. L. Spencer	M.M.C.	£65	1	3	20
— 16. G. Riches	Quad	£130	2	4	49½
— 14. H. Grose	De Dion tricycle	£73 10s.	1	1	did not finish.



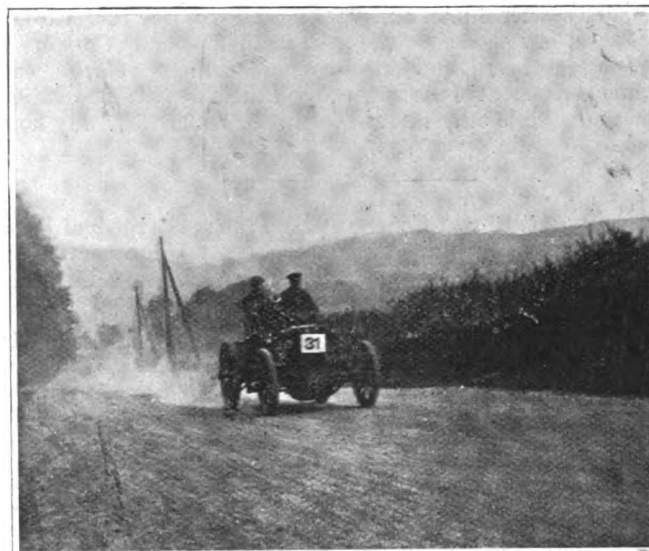
MR. F. F. WELLINGTON'S PHEBUS-ASTER TRICYCLE, No. 4.



MR. G. D. BARNES ON THE DELAHAYE VOITURETTE, No. 21.



MR. S. F. EDGE ON THE 16 H.P. NAPIER CAR, No. 32.



MR. H. WEGUELIN'S 12 H.P. PANHARD CAR, No. 31.

the vehicle or machine covering the course in the fastest time. The following are the official times and order of placing:—

CLASS A.					
Result.	Number.	Owner.	Machine.	List Price.	To carry in competition. Time.
1*	7.	C. Jarrott	De Dion tricycle	£84	1 ... 1 36½
2	5.	S. F. Edge	"	£84	1 ... 1 37½
3	2.	G. H. Smith (ridden by Mr. Donne)	Empress	£75	1 ... 2 12½
—	10.	De Dion Col. Sy. (ridden by V. Lee)	De Dion	£84	1 ... 1 59½
—	1.	E. S. Cheel	Ariel	£84	1 ... 2 12½
—	17.	M. Moyle	Empress	£75	1 ... 2 30
—	4.	F. F. Wellington..	Phebus-Aster	£73 10s.	1 ... 2 33

CLASS B.—No starters.

CLASS C.

1	33.	A. W. Goodwin ...	De Dion voiturette	£200	2 ... 5 8½
2	20.	De Dion, Col. Sy. (C. Jarrott driving)	"	£210	3 ... 5 24½
3	21.	G. D. Barnes	Delahaye	£250	2 ... 6 34½

CLASS D.

1	25.	F. F. Wellington...	Daimler wagonette	£385	8 ... 11 0½
2	26.	Daimler Co.	Rougemont	£396	6 ... 10 13

CLASS E.

1	30.	O. E. Lord	12 h.p. Peugeot	£860	2 ... 3 8½
2	31.	H. Weguelin	12 h.p. Panhard	£2,000	2 ... 2 19
3	32.	S. F. Edge...	16 h.p. Napier	£1,300	1 ... 2 15½

* Also awarded prize for fastest time over course.

It will be noticed that in several cases it was not the fastest cars which secured the premier positions in the awards; this

arises, as already pointed out, from the fact that time was only one of the factors which the judges had to consider in arriving at their decisions. The times were taken by Mr. F. T. Bidlake and Mr. H. J. Swindley.

Relatively very few of the competitors and visitors stayed for the dinner at the Clayton Arms, which followed the competition, but the repast in the ancient *salle* of the hostelry with its quaint old ceiling and decorations was not the least pleasant part of the day's proceedings. About twenty-six sat down to the dinner, among this number being Mr. C. Jarrott (in the chair), the Hon. C. S. Rolls, Mr. F. W. Baily, Mr. S. F. Edge, Mr. G. H. Smith, Mr. F. F. Wellington, Mr. Napier, Mr. Holroyd Smith, Mr. C. Johnson, the secretary of the A.C.G.B.I., and Mr. J. Ernest Hutton. We place the names of these two gentlemen last designedly, for did not they come in last, amidst the cheers of the diners? Mr. Hutton had gone down to Godstone on his new voiturette, and when the dinner gong was sounded this gentleman and Mr. Johnson were not to be found. Enquiries resulted in the information that the latter had gone off to enjoy a short experimental trip with Mr. Hutton on the new car. But if their going was silent their return was noisy, for the sight of Mr. Hutton calmly steering the voiturette while Mr. Johnson was performing the work of the motor by pushing behind was too much for the diners, who made a hasty rush for the windows to welcome home the fractious motor-car and its riders. It turned out that Mr. Hutton had only got possession of the car the same morning, and that the carburettor, probably due to his short acquaintance with it, had been giving trouble. There was no ceremony at the dinner, for the chairman, Mr. Jarrott, had to be called upon by Mr. Baily to read the results of the competition, and he in turn deputed the work to Mr. Smith! The only toast was that of the gentlemen who had assisted the English Motor Club during the afternoon in carrying through its first competition, which was admitted by all to have been a great success.

Shortly after 8 p.m. a move was made for the courtyard, in which, in a few moments, the now familiar sound of motors in operation was heard, and one by one the motor-vehicles, each with its complement of passengers, took their departure to various destinations, while others not so fortunate made their way home awheel or by train.

DURING his stay at Contrexeville, France, the Shah of Persia has been interesting himself in motor-cars. The other day he sent for some vehicles, being desirous, it is stated, of taking some back with him to Persia.

"F. C. G." is referred to the work on "Gas and Oil Engines," by Mr. Dugald Clerk (London: Longmans, Green and Co.); and "Modern Gas and Oil Engines," by Mr. Frederick Grover (Manchester: John Heywood).

ON Saturday, the 26th May, Mr. Geo. L. Weiss, of Cleveland, O., and Messrs. J. W. Packard, of Warren, O., made a trip from Cleveland to Buffalo in an automobile built by the New York and Ohio Company, of Warren, O. The departure from Cleveland was made at 5 a.m., and Buffalo was reached before 9 p.m. The actual running time was thirteen and a half hours, and the distance covered 225 miles. Ashtabula, approximately sixty miles from Cleveland, was reached in three hours' running time, and Erie, 100 miles, in six hours. The last thirty miles of the run into Buffalo was, states the *Horseless Age*, made after dark on strange roads, necessitating a greatly reduced speed. The roads in general were good, at which times a speed of eighteen to twenty-two miles an hour, the maximum for which the carriage is geared, was easily maintained. Some very bad stretches of road, however, were met with, and the hills, while few in number, were of heavy grade. Considerable amusement was afforded the travellers by their being practically refused accommodation at one of the prominent Buffalo hotels where they first applied. This was doubtless on account of their travel-stained and begrimed appearance, although the usual plea was made that they had no suitable rooms to let.

CORRESPONDENCE.



DOES PETROL DETERIORATE?

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your readers inform me if the results to be obtained from petrol in driving a motor-car are dependent solely upon the specific gravity of the spirit? also, if petrol deteriorates in its explosive effects if exposed to atmospheric air? There are two spirits on the market, both of almost identical specific gravity, and yet I get better results from one than from the other. For obvious reasons I cannot give names. Yours truly,

East Molesey,

W. W. HARDWICKE, M.D.

July 4th, 1900.

A PIONEER AUSTRALIAN MOTOR-CAR JOURNEY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The Thomson steam motor-phaeton, which has become so well known in the colonies, has just completed the first long-distance journey in Australia, successfully negotiating the distance from Bathurst (N.S.W.), where the car had been exhibited, to Melbourne (Vic.), a distance of 493½ miles net.

The journey, for the main part, was made over rough unmade roads, sometimes being nothing but bush track, and in the whole distance not more than 150 miles of metal road existed. Some of this metal road was frightfully cut up by recent rains (two inches having fallen in fifteen hours), in one place a bridge over a creek being washed away, and it was necessary to ford it to enable the car to continue its journey. Twice we, Mr. H. Thomson, the inventor, and self, got "bushed," not being able to define the road leading through the bush, and once, just at nightfall, a chain of swamps blocked the road, the wheels being up to the axles in water and mud at times, preventing further progress. No houses being nearer than ten miles made matters worse, but chancing to fall in with some sheep drovers, we camped out in the cold, frosty night. Not only were the roads so rough and unmade, but patches of red clay bogs, which had to be crossed, were nasty obstacles, as the tires gradually grew to enormous sizes by the surface clay sticking to them. Notwithstanding these obstacles, however, the car got through to Melbourne without accident of any kind to the machinery, the only casualties being the fracture of two chain adjustment strut clips to the back axle—caused by the excessively heavy and rough country roads—and through grazing a fence a few of the under gear rods were bent, these, however, being straightened and replaced in twenty minutes.

Throughout the first part of the journey the weather was first class, but the last two days were wet and miserable. Nevertheless the progress of the car was not impeded to any marked extent, yet, as may be naturally supposed, the average speed was not high in comparison with modern cars over splendid English and French roads. The time for the whole distance was fifty-six hours thirty-six minutes, averaging 8.72 miles per hour, which, though seemingly small, is likely to remain a record for the route, it being recognised as almost impassable for motor-cars. It was intended to run from Sydney to Melbourne, but having to go to Bathurst, the plans were amended, hence the journey over one of the worst stretches of road in the colonies by an experiment vehicle and one quite unsuited for such long-distance work.

The vehicle used was a Thomson steam phaeton—the first one built in the colonies—the motor being compound 1½ in. and 3 in. cylinders by 3 in. stroke. The steam generator is novel and simple, measures 1½ cubic ft., and is worked at 250 lb to 300 lb. pressure, the production of steam from kerosene being automatic. The car is provided with sufficient condensers, re-using the steam, and the steering is effected by a side lever which does not vibrate like the central steering lever. The consumption of kerosene on the journey was 42 gallons, averaging .084 gallons per mile—by no means high when the heavy nature of the roads is taken into consideration, as well as the weight of vehicle, tools, luggage, and the two passengers, viz.: 16 cwt. Dunlop tires were used

throughout, with remarkable success—only one puncture—which was a very small item as the tires had been on the car for over 2,000 miles.

Yours truly,

E. L. HOLMES.

305, Flinders Lane, Melbourne, Vic.

June 4th, 1900.

THE USE OF ALUMINIUM IN MOTOR AND MOTOR-CAR CONSTRUCTION.

AS there would appear to be some doubt in the mind of many designers of motors and motor-vehicles as to whether aluminium is a suitable metal to use in connection with the construction of motors and automobiles, we thought the practical knowledge of what is really being done would be a better answer than all the theory that could be brought to bear on the matter. We have, therefore, taken the matter up with Messrs. W. Mills and Co., of the Atlas Works, Sunderland, who have made a speciality of casting this metal and its alloys for some years past, and have paid special attention to the motor industry. They inform us they are very busy in their foundry with all kinds of motor-car castings, the best proof of the success achieved being that they have hardly ever had a casting returned as faulty, and have never known a breakdown after fitting. Aluminium has its uses the same as any other metal. It is not expected to take the place of wrought iron and steel except in special cases, but it can be used to great advantage in almost every part where cast iron or brass are at present used, on account of it being fully the same strength and only being one-third the weight.

Aluminium castings can be used in such parts as the following, and are used by the leading makers for these parts:—Engine base and sole plates, air vessels and regulators, cylinder jacket covers, gear cases of all kinds, brackets, cylinder base chambers, steering wheels, engine covers and doors, silencer, float chambers, crank chambers, vapourisers, etc. Sheet aluminium can be used for such parts as carriage body panels, etc. Pure aluminium would be practically useless for such castings as are named, and it is only by the casting of suitable alloys that builders have been able to use the metal so largely as is now the case.

SEVERAL French Panhards have lately come to this country and among the latest we have seen is one painted olive green and driven by a French driver. It has four cylinders and pneumatic tires.

PLANS are being formulated by a committee of the Automobile Club of America for a system of tests which will show the true power and efficiency, the mechanical excellence in general and of various details of automobiles in use. Builders and users will be asked to submit their automobiles for such trials as may be planned.

THE New York *World* has recently introduced the automobile into its circulation service for carrying and delivering newspapers in New York and vicinity. One of the first of a large number ordered from the Woods Motor Vehicle Company is now being used for the purpose, having been tested under various conditions, with most satisfactory results. The machine has answered all the requirements imposed by weight carrying, grade climbing and speed, and will obviate the thousand and one difficulties incident to the employment of horses in this capacity.

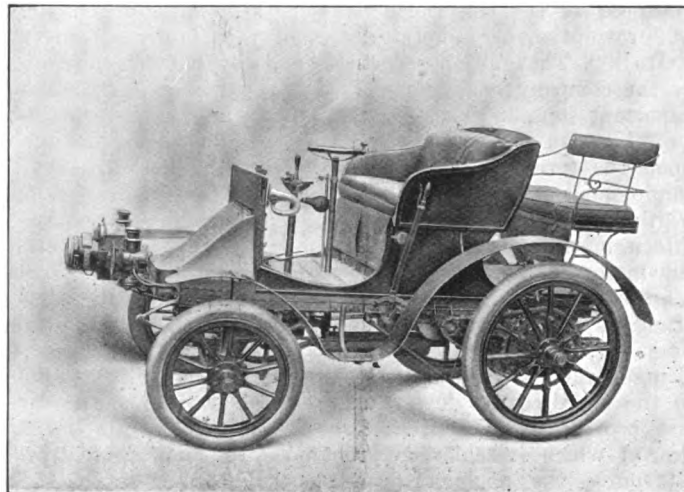
THE Crest Manufacturing Co., of Cambridgeport, Mass., are putting on the market a new design of sparking plug that is claimed to be not affected by heat and expansion, and is unbreakable. The material used in this plug is a perfect electrical non-conductor, and does not expand under intense heat. It is tough, and not brittle like porcelain. The device consists of a shell of steel having a thread at one end to screw in the orifice of the chamber of the motor. The plug proper consists of a light cone of the new material, which is inserted in the steel plug. This cone fits tight in the shell, making a gas-tight joint, without packing. Through this cone a wire is passed, terminating at the bottom of the plug with an enlarged head. A platinum wire is inserted in the body of the steel shell, the spark jumping across between the two points.

PARIS EXHIBITION NOTES.

(FROM OUR OWN CORRESPONDENT.)

(Continued from page 316.)

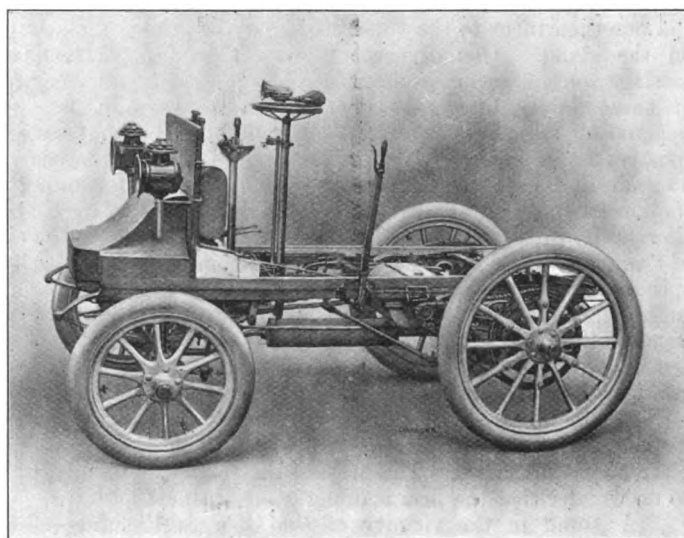
COMPLETE as are the Exhibition arrangements in many respects they are woefully lacking in others, and one cause of complaint is the absence of numbers on the stands, thus rendering the indication of the whereabouts of any particular firm's exhibits a matter of extreme difficulty, if not of impossibility. The lack of space, too, at Champ de Mars has necessitated a veritable crowding of exhibitors, and many



THE GEORGES RICHARD DUC.

well-known firms have stands of very moderate dimensions hidden away in obscure corners. In many cases also a firm's exhibit consists of a single carriage, so it will be readily understood that a really careful examination of the section is necessary to insure a sight of the production of every exposing firm.

One of the most extensive shows is that of the Société des Etablissements Georges Richard, and, moreover, it is a particu-



FRAME OF GEORGES RICHARD CAR.

cularly interesting one. First of all there is a beautifully finished *chassis automoteur*, or motor and frame of 7 h.p., and as it is only within the last few months that the new Georges Richard car has made its appearance in England, a few remarks upon this type of vehicle may not be out of place. The 7 h.p. and the 10 h.p. motors are of the same type, the only difference being the diameter of

the cylinder and the length of the stroke. A horizontal engine of two cylinders with cranks disposed at 180deg., the motor is placed in the fore part of the frame, where, by reason of excellent balancing, it gives rise to but little vibration. The carburettor employed is extremely sensitive, and variation of the explosive mixture can be made with the utmost nicety. Both the induction and the exhaust valves are placed horizontally, the former acting automatically, while the latter are actuated by means of cams placed upon the shaft, which also carries the governor. This latter is of the usual centrifugal type, and operates upon the exhaust valves by means of a sliding sleeve, so choking the escape of the products of explosion. An accelerator, conveniently placed at the driver's hand, in turn acts upon this governor, and the speed of the motor can thus be easily varied from 400 to 1,200 revolutions per minute, the normal speed, however, being from 700 to 800. The ignition is electrical, and a special plug constructed by the company itself is employed. The driving gear, that most important item in the construction of an automobile, consists of a combination of belt and cog gear, the actual driving devolving upon the former, while the variation of speed is secured by the employment of the latter. The belt used measures 80 mm. in width, and when running at normal speed travels at the rate of fifteen metres per second. Driving direct from the flywheel of the motor to a pulley keyed on the cross shaft it is, when required, displaced by another pulley, and not by the fork so often employed, and which subjects the belt to side strains. Four speeds are secured by the employment of cog gearing, the changes being effected by means of a lever placed very similarly to the speed change lever on an English Daimler. The car is also provided with a friction clutch, the throwing in or out of gear of which is achieved through the medium of a foot pedal. Of course, the engine is water cooled, the circulation being secured by means of a pump similar in type to the Greindl. The average weight of a complete vehicle fitted with a 7 h.p. engine is 750 kilogrammes, or about 13½ cwt., and the 10 h.p. car brings down the scale at some 50 kilogrammes more. This type of car, fitted either with the 7 h.p. or with the 9 h.p. motor, is represented at the Exhibition by four vehicles. A beautifully-finished Victoria, on a long frame, and with the speed levers placed at the side of the driver, is the first car to attract attention, for it is just the class of vehicle most in demand for town work. Then there is a *charrette*, with seating accommodation for four, the hind seat being enclosed after the style of a *coupé*. A couple of similar cars, but unenclosed, complete the list of larger vehicles, and one then turns to the voituresses, of which there are a couple on the stand. One of these is particularly smart, Kellner's carriage work showing to great advantage. Although very few of these dainty little cars are yet to be seen in use, the demand for them is great, and a large number are in course of construction. The motor has a single cylinder measuring 95 m.m. in diameter, with a stroke of 100, and when running at its normal speed of 800 revolutions it develops rather over 3 h.p. Electric ignition is employed, and the driving gear is, as in the case of the larger vehicle, a combination of belt and cog gearing. The speeds usually fitted are eight and sixteen miles per hour, but the higher speed is increased to some twenty miles per hour by advancing the point of ignition. Needless to say, no reverse gear is fitted, as on a light car of this description it would be a useless complication and encumbrance. The tension of the driving belt is varied by a lever, conveniently placed for the driver, which displaces the position of the rear axle. The car measures 2 metres by 1 metre 50. The price of this little car is only £140, so no wonder that the firm is doing good business with it.

A stand in the vicinity of the Georges Richard exhibit, which always attracts attention, is that of Messrs. Gobron and Brillié, for there are to be found three of the handsomest cars in the hall. The first is a four-seated phaeton, and there is another car of a somewhat similar design. The third is of the *tonneau* or wagonette type, and closely resembles in appearance the vehicle exhibited by the Automobile Association at last year's Richmond Show. The Gobron-Brillié cars are now being also built in Belgium, and it will be remembered that on June 17th last one of these vehicles, mounted by M. Roland, secured first place in its class of the race

at Brussels over a one kilometre course. Its time for the kilometre from a flying start was 58½ sec., equivalent to a speed of 62 kilometres per hour, which is wonderfully good going for a 9 h.p. car. In the near future we shall see a considerable increase in the number of Gobron-Brillié cars, for the firm are now commencing to build them in series. A couple of types of motors are constructed, the one with inclined and the other with vertical cylinders. When built with a single cylinder the former type develops 6 h.p., and weighs with flywheel 110 kilogrammes. It runs at from 400 to 1,400 revolutions per minute. This same type is also built with two cylinders, when it develops 16 h.p. and weighs with flywheel 325 kilogrammes. In this case the speed of the motor is rather less, varying as it does from 300 to 1,100 revolutions per minute. The vertical motor is invariably constructed with two cylinders and develops either 7 or 9 h.p., following the dimensions employed. The less powerful engine turns at from 300 to 1,300 revolutions, while the 9 h.p. revolves at from 300 to 1,200 per minute. The difference in weight is 115 kilogrammes as compared with 170. These vertical motors are also employed for stationary work, such as driving electric plant, ventilation, pumping and agricultural machinery. One of its special features is the carburettor, which is of a quite special construction. This apparatus is perfectly airtight, by which means the makers claim for it entire independence from atmospheric conditions. It is operated upon by a regulator which permits the entry into the cylinders of just so much gas as is required to do the work in hand. A single alteration, readily effected, permits of the motor being driven by ordinary gas, which in itself is a distinctly advantageous feature. Another point, so far as the motor's disposition on an automobile frame is concerned, is the excellent balancing of the engine, which reduces vibration to a minimum, and renders the car more ressemblant to a steam or electric vehicle than to its petrol brethren. There is undoubtedly a big future before the Gobron-Brillié motor and carriage.

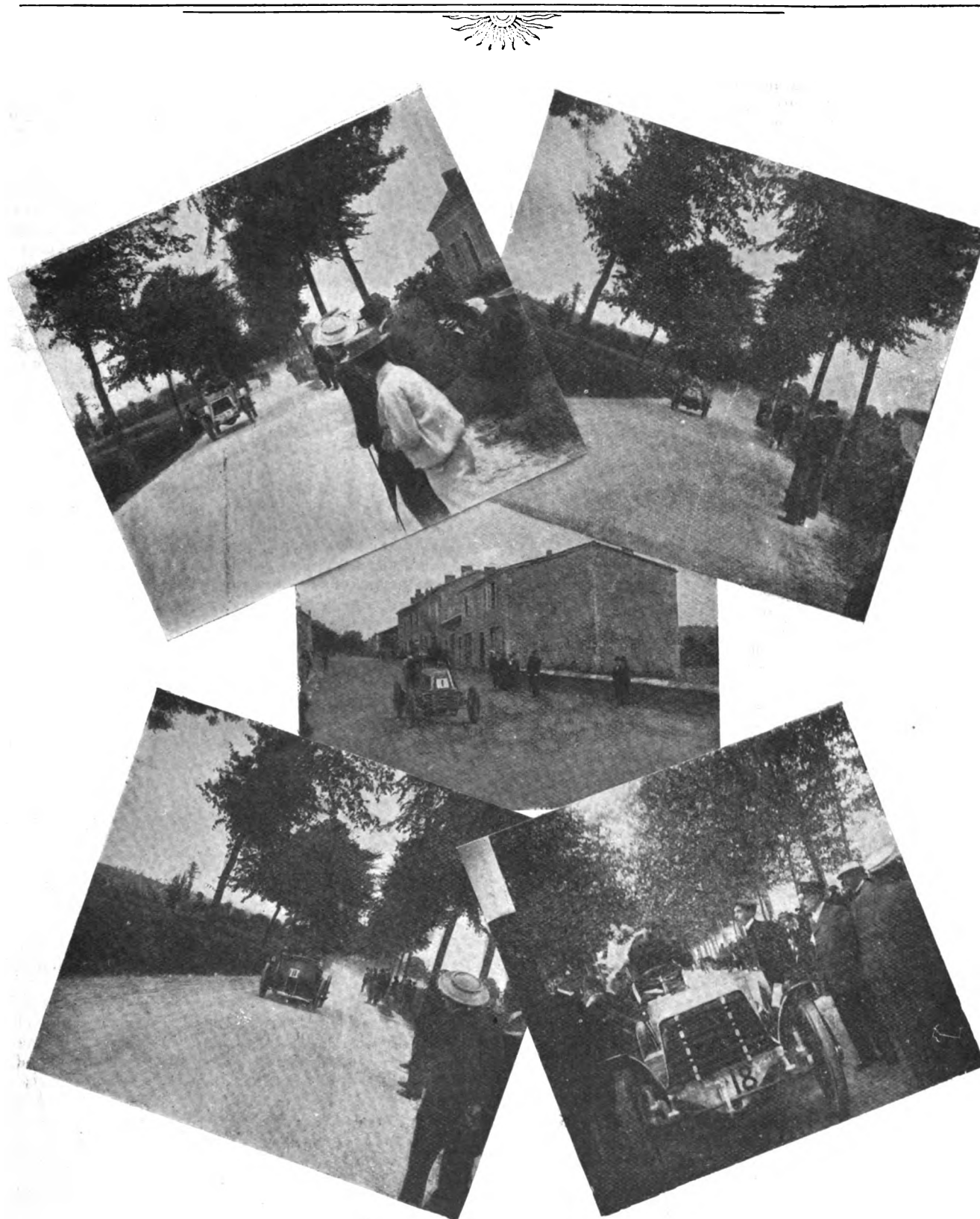
Upon the stand of the Decauville Company one finds four of their well-known voituresses, one of them being the identical vehicle which finished third in its class in "Le Tour de France." The newer types of cars are built to hide the motor, and consequently have, to my idea, a much smarter and more finished appearance than their predecessors. As all automobilists know this voiturette there is no need to give any detailed description, and, by way of a complete change, I will pass to a totally different class of vehicle. This is the steam wagon shown by M. Gandon, of 8, Rue Santeuil, Paris, a vehicle which presents some curious features. First of all there is the fact of all four wheels being driven, the medium in each case being an ordinary chain. Then there are the means employed for the easy and rapid heating and feeding of the boiler, both questions of vital importance in the construction of steam vehicles. The engine is of the triple-expansion type and develops twelve horse power, the steam being supplied by a boiler of 10 metres 20 of heating surface, which is stated to produce twice the quantity of steam usually required by the motor. Liquid fuel is used as combustible, and the constructor claims great economy in the running of his car, which, however, as far as the public are concerned, has not yet been submitted to any lengthy official tests.

(To be continued.)

FROM the Scottish Motor Company, Limited, comes a copy of their catalogue, which embraces petrol, steam, and electric motor-cars. Descriptions are given of the De Dion, Vivinus, Benz, and Daimler systems, and the illustrations have evidently been carefully selected. The company, to which reference has already been made in our columns, has made a capital start.

THE proprietor of the New Dorp Beach Hotel, at New Dorp, Staten Island, U.S.A., has purchased a Riker electrical omnibus, by means of which guests arriving either by steamer or railroad are conveyed to the hotel. The omnibus will seat eight inside, four on the cross seat on top, and two with the driver. With the bus running at ten miles an hour the battery has a capacity of twenty-five miles.

The Bordeaux-Perigueux Race.



BY the kindness of our contemporary, *La France Automobile*, we are herewith able to reproduce a number of interesting snapshots taken on the occasion of the recent Bordeaux-Perigueux motor-car race, the results of which were published in our issue of June 9th. It will be remembered that in this race M. Levegh on his high-powered Mors racer covered the distance—318 kilometres—in

4h. 9m. 45sec. The first picture shows M. Lafitte, of Bordeaux, on his 6 h.p. car, the winner of his category. The second picture to the right depicts M. Versein on a new 12 h.p. Schaudel car. In the central illustration we see M. Levegh arriving at Perigueux, while the two lower pictures show respectively M. Jamin, of Mans, and M. Giraud on one of the latest Panhard cars.

A GERMAN MOTOR-OMNIBUS.

WE illustrate herewith a motor-omnibus which has lately been put in service in the German town of Flensburg. The car, which was supplied by the Berlin Motor-fahrzeug und Motorenfabrik of Marienfelde, Berlin, has seating accommodation for ten persons, exclusive of the driver, and can also carry a quantity of luggage on the roof. The vehicle, which is built on the Cannstatt-Daimler system, is fitted with a 6 h.p. motor, capable of working up to 10 h.p. The cooling of the cylinders is effected by a new method, the quantity of water carried amounting to only about 12 litres. The water is cooled by a separate reservoir, containing 2,000 tubes, cold air being aspirated through the tubes by means of a fan. This system of cooling, placed in front of the car, is claimed to have the advantage that, even on the low speed, the water is efficiently



cooled by the fan. Four speeds forward—3, 7, 12, and 18 kilometres per hour—are provided, as also a reverse motion. The bus is fitted with solid-rubber tired wheels and weighs complete about 1½ ton.

WE understand that Mr. J. E. Hutton's four-cylindere Panhard car has been considerably damaged by fire.

MR. A. H. GOWER, of Worthing, has, we hear, ordered a new 6 h.p. double-cylinder car, from the Sports Motor-Car Company.

AT the Westerham hill-climbing competition, the motor-tricycle entered by Mr. F. F. Wellington was an ordinary Phebus-Aster tricycle having a motor of 71 mm.

A MOTOR-CAR service between the tramway terminus at Woodside and Bucksburn, N.B., has been instituted by the Northern Cycle Manufacturing Company, of Aberdeen.

PROPOSALS to establish public services of motor-cars between Oran and Nemonis, and between Oran and Bel-Abbes, Algeria, are at present receiving the consideration of the Oran Chamber of Commerce.

THE proprietors of the *Daily Mail* have, we learn, decided to award their £10 prize in respect of the following vehicles, concerning the performance of which, in the recent 1,000-mile Trial, there were not absolutely complete records:—Locomobile steam carriage, No. 5; Star voiturette, No. 51; M.C.C. Triumph, No. 31; M.C.C. Triumph, No. 32; Lanchester carriage, No. 22; and the Century tandem, No. 39.

STIRLING'S Motor Carriages, Limited, whose head offices are now at 504 to 508, Sauchiehall Street, Glasgow, have just introduced a range of motor-launches. The trials of the first boat (an eighteen-foot one) were made on Saturday last, on the Firth of Clyde, when both the motor and boat surpassed expectations. The motor, which is of the two-cycle type, is extremely simple in construction, and we are informed it never failed once during the very severe trials to which it was submitted. The boats are made in sizes extending from 16 feet to 25 feet, and in view of their relatively low price should meet with a good demand.

STEAM v. ANIMAL POWER FOR HEAVY TRACTION.*

AFTER the trials of motor-vehicles held by the Self-Propelled Traffic Association in May, 1898, the Health Committee of the Corporation of Liverpool decided to obtain a motor-wagon, and ultimately ordered from the Lancashire Steam Motor Company, of Leyland, Lancashire, one similar in design to the vehicle which had been awarded the first prize of £100 offered by the Association.

The vehicle was delivered at the end of January, 1899, and has since been used in connection with the construction of street works for the electric tramways, where it has been found very useful for the quick removal of materials. On account of the varying character of the work, much of it being over very short distances, it has not been found possible to keep very accurate records of the weights of materials conveyed and the distances travelled, but, generally speaking, the load has been from 2½ to 4 tons, and the total daily mileage from 18 to 24, and even 30 miles occasionally. Where the work has been of a regular character the records show that good work has been done; thus, in the week commencing March 6th the motor carried:—

March 6th	3 loads of 4 tons each, 3 miles loaded, 3 miles light.
" 7th	3 " " 4 " " 3 " " 3 " "
" 8th	4 " " 4 " " 3 " " 3 " "
" 9th	4 " " 4 " " 3 " " 3 " "
" 10th	2 " " 4 " " 3 " " 3 " "
" 11th	2 " " 4 " " 3 " " 3 " "

This shows that during the week a net ton-mileage of 216 was obtained, which at £7 per week gives a cost per ton-mile of 7½d.

Again in October, over a somewhat longer distance, a week's work was as follows:—

Oct. 23rd	3 loads of 2½ tons each, 4½ miles loaded, 4½ miles light.
" 24th	3 " " 3½ " " 4½ " " 4½ " "
" 25th	3 " " 3½ " " 4½ " " 4½ " "
" 26th	2 " " 3½ " " 4½ " " 4½ " "
" 27th	2 " " 3½ " " 4½ " " 4½ " "
" 28th	1 " " 3½ " " 4½ " " 4½ " "

This gives a net ton-mileage of 189, which at £7 works out to 8½d.

In a trial made for the purpose of comparing the motor with hired horse-teams on day work on a haulage length of 3 miles, the results were as follows:—

Motor	... 4 loads of 4 tons each, 3 miles light, 3 miles loaded.
Teams (each)	3 " 2 " 3 " 3 " "
This gives for motor	48 net ton-miles at £1 5s. = 6½d. per ton-mile.
" for teams	18 " " £0 10s. = 10d. "

It should, however, be pointed out that where the haulage distance is smaller than 3 miles, the benefit obtained from the greater speed of the motor-vehicle is much reduced, and it appears probable that on distances less than one mile the balance in favour of the motor-vehicle would disappear.

In connection with the use of this motor vehicle in Liverpool, it has been found that the main frames of the vehicle were originally of too light a section to withstand the strains thrown upon them when travelling at a high speed when fully loaded. Many days have been lost owing to lengthened delays in replacing the main frames, and there has also been a further loss of time due to the wheels requiring important repairs. Since these repairs have been executed, the motor has given little trouble, and, taken on the whole, the results have been very satisfactory. The cost for twelve months' working, including wages, maintenance, repairs and £1 per week for depreciation, amount to £243 14s. 8d.

THE Mold Urban District Council has decided to allow the Ashbourne Council's resolution with regard to taxing motor-cars to lie on the table.

* Statement by Mr. John A. Brodie, the City Engineer of Liverpool, on the working of a Leyland motor-wagon, forming an appendix to the paper read by Professor Hele-Shaw before the Institution of Mechanical Engineers.

MOTOR-CARS ON THE CONTINENT.



The Fete des Artistes.

THE Fête des Artistes of Friday last attracted all Paris to Longchamp, and right royally were the visitors entertained, for the committee of organisation had spared neither trouble nor expense to ensure the success of the meeting.

Held under the patronage of Mmes. Sarah Bernhardt, Réjane and Jeanne Granier, as representing the ladies, and MM. Baron de Zuylen, Coquelin Aîné, and Georges Boyer for the men, the success of the fête was always a foregone conclusion. Proceedings commenced at two o'clock with a bicycle sprint race, which was eventually won by the French champion, Jacquelin. This event was succeeded by a couple of bicycle races open to members of the theatrical profession only, the winners being found in M. Stebler, of the Sarah Bernhardt Theatre, among the men, and Mme. Carmen Berthier in the ladies' event. Then came a 15 kilomètre race for professional cyclists with motor-car pacing. The three placed men were Bouhours, Simar, and Bor, and the winner's time was returned as 17 min. 11 secs. At half-past four a great automobile procession commenced, and as every type of vehicle, from the lordly Panhard to the diminutive motor-cycle, was profusely decorated, the scene was strikingly pretty. Some two hundred commemorative banners were distributed, and then, after a lively battle of flowers, the company dispersed, many of them making their way to the Châtelets du Cycle, where from five to eight o'clock a country fête, dance, and concert were held. The Association of Dramatic Artists, for the funds of which this fête is annually organised, will this year undoubtedly benefit largely. Among the English visitors I noted the presence of Messrs. Roger Fuller, Critchley, and Jarrott.

The Jenatzy Case.

It was in March last that M. Jenatzy, the well-known racing automobilist and owner of "La Jamais Contente," was acquitted by the judges of the Ninth Chamber of the Paris Courts, the charge brought against him being one of homicide by imprudence. Now, Monsieur Santié, the husband of the lady who met with her death in the accident of January 21st last, and who, at the first hearing, claimed £720 damages from Monsieur Jenatzy, has appealed against the judgment, and last week the affair was before the judges of the Appeal Court. After counsel for both parties had pleaded, the further hearing of the case was postponed for a week.

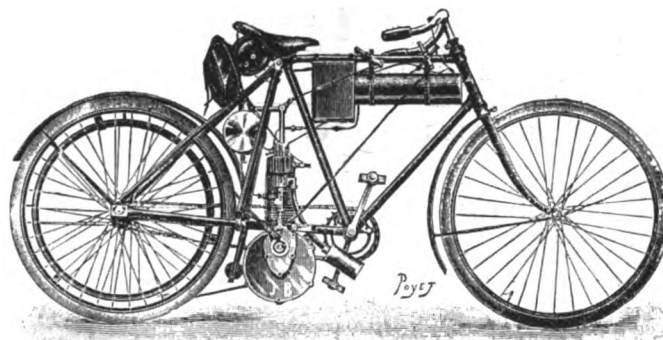
A Motor-cycle Adventure.

FROM Levallois, a suburb of Paris, comes one of those extraordinary stories which every now and again send a thrill through the whole automobile community and cause enthusiasts to exclaim, "It is wonderful what a motor can do. Why, I remember," etc., etc. As related, more or less, by M. Georges Prade, of the *Vélo*, it would appear that on Saturday last a youthful mechanic, mounted on a motor-cycle, was passing along the Quai Michelet at Levallois when his machine became peevish and disagreeable. Dismounting in haste to ascertain the why and wherefore of this display of temper, our young engineer omitted to turn his "poignée," and so cut off the electric current, with the result that, while busily engaged in inducing the trembler to tremble and in coaxing the other things into good temper, he was horrified to see the machine leap forward with the evident intention of taking to flight. But the young man was full of courage and determination, and his conduct under the trying circumstances is deserving of all praise. Without a second's hesitation he sprang at the head of that raging machine, and grasping it securely with one hand, he spoke to it gently but firmly with the other, as Pat would say. Even this heroic conduct proved of no avail for, drawing in a deep breath of gas and air through its wide open induction valve, the infuriated machine hurled the unfortunate youth to the ground and with a snort of triumph passed over his prostrate body.

This disgraceful conduct met, however, with its just reward, for when the battered engineer cautiously raised his head in anticipation of a further attack, he perceived his unhappy machine busily engaged in sealing the pavement preparatory to plunging headlong into the Seine. A splash, a fizzle, and only the widening ripples on the river's placid bosom served momentarily to indicate the grave of a foolish motor-cycle. It is said that only by main force were the passers-by able to restrain the mechanic from rejoining his machine, for he had cherished a grand affection for it and was inconsolable at its sad fate. Later, however, a great joy was accorded him, for a band of sympathetic anglers set to work and for the first time in their lives fished something from the waters of the Seine. Such is the true and unexaggerated history which hails from Levallois. Next please!

The Bourgerie Motor-Bicycle.

A NEW motor-bicycle has lately been introduced by M. J. Bourgerie, of Paris. As will be seen from the accompanying illustration the frame of the machine differs only from the ordinary safety in having longer chain stays and a double set of back forks. The motor is supported on the chain stays under the saddle and just behind the bottom bracket. It is of the air-cooled type, and at 1,200 revolutions per minute is said



to develop just over 1 h.p. The motor drives the rear wheel by means of a strap working on a pulley attached to one side of the wheel. Two speeds are available by means of clutches on the motor shaft. A simple form of carburettor is adopted. Pedals and chain gear are provided as usual, the exhaust box being located underneath the bottom bracket. The machine which, it is stated, can attain a speed of thirty miles per hour, weighs complete about 83 lbs.

Next Year's Nice Meeting.

THE Automobile Club of Nice evidently believe in issuing their announcements in good time, for already the dates and general outlines of next year's spring meeting have been made public. The programme of the "week" will be as follows:—March 24, Sunday: At two o'clock an automobile *corso* will be held. March 25th, Monday: Automobile race of from 450 to 550 kilomètres in length on the route from Nice to Avignon. This *course* will be decided in a single stage. On the same day the tourists will again do battle over the Nice-Druguignan-Nice route. Some £400 worth of prizes, medals, etc., will be contested for in these two events. March 26th, Tuesday: Exhibition of competing vehicles. March 27th, Wednesday: Exhibition of competing vehicles, followed in the evening by a banquet offered by the Automobile Club of Nice to the winners and to the foreign automobilists. March 28th, Thursday: Mile and kilomètre race. March 29th, Friday: Hill-climbing contest on La Turbie. Automobilists visiting Nice will find the condition of several roads greatly improved, and that petrol can now be obtained at many places where formerly none was kept. These changes are mainly due to Monsieur Gondoin, the President of the "A.C.N.," who is always actively engaged in furthering the cause of automobilism.

Magnalium Adopted in German Daimler Vehicles.

M. PAUL MEYAN, writing to *Le France Automobile* from Cannstatt, reports that the Daimler Motorwagen Gesellschaft has definitely determined to adopt magnalium in the construction of both motors and vehicle frames. The composition and properties of this alloy may briefly be summarised as follows:—Composition, magnesium, 25 per cent.; aluminium, 75 per cent.; specific gravity slightly less than that of pure aluminium; tensile strength somewhat over 5,000 lb. per square inch. It is readily cast, and can be machined without difficulty. In general physical characteristics it resembles hard bronze. M. Meyan, describing it, adds that it can be brazed and soldered, and also punched and stamped in the sheet form. The comparative strength of magnalium and aluminium is indicated by the fact that where two similar bars were gripped in a vice, while the aluminium bar was broken at the first blow of a hammer, some ten hard blows were necessary to break the magnalium bar. In connection with the intended use of the new alloy, the Daimler Gesellschaft has projected a number of radical improvements. The chief of these is a motor of novel design, built almost wholly of magnalium, and having mechanically-opened inlet valves, and an improved radiator, which will require the carrying of only six quarts of water for a 16 h.p. motor. Other features will be the use of an absolutely irreversible steering gear, a new brake mechanism, and a lightening of speed gears and other parts, so that a 16 h.p. vehicle will weigh only 900 kilos., or less than 2,000 lb.

FURIOUS DRIVING CASES.

AT Wolverhampton, last week, Mr. T. F. Turvey, of Longford, Middlesex, was charged with driving a motor-car along the Tettenhall Road, Wolverhampton, at an unreasonable rate. It was stated that his car was proceeding at a rate of sixteen miles an hour. He was fined 40s. and the costs.

MR. FRANK H. BUTLER was summoned before the Guildford County Bench on Saturday for furiously driving a motor-car by the Green Man, London Road, Worplesdon, on June 23rd. Police-constable Brooks stated that the motor was going about eighteen to twenty miles an hour, and was driven by defendant. Witness called out, and defendant stopped in about 20 yds. Defendant gave him his card, and said, "You are not obliged to do this, let me give you something for yourself." Mr. Butler also said, "I know I am going over the rate; I want to make haste home." Arthur Cox, electrical engineer, living at Send, said that on seeing a motor-car going along the road, and not on its right side, he blew a police whistle to warn the people on the road, as he thought that the driver had lost control of the car. He could scarcely see the motor for the dust that it was making in consequence of going so fast. Mr. Staplee Firth, of London, was for the defence, and called attention to the section under which the summons was taken, which was in effect that a motor-car should not travel beyond a reasonable and proper rate, having regard to the traffic on the highway. He contended that there was no evidence before the Court that the speed, whatever it was, was improper, having regard to the traffic on the highway. Mr. Butler was a most experienced and careful driver and he would tell them that the car was going under ten miles an hour. Had it been going at the speed alleged, and been pulled up in 20 yards, the car would have been smashed, and the occupants thrown out and in all probability killed. A motor-car, it was well known, always seemed to be going very much faster than it really was. Defendant gave evidence bearing out the foregoing statement, and denied that he admitted to the constable that he was "going over the rate." He did not offer the constable half-a-crown to bribe him, though he often gave constables a tip. This constable did not accept the money, but he offered it him because he did not want to be kept waiting about. Robert William Buttemer, living at St. Mary's, Godalming, also gave evidence on behalf of the defence. If the car was going at twenty miles an hour it would have been impossible to stop it at twenty yards. The Bench having privately consulted, the chairman said: We have considered the case very carefully, and have come to the decision that the defendant was driving to the great danger of the public. He will be fined £5. Mr. Firth: I ask your Worship formally for a special case to be stated. The Clerk: On what ground? Mr. Firth: I'll send that in my notice. Mr. Butler (to Mr. Firth): You had better pay the fine, and I shall appeal. I never heard such a preposterous charge.

DRIVING TO THE COMMON DANGER.

AT Lowestoft last week Mr. Reginald Lawrence was charged with driving a motor-car to the common danger on the Wellington Esplanade, Lowestoft, on the 27th ult. Mr. G. J. Cook prosecuted, and Mr. Staplee Firth, solicitor, of London, defended.

Sergeant Botwright said he was on duty in Claremont Road when he

saw the defendant, who was driving down the Wellington Esplanade towards the bridge. He should think the speed was fourteen miles an hour. He did not hear any bell or trumpet as the car passed the corner, and if anybody had been crossing the road defendant must have driven over them. Cross-examined, he did not know that the car could be stopped in its own length while going at twelve miles an hour, but it would be necessary to stop at once.

Mr. Firth said in order to support the charge of "common danger," there must be absolute evidence of somebody being injured. There was no evidence of that kind. His client was not summoned for his speed, but for driving to the common danger, and they must keep to the summons. He asked them to dismiss the charge, because there was no evidence of anybody being in danger.

After a lengthy consultation, the magistrates decided to hear the evidence. Defendant said he was an engineer by profession, and had driven motor-cars in the district since November last. He had never had an accident. Last year he drove several thousand miles in France, and had driven through the heavy traffic in London, and had never even touched any other vehicle. For safety of passengers and facility of control he would rather drive a motor-car than horses. On this occasion he should say he was driving at eight miles an hour. The case was dismissed.

AN ACCIDENTAL DEATH.

ON Monday, at Kensington, Mr. Draw held an inquest on the body of Mr. Lewis Perry, of 4, Pembroke Villas, W.—The evidence showed that the deceased was crossing the road at Pembroke Place, when he was knocked down by a motor-car driven by Mr. F. Hennig, of Blenheim Crescent. Witnesses said it was a pure accident, and that the deceased seemed to lose himself after reaching the side in safety and ran into the car again. The jury returned a verdict of "Accidental death," and asked the coroner to call the attention of the Commissioner of Police to the fact that they considered the rate of speed sanctioned for motor-cars was too great, especially in London.

ACTION OVER A MOTOR COMPANY.

MR. CROWDEN, engineer, of Leamington, brought an action at Warwick last week to recover £50 from Mr. Tolch, engineer, of Fullam, being half of a certain bill of costs for floating a motor company. Mr. Masser (Coventry), appeared for the plaintiff, and Mr. H. W. Williams (Fullam) for the defendant. The plaintiff's case was that the defendant advertised a German motor patent for sale. The parties thereupon agreed to float a company, registered as the Road-railing Tractor and Motor Syndicate, Limited. They were to share the profits and losses, and the sum of £100, the subject of this action, was incurred in legal costs to Mr. Maddocks, solicitor, Coventry, in the formation of the company. Subsequently the defendant repudiated the agreement, and said that it had been abrogated by mutual consent. His Honour held otherwise, and judgment was given by consent for £48 without costs to cover all claims.

CAB v. MOTOR-CAR.

JOSEPH STIBBARDS, cab proprietor, of Wilson's Yard, Highbury, has sued the Motor Car Company, Shaftesbury Avenue, W.C., for £50 damages for injury to a horse and other loss caused by the negligence of the defendants' servants. Mr. Salter, for the plaintiff, said a hansom cab belonging to the plaintiff was going along at an ordinary pace in New Oxford Street, and immediately in front was a motor-car belonging to the Motor Car Company under the control of quite a young man, and he asked the jury to come to the conclusion that the driver was too inexperienced to have charge of the car. The motor-car without any warning suddenly stopped dead, and whether it was intentional or not could not be said. The result was that a severe wound was inflicted on the horse's leg, and another horse had to be sent for.

Evidence having been called in support of this statement, the Judge entered a verdict for £46 12s.

MR. F. F. WELLINGTON'S latest list of motor-cars and cycles for sale comprises no less than 124 vehicles.

THE Master of the Rolls (Lord Alverstone) has had delivered to him a 12 h.p. Panhard. It is painted in khaki colour, has a glass screen in front, and has a kind of wagonette body to seat eight people.

AT Falkirk a little girl has, this week, been run over by a motor-car; at Weston-super-Mare a car belonging to the Bristol Motor-Car Company has collided with a cyclist; and at Sheffield the manager of the Dragonfly Cycle Company has been overturned while riding a motor-quadracycle. This list of accidents in one week shows that automobilism is not the dangerous and killing pastime some opponents imagine.

THE Motor-Car Journal.

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COMMENTS.



WITH characteristic enthusiasm the Prince of Wales seems bent on thoroughly enjoying the pleasures of automobilism, and the other day was seen on the Hon. J. Scott Montagu's 12 h.p. Daimler car. Mr. Montagu was driving His Royal Highness through some of the fine scenery of the New Forest, which is, just now, looking at its best. In these days of heated roads and scorching sun the beautiful trees of the New Forest offer a welcome shade to those who want to revel in the beauties of the country without bearing too

much of the heat of the day.

Motorists at Ranelagh.

It was a fashionable gathering that assembled at the Ranelagh Club on Saturday to witness the first automobile gymkhana held at that rendezvous of Society. In the morning members of the club owning horses had had their animals educated in maintaining a respectful attitude in the presence of automobiles, and in the afternoon the scene was a brilliant one indeed. Hundreds of beautiful woman splendidly attired were there to see the sports, and from a social point of view no function could have been more successful. The course along which the races took place was 1,570 yards long. Two of the events were run along the straight, and only in one of the remaining four did the competitors make more than a single circuit of the course. Altogether twenty-one competitors had entered and considerable interest was manifested in the contests.

Results of the Races.

In the handicap bending race Captain Langrishe on a 8-h.p. Peugeot, Mr. Cecil Grimshaw on a 6-h.p. Daimler, and Mr. E. Campbell Muir on a Locomobile won heats, and the Hon. C. S. Rolls ran a bye on his 12-h.p. Panhard. In the final Mr. Grimshaw defeated Mr. Rolls, who was rather heavily handicapped. In the contest starting from "cold," Captain Langrishe, with 75 yards start, was first, the Hon. C. S. Rolls, who started from scratch, obtaining the second place. The ladies' race was a fine one, and the finish between Mrs. Kennard on her 3-h.p. De Dion voiturette and Miss Weblyn on a 6-h.p. Parisian Daimler, particularly good, the latter securing a win. In the motor-tricycle race, in the course of which coats and waistcoats had to be doffed and hung on pegs, the Hon. C. S. Rolls would probably have won had not his machine bucked at the beginning of the third lap and thrown him on his back. He had, in consequence, to again be satisfied with a second place, the winner of the first place being Captain Langrishe. Mr. R. E. Phillips, on his "Petit Duc," won the first prize, defeating Mr. Campbell Muir on his Locomobile in the final. The last event was an obstacle race, and in the end Mr. Phillips (510 yards start) won, with Mr. Rolls next home, followed by Mr. Grimshaw. Mr. Rolls was, however, disqualified, and the prize went to Mr. Grimshaw.

854 Miles in Three Days.

It will interest British automobilists -- and those of other countries as well -- to know that the Hon. C. S. Rolls and Mr. S. F. Edge will take part in the Paris-Toulouse-Paris race organised in connection with the Paris Exhibition. They will drive the 16 h.p. Napier car, and the stage to be covered on the 25th instant is 427 miles, on the next day 190 miles will have to be travelled, and on the third day 237 miles -- 854 miles in all. On the concluding days of July and the first two of August the competing vehicles will be exhibited at Vincennes, and the criticisms of our French *confrères* on the Napier car will be regarded with considerable interest. The English competitors will have some excellent rivals on the road, among the entrants being such champions as MM. R. de Knyff, Charron, Girardot, Voigt, Gilles Hourgières, Levegh, Degrais, Et. Giraud, Jenatzy, and Lefebvre.

Motoring in Ireland.

ON another page we publish an account of the motor-car meet in Ireland, which was evidently a great success. In the evening of the run the visitors were entertained to dinner in the Lakeside Hotel, Killaloe, by the directors of the Shannon Development Syndicate. Mr. D. J. Wilson presided, and, in the course of his remarks, referred to the connection between the Tourist Syndicate and motoring. The Shannon Development Syndicate was concerned not only with the tourist traffic of the Shannon but that of the rest of Ireland also, and as motoring was likely to be of the greatest aid to the Irish tourist traffic generally, it was only natural that the syndicate should be greatly interested in its development. Mr. R. J. Mecredy referred to the usefulness of the motor-car for the conveyance of goods in country districts not served by railways. Goods and merchandise could be carried by the motor-cars at a much quicker and cheaper rate than by the present system in most parts of Ireland. He referred incidentally to the experiment carried out by Messrs. Guinness in Dublin for the delivery of their porter in the city and its vicinity, and he said the firm was so satisfied with their experience of the motor that they had given an order for three additional cars.

The Automobile Congress at Paris.

ON the morning of Monday, July 9th, the first meeting of the Congress of Automobilmism was held in the Palais des Congrès at the Paris Exhibition, M. Forestier, engineer-in-chief of roads and bridges, occupying the presidential chair. He was supported by M. Amedée Bollée père and M. le Comte de Chasseloup-Laubat, while the company present mustered some 150 strong. At this initial meeting the principal business transacted was the election of officers and the formation of the various sections. The officers of the Congress were:--President, M. Forestier; vice-presidents, Sir David Salomons, Comte de Dion, and M. Ruys Orban; secretaries, Comte de Chasseloup-Laubat, Jeantaud, Bochet, Varennes, and Collin. The sections were presided over by the following gentlemen:--1. Steam, explosive, and various motors, M. Amedée Bollée; 2. Electric motors, M. Monmergué; 3. Transmissions, frames, and carriage

buildings, Commandant Maugin; 4. Traction force, M. Forestier; 5. Historical, economical, and international questions, M. Baillif. On the afternoon of Monday a move was made to the Automobile Club, where all subsequent meetings were held. The first meeting there was devoted to a discussion on steam and explosive engines, and the second, held on the morning of the 10th inst., was confined to the electric motor, M. Hospitalier being the principal speaker on this subject. At the afternoon *séance* M. Gaillardet presented a paper on transmissions; M. Crouan on pneumatic transmission; M. Amedée Bollée on frame construction; M. Jeantaud on frames and their suspension; M. Bochet on brakes; Capitaine Ferrus on brakes and axles; and M. Michelin on tires. The following morning M. Forestier dealt at length with traction matters, and the afternoon M. Baillif discussed the various phases of the customs duty. M. Sauvage also presented a paper on the unification of gauges. On Thursday morning the members of the Congress visited the works of M. Lemoine and MM. Panhard and Levassor, while in the afternoon the factories of M. Clément and MM. De Dion and Bouton were inspected. Friday was devoted to a visit to the Vincennes exhibition, and on Saturday a tour was made of the Automobile Section at the Champ de Mars. The Congress closed with a banquet given at the Club on Sunday night.

An Example for Electric Tramway Managers.

ONE of the latest uses to which the automobile has been put is in electric tramway work. The Metropolitan R. R. Co., of Washington, U.S.A., has just had an emergency or repair wagon built for service on its extension lines. The doing away with horses for traction purposes has made the keeping of two or more horses by electric tramway companies for special duty both expensive and inconvenient. The automobile is therefore able to meet every requirement, and when not in use the storage space is small and expense of maintenance nothing. This wagon, which was built by the Riker Company, of Elizabethport, N.J., will carry fifteen or twenty men and their tools. It is provided with an A-ladder, so that repairs to the overhead conductor can be quickly made. The complete vehicle weighs about three and a half tons. A towing device for pulling cars on to the track or taking a disabled car to the repair shop is also provided. The motive power is an electric storage battery, which is good for twenty-five miles, at fourteen miles per hour. Now that electric tramways are becoming more common in England, managers of the lines may well keep the example set by the American company in mind.

A New Map.

DESCRIBING with wonderful accuracy 28,000 miles of road and showing 1,700 dangerous hills in this country the Complete Safety Cycling Map of England, published by Messrs. Gall and Inglis, will be found useful by all automobilists. From this map, which is arranged on a scale of fifteen miles to an inch, the tourist can ascertain the best roads from point to point, while the fact that the roads are printed in different colours will help him to select the fastest and most direct routes. Blue markings indicate the roads to avoid, and the gradation of the colours indicates the superiority or inferiority of the roads in that particular district. Uniform in size with the Contour road map, so far as the cover is concerned, the map should become as popular as the other publications of the firm.

Tours.

WE hear that several automobilists have been spending their holidays touring on their cars through some favourite English counties. Not only are such trips to be recommended for their invigorating qualifications but they will do much to serve the interests of the movement generally. From the West of England papers it is clear that a stylish motor-car which has been touring through Devon and Cornwall has attracted much attention and its movements have been chronicled

in the local journals. We shall be glad to hear from readers on tour by motor-car.

Carriage Builders and Automobilmism.

WE hear that in the United States the leading carriage builders are more alive to the possibilities of the motor-vehicle than are the majority of those of this country. All over the States the chief carriage builders are installing plants for the production of motor-cars, and in the combination of engineer and carriage builder is a very hopeful prospect, for, the latter will consider the appearances of the vehicles to a far greater degree than the engineer is likely to do, and thus the eye of the public should be readily attracted, and although appearances are not everything they constitute an important factor in commercial success at the present day.

The Next Exhibition.

RECOGNISING the success of the last motor-car exhibition at the Agricultural Hall, Islington, several firms have already booked space for the next display of motor-vehicles, which will take place at that convenient centre from May 4th to May 11th next year. This annual event is now so well established, not only so far as the trade is concerned but also in the mind of the public, that there is no need to dilate upon its leading features. Suffice it now to say that the date is fixed, and firms anxious to secure the best positions should make early application.

A New Suggestion.

A GENTLEMAN has been writing to the papers suggesting that a club should be started in which twenty members should pay £10. Then a car would be bought and lent to each member for a day in rotation. However simple this may be it is hardly likely to find adoption. The pleasures of complete ownership are too fascinating for a man who is really an enthusiastic motorist to be satisfied with the probability of a ride once in three weeks—whether the weather be wet or dry.

A Trip from Liverpool.

THE second meet and run of the Liverpool Self-Propelled Traffic Association for the present season takes place on Saturday, the 28th inst. About noon the party will start from St. George's Landing Stage for Seacombe. Following the tram lines through Wallasey village luncheon will be taken at the Leasowe Castle Hotel. At three o'clock departure will be made for Hooton Hall, *via* Moreton, Hoylake, West Kirby, Caldy, Thursleston, Glegg's Arms, and Eastom. At the Hooton Park Club tea will be provided, and after seeing a polo match there the party will return, each member at his or her own convenience.

The French Military Authorities Show the Way.

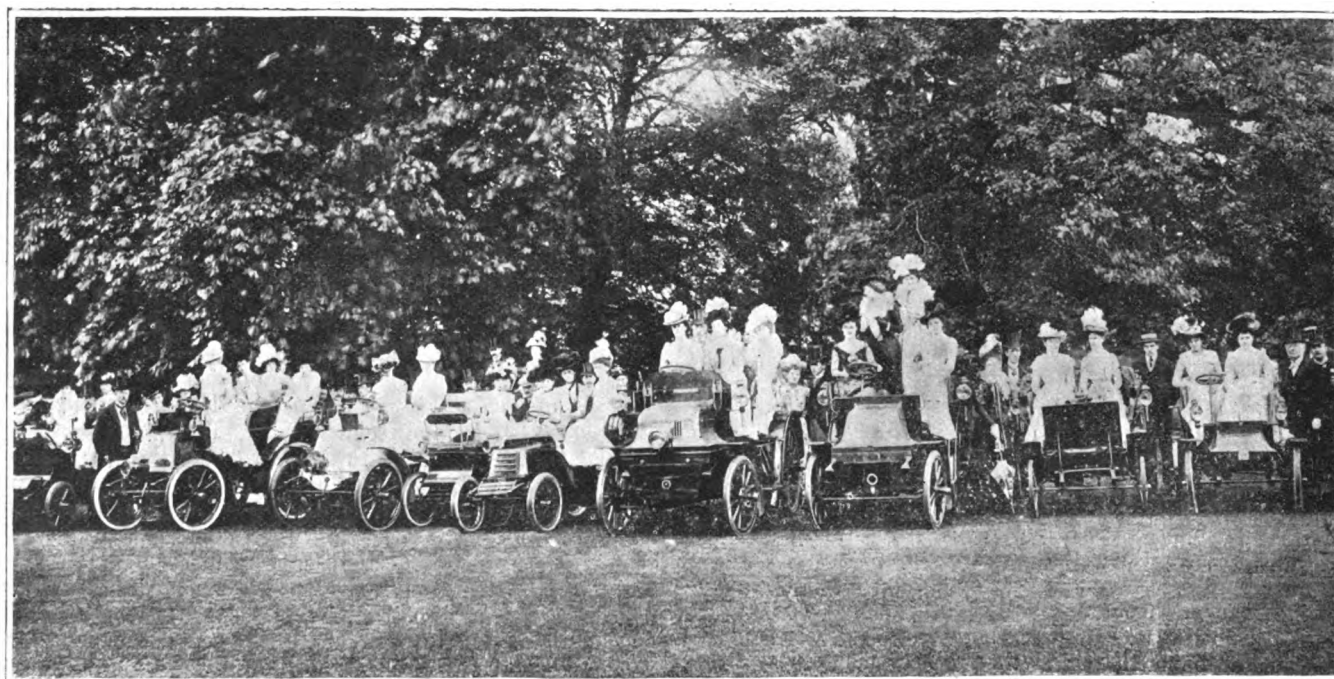
AN extensive use of motor-cars and cycles is contemplated in connection with the French military manoeuvres, which are to be held in the neighbourhood of Chartres from the 10th to the 20th September next. A number of motor-cycles are to be employed for despatch purposes, while four steam wagons and four petrol vans are to be set apart for the transport service. Not only so, but four high-powered cars have been obtained for the use of the generals, who will direct the operations, not on horseback, as usual, but from the comfortable fixed seat of the more useful automobile. We can imagine that when this item of news penetrates into the dark official recesses of our benighted and red-taped War Office there will be a flood of questioning from some of the junior officers whose notion of motor-cars has been obtained in Hyde Park as to whether it is possible for a military man to so disregard his horse as to condescend to adopt something new. The French War

Office has not stood in very great dignity in recent months, but its practical investigation of the merits of the motor-car shows that disturbing influences have not wholly upset its common sense. Apparently some great upheaval—an earthquake perhaps—in Pall Mall might do something to break through the thick-coated ignorance that closes our own War Office to new ideas, and, we might add, the country's interests. France is not alone in its attention to the practical side of automobilism in connection with military matters. We have in former issues shown how Germany does not mean to be left behind, and that even Italy can set us an example in having already adopted steam motor-wagons for transport purposes in its army. It is to be feared that, as usual, our War Office authorities will wake up to the advantages of motor-cars when all the other Powers have had some years' experience of the same, just as has been the case with regard to military cycles. Or perhaps the interests of our War Office in the question may be quickened should the Boxers make inquiries on the subject before Pall Mall discovers that there is a war in China.

country with a fair prospect of success, although the need is not, perhaps, so great as in the United States, where good roads in secluded country places are less familiar than in England. Still, the idea might be developed into a useful and successful enterprise.

A Warning Ignored.

SEVERAL times have we warned cyclists against the too prevalent practice of riding behind motor-cars. Some protection from the wind is thereby secured, but the risk run by venturesome cyclists is great indeed, and a Kennington cyclist was seriously injured on Sunday in consequence. He was following a car to town, and when at Crawley the vehicle was brought to a sudden stop, with the result that the cyclist was thrown to the ground, and sustained serious brain injury. The practice is too dangerous to be adopted by any cyclist of ordinary intelligence, and this sad occurrence should emphasise the warning so repeatedly given.



AT STRAWBERRY HILL HOUSE—THE LADIES UP. (See last issue.)

Photo by]

[Argent Archer, Kensington.

Motor-Cars and Showmen.

SOME time ago we chronicled the tour of a cinematograph entertainment through the northern counties, a motor-car being employed to convey the apparatus and impedimenta. At some seaside towns the automobile is now to be seen in the service of public entertainers, and at Blackpool a phrenologist is combining the investigation of bumps with demonstrations of the smooth running of his car in that locality. Visitors can go on an excursion and have their phrenological examination while they ride—a saving of time that might be considered by hairdressers and others with whom the modern man is compelled to waste many precious minutes every week.

Automobile Training Schools.

IN one or two American cities and in foreign towns are to be found automobile training schools. Places where the novice can be instructed in the handling of an automobile and can practise until sufficiently skilled to be trusted on the public streets are certainly desirable. A thoroughfare, and particularly a prominent one, is hardly the place for a beginner to take his first lesson, however skilful his instructor may be. The time is undoubtedly coming when such schools may be started in this

A Jockey as Automobilist.

OFTEN have we pointed out that the owners of motor-cars include many famous owners of horses, and that the love of the horse is not necessarily opposed to admiration of the automobile. Now we can go a little further, for it is reported that Tod Sloan, the jockey, has purchased the racing machine of M. Charron, which took part in the Nice-Pordeaux contest. The price is said to have been 55,000 francs. If Sloan and jockeys take to motoring, some of the present automobilists may have to look to their laurels.

Are Motor-Cycles Carriages?

ACCORDING to *Hearth and Home*, the Wood Green magistrates have decided that a motor-tricycle is a carriage, and that an Inland Revenue licence must be taken out. The defendant pleaded that a motor-tricycle was not self-propelling, as it had to be assisted by pedalling; but this view did not prevail with the Wood Green dignitaries, who ordered him to obtain forthwith a 15s. licence. The Inland Revenue authorities prosecuted, and urged that the motor-tricycle came within the provisions of the Act as a carriage.

Labelling Horses.

IN reply to the proposal that motor-vehicles should be conspicuously numbered, we would make a suggestion that horses of known vicious habits should be labelled as such. We will not say whether the idea is given seriously, but it does seem that those who would label motor-vehicles are looking at the matter from the wrong point of view. The ways of the motor-car are known; it will go wherever it is steered, and can be guaranteed to proceed in a regular line; but there are horses of vicious temperaments that have no such regularity of movement, and which approach unfamiliar objects in a state of greater excitement. Surely such animals ought to be distinguished in some way or other, for they form a distinct public danger. At any rate the notion should be made known to advocates of numbering motor-vehicles.

Taxing Motor-Cars.

EVERY post brings us news of more resolutions by local councils on the taxation of motor-vehicles and cycles. Many are the reasons urged, but most are uniformly distant from actual knowledge of the subject. Perhaps Mr. W. S. Hodgson, the chairman of the Fylde Rural District Council, was nearest the mark when he said to pass such a resolution would be as reasonable as to tax anyone who walked on the highway in shoes and stockings. The *Burton Mail* refers to the proposal to tax motor-cars as "arrant ignorance." Evidently motorists need not despair, for Mr. J. Bigwood, M.P., has written that, "from my experience of the House of Commons I plainly see that he would be a bold and unsuccessful Chancellor of the Exchequer who would attempt to draw within his Budget net the imposition of taxation upon any form of motor."

De Dion Motors.

A FINELY illustrated catalogue comes from the De Dion-Bouton British and Colonial Syndicate, Limited. It is concerned with the De Dion-Bouton motor-carriages, motor-cycles, motors, etc., and deals very lucidly with the salient features of these inventions. Particularly useful are the practical directions for using the company's motor-tricycle, the principal causes of non-working and the methods of remedy being adequately treated. Attention is also directed to the De Dion detachable trailing carrier, which can be fixed behind the ordinary motor-tricycle in two minutes, and is extensively adopted in France for business purposes. In the section relating to the parts of the De Dion-Bouton motors, particulars relating to every part are given, and the work is completed with a practical guide for using the De Dion voiturette. A description of the carriage and of the motor is followed by illustrated accounts of the carburettor, the electric ignition, and the speed-changing gear. Altogether the catalogue is considerably above the average of such publications.

A Trip in the North.

A FEW days ago Mr. T. R. B. Elliot left Abbottrule, Kelso, in his motor-car for a tour in England. The first day's run was to Rokeby Park, Barnard Castle, Yorkshire, via the Carter (crossed at a level of 1,400ft.), Newcastle, Durham, and Bishop Auckland, the distance being 102 miles, which was comfortably covered between 9 a.m. and 8 p.m. (with an hour's rest for lunch). Another day's run of 90 miles, via Boroughbridge, York, and Malton, brought the car to Filey, on the Yorkshire coast, from which some minor runs to Scarborough and Bridlington were made. The return journey was by the same route, and the average legal maximum of 12 miles an hour was fully maintained, except in crossing the Cheviots. The car gave no trouble throughout, and at one point was driven five hours without a stop. The only incident of the trip was the running over and killing of a chicken in Yorkshire. The car at times carried four passengers.

Automobiles in South Africa.

WHILE the advancing popularity of the motor-car excites so much suspicion among a certain section of the English community, it is apparently accepted without grumbling in distant parts of the Empire. For example, the automobile has for some time past been a common object in Cape Town, and although the *Cape Register* does not regard the motor-tricycle as lending an attraction to the new century, it recognises "the favour with which motor-cycles seem to be regarded everywhere. The malicious opposition which cyclists had to encounter at the hands of the farmers and country people has not been extended to the new vehicles, evidently a sign of the age, for even the back-veldt Boer has become accustomed to the horse's mechanical rival."

Advancing Prices.

ADVANCING prices appear to be the order of the day in the motor-car industry. The Daimler Motor Company have announced that as from Monday last, the 16th inst., the prices of their 1900 type motors and frames (Model "A" and Model "C") have been raised by 12½ per cent. and the ordinary type (Model "B") by 7½ per cent. The recently-formed Sports Motor-Car Company, Limited, also inform us that owing to the demand for the Mayfair voiturette they will be obliged to advance the prices of the same ten guineas on and after August 1st next. On the other hand the Motor Manufacturing Company, Limited, call attention to the fact that they have not advanced the prices of their motors or vehicles.

Bicyclists as Parasites.

EVERY automobilist knows the silly way in which some bicyclists follow motor-carriages without recognising the danger of the practice. Should the vehicle have to stop suddenly and the cyclist be thrown, the latter grumbles as though he were the victim of some ill-will. The nuisance is as great in the United States as in this country, and the Washington papers report that the persistent dogging of automobiles in that city by unmannerly bicycle riders has become a pronounced nuisance, several wheelmen often following a single carriage, suiting their pace to that of the carriage, and refusing to leave it. One journal records the intention of a recent steam-carriage purchaser to fit his vehicle with a multiple blow-off pointing backward, "which would at least keep the parasites at a somewhat respectful distance." Users of electric or petrol carriages, however, would have to find some other defence, and a shotgun loaded with coarse salt is suggested as a deterrent. The mounted police have been instructed to give attention to the matter.

A PUBLIC motor-vehicle service is about to be started between Mansfield and Shelby, O. A motor stage line is also projected between Elizabeth and Morristown, N. J., U.S.A.

MR. JAMES W. THORNE, a student of Princeton University, U.S.A., is said to have started on a tour across America in a specially-constructed motor-wagon. The latter is a long, closed affair with several compartments, provided with cooking utensils, beds for three persons and a storage room for guns, fishing tackle, and cameras.

UNDER the direction of Mr. G. E. Schwarzkoff, editor of the *Automobile Magazine* of New York, an automobile exhibition will be held in connection with the Greater Inter-State Fair at Trenton in September. There will also be automobile races on the driving track for electric, petrol, and steam vehicles.

MR. C. J. FIELD, the vice-president and general manager of the recently-formed De Dion-Bouton "Motorette" Co., of New York, has just returned to America from a trip to Europe. He has closed arrangements to control the De Dion-Bouton and Co.'s patents in the United States, and the "Motorette" Co. will commence at once the manufacture of motor-vehicles of the De Dion type.

THE IRISH MOTOR TOUR.

(From Our Own Correspondent.)



GOOD fortune and weather attended the great motor journey which the Shannon Development Syndicate, with commendable enterprise, organised last week to convey guests and Press representatives to a new tourist hotel at the beautiful town of Killaloe on the Shannon. The project had been widely advertised, and certainly achieved, in no uncertain way, the dual object of booming the new hotel and wakening up the country to the possibilities of motor traffic. Nine cars made an informal start from different parts of Dublin at an early hour on the morning of July 14th, it having been deemed wise that no regular meet should be held, and that the cars should not attempt any racing. It was purely a pleasure trip, the great essential aimed at being that the guests should all be safely conveyed to their destination. The eyes of the entire country were on the performance, and any hitch would have been fatal.

The starters were: Daimler car (Mr. Mecredy), Daimler car (Dr. Colohan), Daimler car (Mr. Tooms), Marshall car (Mr. F. Hutton), Marshall car (Mr. Peacocke), Gladiator voiturette (Mr. H. Hutton), Ariel quad (Mr. McDonald), Ariel tricycle (Mr. J. W. Stocks), and a De Dion (Mr. Fleming). At first rather gloomy weather prevailed, and long upgrades and a stiff head wind hindered the heavily-loaded cars from making top speeds. The powerfully-engined Daimlers showed to advantage here as they very successfully contended against the adverse circumstances. Especially fine was the running of Dr. Colohan's car, a Daimler, in which Messrs. Hutton, Sons, and Co., of Dublin, have made several important alterations, such, for instance, as optional electric firing in addition to the ordinary tube ignition. This car, which was on its trial run, behaved splendidly, as did the other two vehicles of the same make. Very noticeable, too, was the smooth running of the Marshall car; indeed, all the vehicles did well.

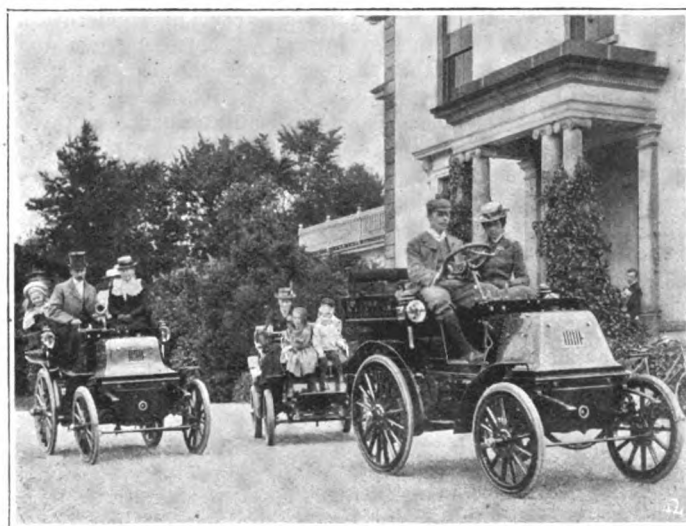
The route selected lay via Naas, Newbridge, Kildare, Maryborough, Roscrea, Nenagh to Killaloe, a distance of 110 miles. At every town, village, and hamlet along this stretch crowds were posted eagerly awaiting our arrival, and their enthusiasm was truly Irish. Nothing would dissuade them from the belief that the affair was a fierce race; and the varying quality of the remarks, from applause for the likely winner to the kindly commiseration for those who were last in the "race" was intensely amusing to observe. We were indeed a long-drawn-out line, and each set his pace without any attempt at closing up or forcing the cars to competitive tests. The De Dion had an easy start and kept up a rattling pace all through with no delays. Halts for meals were made by most of the riders on the other cars, whilst at the end of the first fifty miles the Gladiator, Marshall, and one Daimler waited for over two hours till some expected passengers arrived by rail.

From the scenic point of view the journey was most fascinating. First, we had miles of melancholy, wind-swept boglands alternating with green spots of pasture or meadow land. Gradually the country became richer and more varied, till past mid-distance we reached Tipperary and plunged into sweetly pretty woodland scenery diversified by many green pastures and fertile tracts, whilst hemming us in were the grand ranges of the Devil's Bit mountains. Under glorious sunlight everything looked delightfully fresh, and the sensation of dashing through the balmy fragrant air with lovely prospects ever before the eye made the trip one of unalloyed pleasure.

Killaloe was reached by the De Dion about 2.45, and Mr. Stock's Ariel followed soon after, he having made a late start. Then Mr. Mecredy's and Dr. Colohan's Daimlers swung in, followed an hour later by the third of that breed. This car had a very smart run from Maryborough, carrying a heavy load over the sixty miles in less than 3½ hours without a stoppage. By dinner time all the cars had arrived, the only mishap occurring being an accident to the tire of Mr. McDonald's quad., which delayed him somewhat. Special trains had brought an immense crowd of people to Killaloe, and that little town, which is now some 1,200 years old, has had few more exciting times than on this eventful day when the first

motor-cars plunged into its sleepy hollow. Trial trips were given on the various cars to many influential men from Limerick and other districts, and the greatest interest was evinced in the cars and the marvels they performed.

On Sunday seven of the vehicles returned to Dublin, while Mr. Mecredy's and Dr. Colohan's Daimlers started on an 800-mile trip down South. We reached Listowel on Sunday evening, after a sixty-seven mile run. Portion of this lies along the shores of the noble Shannon estuary, here several miles wide. The scenery



SOME OF THE VEHICLES IN THE RUN.
DAIMLER CAR (DR. COLOHAN); A DE DION VOITURETTE; AND A DAIMLER CAR (MR. R. J. MECREDY).

was simply superb, and we enjoyed one of the finest runs I have ever experienced.



CAN any of our readers furnish us with the name and address of the makers of the Daina dry battery?

THE first club run of the Scottish Automobile Club was fixed to take place on Thursday, the 19th inst., to Stirling, where permission had been obtained for the entrance of the cars to the Highland Society's showyard.

MESSRS. ERNEST HUTTON AND Co., electrical engineers, of Northallerton, have been appointed sole agents of the Sports Motor-Car Company for the North of England, which includes Yorkshire, Northumberland, Durham, Cumberland, Westmorland, and Lancashire.

A TRIAL run of the new Pennington motor war-chariot was made on Thursday last week in the vicinity of Hamilton, N.B., when a maximum speed of nearly 50 miles an hour is said to have been attained. The car carries two quick-firing guns, and provides accommodation for five persons.

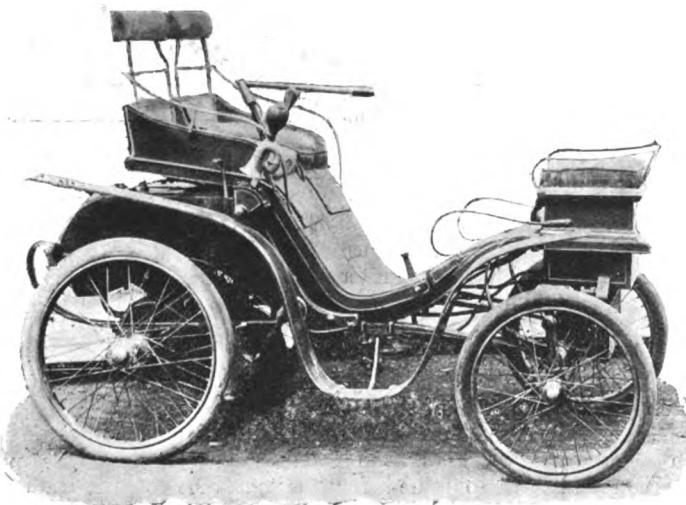
THE McLachlan Electric and Gasoline Motor Company, of Toronto, Ontario, have lately introduced a new double-cylinder petrol motor of 5 h.p. The two cylinders are arranged opposite to one another, the two piston rods connecting up to a common crank shaft. The length of the engine is 2ft. 9½in., and the width 22in., the weight being about 300lb.

WHAT is described as being the first motor-cycle delivery service in the United States has just been started in Hartford, Conn., by the Columbia and Electric Vehicle Company. The carriers are petrol motor-tricycles. Their work is directed from a central office, where they are on call, together with passenger vehicles capable of carrying four people. The packages are brought from the stores to the central station, where they are sorted according to the districts in which they are to be delivered. The vehicles can attain a speed of about twelve miles an hour. By a system of collecting packages on a number of routes each day, the service is available to those who have a comparatively small number of deliveries to make.

THE CAPEL MOTOR-CAR.

THE accompanying illustration shows the motor-car designed and built by the late Mr. H. C. Capel, of Messrs. Capel and Co., 168, Dalston Lane, London, N.E. The vehicle is designed to carry two persons, but is provided with an auxiliary seat in front on which a third person may be accommodated. It is so arranged that any part of the mechanism can readily be exposed and examined. The seats are not fixed to the body of the vehicle, but are hinged forward of the foot-rest, so that they fold over and leave everything underneath exposed. They also have springs interposed between them and the body of the vehicle, so that they are completely isolated from all vibration.

The control of the vehicle is exceptionally easy. The three forward speeds and the reverse are all controlled by the movements of one handle placed at the right of the driver. Increase of speed is obtained by moving the handle laterally from right to left until it comes opposite a short quadrant, upon which it is then pressed forward, which has the effect of causing a chain to grip and give motion to the car. One of these quadrants is provided for each separate speed—three in number—and pulling the handle backwards from any one of the quadrants has the effect of throwing the car into the back gear, and thus applying a powerful brake. This is described as being an important point in the



design of the car, as, no matter at what speed one is travelling, the simple action of pulling back the handle will bring up the car.

The steering is also designed with a view to safety and ease of steering, the pivot of the steering lever lying just under the left elbow of the driver, and the handle reaching forward from there forms a convenient rest for the arm, and in steering the handle is moved to point in the direction the car is required to go. Another advantage is that if the car should strike any obstacle when running no strain whatever comes on to the steering handle. This feature is obtained by a special system of levers situated on the fore axle, which renders the steering both sensitive and easy. The starting handle is also very conveniently situated at the right hand of the driver, and can be operated from the seat; it sets the motor in motion by means of a disengaging rack and pinion, which engages with the crank shaft when the handle is pressed down.

The frame of the vehicle is of aluminium and forms the motor support as well as forming two tanks, one for petrol and one for water. The latter hold about five gallons each, the water being economised by being cooled in a Clarkson-Capel cooler, which is hung under the front of the car, where it has the full advantage of the air currents. The water is forced through this cooler by means of a small rotary pump which revolves at the same speed as the motor.

The engine is a two-cylinder one of four b.h.p., having cylinders 3 inches diameter and 5 inch stroke. When stopping, by means of auxiliary cams acting on the exhaust

valves the compression is released, which enables the motor to be turned easily by hand for starting again; then on starting after taking a few explosions it again puts on the compression. The ignition is timed in the same way; as the speed increases, the firing is made earlier and *vice versa*. The speed of the engine is also automatically governed. This last operation is, however, within certain limits, under the control of the driver, who by moving a button may increase or decrease the speed of the motor. All these operations are performed by means of a centrifugal governor placed on the half speed shaft which is under the motor and is operated by a worm wheel fixed between the cranks.

The variable speed gear is composed of two sets of leather-covered cone pulleys one above the other, on which run loosely leather-covered chains, one or other of which is put into action by being pressed tight on to its pulleys by means of a jockey pulley operated from the handle above described. The construction of the chain and pulleys gives, it is claimed, all the advantage of a belt drive with none of the disadvantages due to stretching, and also gives great compactness and little friction. From the lower set of pulleys motion is transmitted to the driving wheels by means of gear wheels which mesh with the differential gear fixed on the main axle. The gear wheels are enclosed in a dust-tight case.

CORRESPONDENCE.

DOES PETROL DETERIORATE?

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to your correspondent W. W. Hardwicke, M.D., *re* "Deterioration of Petrol," published in your last issue, I have come to the conclusion (borne out by experiments made some months ago on the specific gravity of petrol and its constituents), that:—1. The mechanical results obtained from motors using petroleum spirit are entirely dependent upon the specific gravity of the spirit. 2. That petrol does deteriorate in explosive effect when exposed to the air, particularly when the volume exposed is not more than a gallon or so.

The experiments bearing on the queries put forward by Dr. Hardwicke are as follows (the French metric and thermometric system have been used):—One litre (1,000 cubic centimetres—ccs.) of Pratt's motor-car spirit was fractionally distilled, the fractions or portions of the spirit being collected and measured at different temperatures, and the specific gravity of each fraction determined. The results are appended:—

TABLE SHOWING INCREASE OF SPECIFIC GRAVITY OF THE DISTILLED FRACTIONS.

Fractional Distillates.	Temperature at which Distilled.	Volume of Distillates.	Specific Gravity of Distillates.
No. 1	Between 55°C. - 64°C.	360 ccs.	0.655
" 2	65° - 75°	315 "	0.675
" 3	75° - 90°	110 "	0.687
Residue in Distilling Flask.	—	Vol. 185 "	0.742

TABLE SHOWING DIFFERENCE OF SPECIFIC GRAVITIES.

Between.	Difference of Specific Gravities.
Nos. 1 and 2	= 0.02
" 2 " 3	= 0.012
" 1 " 3	= 0.032
" 3 " residue	= 0.055
" 2 " "	= 0.067
" 1 " "	= 0.087

From the tables it will be seen there is a considerable difference between the specific gravities of the first and second distillates and that of the residue from the distilling flask, namely, 0.087 and 0.067 respectively, and also between No. 3 and the residual

spirit, namely, 0.055. The other differences are less marked, but nevertheless appreciable. It is therefore an easy matter to see how, by continual evaporation of fresh petrol as in carburettors, a period will arrive at which the gravity of the spirit increases to such an extent that either efficient carburation will not take place, or, if it does, will not give rise to the explosive force which obtains when fresh petrol was being consumed in the motor.

This is owing to the fact that the higher hydrocarbons contained in petroleum spirit are more difficult to ignite, and when ignited do not have such a potential power of doing work as the more volatile portions that have been consumed; consequently the efficiency of the motor is lessened. The lower hydrocarbons of the methane series, such as normal pentane, boiling point 37 deg. C., hexane b.p. 69 deg. C., and heptane b.p. 98 deg. C., are as indicated—volatile liquids, and are the chief constituents of "common or garden petrol." When the greater portions of these are volatilised the petrol is said to be "stale" or "flat," and consequently unfit for use. The same remarks apply to petrol after it has been exposed for any notable time to the evaporative action of the atmosphere.

Yours truly,
W. G. BELL.

7, Loudoun Road, St. John's Wood, N.W.,
July 17th, 1900.

AN IMPROVED MOTOR-QUADRICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reference to above, I forward you particulars and illustration of a quadricycle fitted with a water-cooled Aster motor of 3 h.p. One frequently sees these machines about here, and an owner of one (uninterested in their manufacture) has given me a satisfactory account of his experiences with the machine in question. The front seat, by the way, is detachable, but the machine remains a quadricycle.

Yours truly,

Paris, July 19th, 1900.

J. HUMPHRYS.

[We hope to give an illustration of the vehicle in an early issue.—ED. M. C. J.]

THE 1,000 MILES TRIAL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been expecting every week to see some report as to the breakdowns, repairs, and incidents relating to the principal cars competing in above trial.

I am given to understand that the cars taking first and second prize in Class A had serious breakdowns, one failing to report itself on two sections of route, and the other repaired almost a new car.

These sort of tricks on the part of cars are just what the buying public watched the Trial for, but I for one have seen nothing to guide me as to which car was the most reliable for

Yours truly,

Reading, July 14th, 1900.

A PURCHASER.

P.S.—It would be valuable information to know the actual cost per mile run of the principal competing cars for fuel, repairs, oil, etc.

WE learn that Mr. C. Johnson, the secretary of the Automobile Club, has placed an order with the Sports Motor-Car Company for a Mayfair voiturette.

FROM various standpoints, sanitary, humanitarian, and otherwise, the substitution of motor power for the horse in connection with vehicular traffic is regarded by the *Sanitary Record* as "essentially preferable," while on economic grounds it may be found "equally desirable."

THE Automobile Club of Columbus has just been formed at Columbus, Ohio, U.S.A. At the first meeting the matter of a proposed speed limit ordinance came up for discussion, and it was suggested that the various members of the municipal council should be given a practical demonstration of the ease with which a motor-vehicle can be controlled. A resolution was also adopted providing that the speed limit of motor-vehicles should be twelve miles an hour instead of the slower speed proposed.

ELECTRIC IGNITER FOR STEAM VEHICLES.

WE herewith illustrate an electric device for igniting burners in the furnace of steam vehicles, which has lately been introduced by Messrs. A. L. Bogart and Co., of New York. Figs. 1 and 2 represent, respectively, the rear and side view of a "Locomobile" Company's car, with

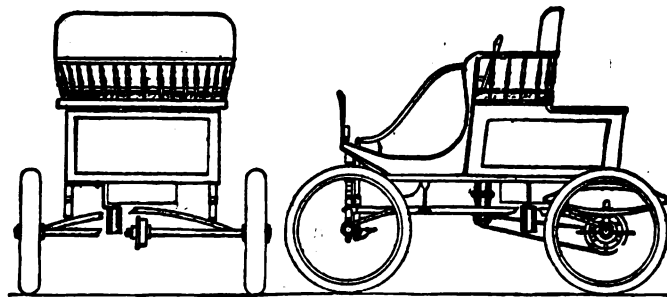


FIG. 1 AND 2.

the igniting device attached in place; parts of the frame work in either case being shown broken away, so as to more clearly represent the position and relative size of the attachment. Fig. 3 is a diagrammatic view of the entire apparatus employed. In this latter view the spark-producing device is lettered "Igniter," which contains the electro-magnetic vibrator operating the sparking contacts at the upper end of the tube which surmounts it. The sparking tube passes through one of the air pipes in the furnace as indicated by the dotted lines. A B C represent the iron brace, which rigidly supports the igniter in place, and is secured to the under side of the body of the wagon by screws B C. Dotted lines show the electric wiring circuit connecting the igniter, push button, and battery, which latter is contained in a cylindrical case of neat design, as shown.

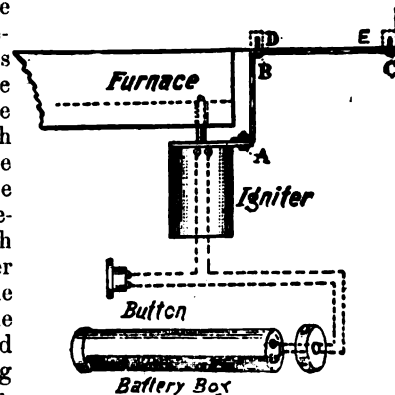


FIG. 3.

We are informed that no technical knowledge is required in the installation of the apparatus, so that any vehicle owner can attach it himself without sending to the manufacturers.

THE *Madras Times* states that Messrs. Massey and Co., the well-known engineers, of Madras, are building a motor-car, the design of which is their own, at their works.

SOME additional land has just been acquired at Unterturkheim, Wurtemberg, by the Daimler Motoren Gessellschaft, on which an extension to its already large works is to be built.

PROFESSOR V. L. EMERSON, of Ottawa, Ontario, is said to be at work on what he claims will be the fastest and most powerful automobile ever constructed. The vehicle will be operated by a hydrocarbon motor, which, it is expected, will develop between 30 h.p. and 40 h.p. The gearing will be designed for a speed of 30 miles an hour, but if necessary Mr. Emerson claims that he can run the machine fully 60 miles an hour.

MESSRS. GROUT BROS., of Orange, Mass., have introduced a new steam carriage. Its general design is on the lines made familiar by the "Locomobile." The front spring is a reversed elliptic, and the frame also shows minor modifications. The engine has a phosphor bronze frame and cylinders of grey iron, the other parts being drop forge steel. The boiler is of copper, with 300 tubes and 45 square feet of heating surface, and is hydraulically tested to 600lbs. The working pressure is 165lbs., controlled by an automatic regulator, and the safety valve is set at 225lbs. The water pump is worked by the engine, and can be regulated by the operator.

MOTOR-CARS ON THE CONTINENT.

(From our Own Correspondent.)

The Jenatzy Case.

LAST week, in these columns, I referred to the appeal of Monsieur Santié against the judgment of the Ninth Chamber of the Paris Courts, whereby M. Camille Jenatzy was acquitted of the charge of homicide by imprudence arising out of the accident by which Madame Santié lost her life on January 21st last. As I then stated, a week's adjournment was ordered, and on Wednesday, the 11th instant, the hearing was resumed. The judgment now given completely reverses that of the lower court, for it holds that M. Jenatzy should have sounded his horn, and that he was travelling at too great a rate of speed at the moment of the accident. The sentence passed condemns M. Jenatzy to three months' imprisonment with reprieve, £20 fine, £24 damages to Monsieur Santié, and £6 per year to each of the five children of the victim until they come of age. As some of these latter are but infants the sentence is particularly heavy; indeed, the entire judgment comes, after the ruling of the lower court, as a considerable surprise to the members of automobile circles. Had M. Jenatzy been compelled to undergo the period of imprisonment immediately, Paris-Toulouse would not see him as a competitor, but at the moment of writing I believe that he will figure among the starters, and he will assuredly have to be reckoned with in considering the probable winner.

Racing at Nantes.

MOTOR-CYCLE racing is for the time being an almost unknown quantity in France, and the few events that do take place are organised in the provinces. Nantes celebrated the 14th instant, the day of the Fête Nationale, by holding a big cycle meeting on the Longchamps track, and among the events decided was a fifty kilometre motor-cycle match between the three well-known Parisian *chauffeurs*—Fossier, Vasseur, and Demester. The struggle for the lead was hotly contested during the first ten laps by Fossier and Vasseur, but then Demester ran into first place, a position which he retained until the finish. The ten kilometres were covered by him in 10min. 4sec., the twenty in 20min. 10½sec., and the thirty in 30min. 50½sec., Fossier and Vasseur meanwhile struggling for second place, always about a lap behind the leader. Demester continued to travel without accident or incident, while his less fortunate competitors suffered alike from a variety of troubles, so much so indeed, that at the fortieth kilometre they were twenty laps behind the leader, whose time for the distance was 41min. 5½sec. At the finish Demester's time was ascertained to be 51min. 59½sec., Fossier being twenty-nine and Vasseur thirty-eight laps behind him. The last named was compelled to retire without completing the distance through lack of an inner tube, that on one of his wheels having punctured. It is possible that other matches between these three men will take place at an early date.

At Nice.

IF any proof were needed the recent chase and capture by the Mayor of Nice of a law-breaking motor cyclist should conclusively demonstrate to those reckless *chauffeurs* who delight to terrorise the public that Monsieur Sauvan is not a gentleman to be trifled with, and that the sooner they relinquish their foolhardy and selfish conduct the better it will be for them. The incident in question occurred about six o'clock on the evening of Tuesday, the 10th instant, a time of day when the far-famed Promenade des Anglais is crowded to excess. Tranquilly seated in his carriage Monsieur Sauvan was chatting with some friends when his attention was directed to a motor cyclist issuing from the public gardens at a tremendous rate of speed. Heedless of the cries of the passers-by, and the appeals of the police, regardless even of the mayor's orders to stop, the *chauffeur* raced by like a flash of lightning, leaving frightened people and terrorised horses in his train. But his just retribution was to come, for M. Sauvan promptly gave chase,

and followed him down a *cul-de-sac*, which he had entered blissfully unconscious of the nearness, or even of the existence, of the pursuit. Placing his carriage right across the road, the mayor effectively blocked the sole means of exit, and the culprit having been secured, a summons was promptly taken out against him, which will assuredly be followed by the severest sentence that M. Sauvan can pass upon him. It is truly disgraceful that any motor-men should so far forget the good feeling and benevolence hitherto displayed by the Nice authorities towards local automobilism as to commit such outrages, and it is indeed a pity that these *chauffeurs* cannot be singled out and severely punished without making the whole automobile community to suffer by the framing of more rigid regulations. I understand that M. Gondoin, the president of the "A. C. N.," has already notified the authorities of some of these motor-men who so abuse the police regulations, and the club can be depended upon to lend hearty co operation in putting a stop to this evil.

An Accident at Tours.

ON Friday last a most regrettable automobile accident occurred in the neighbourhood of Tours, whereby two of the four occupants of the car lost their lives, and a third sustained serious injuries. The mishap took place at an early hour in the morning on the Amboise road, which, at the scene of the accident, runs by the side of the river Loire. M. Vandeveldt, a Belgian engineer, accompanied by his wife and a fellow countryman, M. le Comte de Thuidzeyle, were travelling in the direction of Tours, when suddenly one of the front wheels of the car struck a large block of stone which had become detached from the parapet bordering the river, and lay in the roadway. The vehicle not being fitted with irreversible steering gear, swerved violently and struck the parapet with great force, against the massive stones of which the passengers were thrown. The passers-by at once ran to the unfortunate travellers' assistance, only to find that monsieur and madame had been killed instantaneously. M. de Thuidzeyle, although badly contused and also burnt by the petrol, which escaped from the broken reservoir and was fired by the burners, is not in any danger, and will doubtless have quite recovered in a few days. M. Vandeveldt's servant, who was also in the car, fortunately escaped with only a few bruises, as his fall was broken by the awning of the vehicle. The terrible accident once again emphasises the importance of fitting every vehicle with an irreversible steering gear, and constructors will do well to study this question with the greatest attention.

THE Automobile Club of America is now talking of a run from New York to Boston, to be held some time in October.

A BOX of matches igniting in the pocket of one of the employees of the local motor-car company at Swansea has caused a blaze at the company's establishment. Fortunately little harm was done.

THE Right Hon. the Earl of Clonmell is another young member of the nobility who has recently become fascinated with motor-caring. Besides having placed an order for a racing Panhard, the Motor-Car Company, Limited, of Shaftesbury Avenue, are supplying him with one of their Decauville cars. This little sociable, which is intended for use in the vicinity of Dublin, is provided with a 3½ h.p. air-cooled, two-cylindrical motor.

THE employees of the coach-making departments of the Motor Manufacturing Company, Limited, Coventry, held their second annual beanfeast on Saturday last, the 14th inst., to Stratford-on-Avon. The party journeyed by rail to Leamington, where lunch was partaken of, and afterwards proceeded by brakes to their destination through the historical and ancient town of Warwick, arriving at Stratford-on-Avon about 1 p.m. A capital dinner was provided at the Old Red Lion Hotel, and aquatic sports and other amusements were indulged in during the afternoon. The return journey was made via Charlecote to Leamington, where the party retired to the Fox and Vyvian Hotel for a smoking concert. Votes of thanks were accorded to the secretary, and also to Mr. Geo. Iden, the latter being, however, unavoidably absent.

THE BÉGOT AND CAIL PETROLEUM-SPIRIT MOTOR-VOITURETTE.



AMONG the many new types of motor-vehicles to be seen at the Paris Exhibition is that which has lately been constructed by Messrs. Bégot and Cail, engineers, Rheims, France, and of which illustrations are given herewith in Figs. 1, 2, and 3. As will be seen, while adapted for two persons, an additional folding seat is provided at the rear, so that the car, which weighs complete about 8 cwt., can, if necessary, carry four persons. The frame of the vehicle is of tubular construction. The motor is of 4 h.p.; it comprises two cylinders, set at such an angle that the piston rods connect up to the same crank shaft; the diameter of the cylinders is 80 mm., and the stroke 90 mm. The ignition is electrical, while, for cooling purposes, the cylinder walls are provided with radial ribs, and the explosion chambers with water-jackets. The ignition is so arranged that the crank shaft receives one impulse at each revolution—that is to say, the explosions take place alternately in the cylinders. The normal speed of the engine is 1,200 revolutions per minute, but this can be regulated as desired by means of the variable electric ignition, which is controlled by a small handle on the steering pillar. The speed of the engine can also be varied by means of a handle which regulates the amount of carburetted air allowed to pass to the explosion chambers. The carburettor employed is of the constant level type; it can be seen in Fig. 3 to the left of the engine. The charge is drawn in automatically by the suction stroke of the motor. The pipe conveying the petrol to the carburettor is of a large section and is closed by a needle valve which can be set to allow any desired quantity of spirit to pass. The necessary air to form the explosive mixture is drawn in through three openings—two below the needle valve and one in the carburetting chamber proper. Of the first two openings one conveys warm air to the petrol, and the other cold air; the third opening is provided with a regulating device by means of which the amount of air allowed to pass to the explosion

chambers can be controlled by means of a tap located near the driver. The water circulation is maintained by a small pump. The water tank, which is located at the rear of the frame, is of special construction, it being pierced by a number of tubes through which the air can freely pass, thus greatly increasing the cooling surface.

Coming now to the transmission mechanism, it will be seen from the illustrations that the motor is located under a bonnet in the fore part of the frame. Four speeds and reverse motion are provided. The fly-wheel of the engine forms one half of a friction clutch, the other portion of which is carried on the end of a shaft in line

with the motor shaft. This intermediary shaft carries within the gear box seen in the plan, view Fig. 2, two sets of double gear wheels, of different diameters. These double gear wheels are so mounted on the shaft that while they always rotate with it they can be displaced laterally along it by means of a flat sinusoidal cam which works the two forks connected—one to each of the double gear wheels. A hand lever fixed at the right of the driver actuates, by means of a toothed sector, a pinion keyed on the cam shaft. By this means any one of the four-gear wheels can be made to mesh with its corresponding pinion on the countershaft. From this shaft the power is transmitted through bevel gearing to a differential cross shaft, and from this to the rear road wheels by the usual sprocket wheels and chains. The reverse motion is controlled by means of a foot pedal. When the hand lever is placed in such a position in the sector that none of the variable speed pinions are in mesh, the depression of this pedal brings a small spur wheel into gear

with both the two pinions which normally give the slow speed. Ample brake power is provided, there being a pedal-operated band brake on the differential shaft and band brakes on drums attached to the hubs of each of the rear road wheels, controlled by a hand lever. On the application of either of the brakes the friction clutch is automatically thrown out. Steering is controlled by a bar, although a hand-wheel can be substituted if desired; the wheels are of the cycle type, shod with pneumatic tires. Provision is made for taking up any wear in the driving chains, while special attention has been devoted to the lubrication of the working parts. The

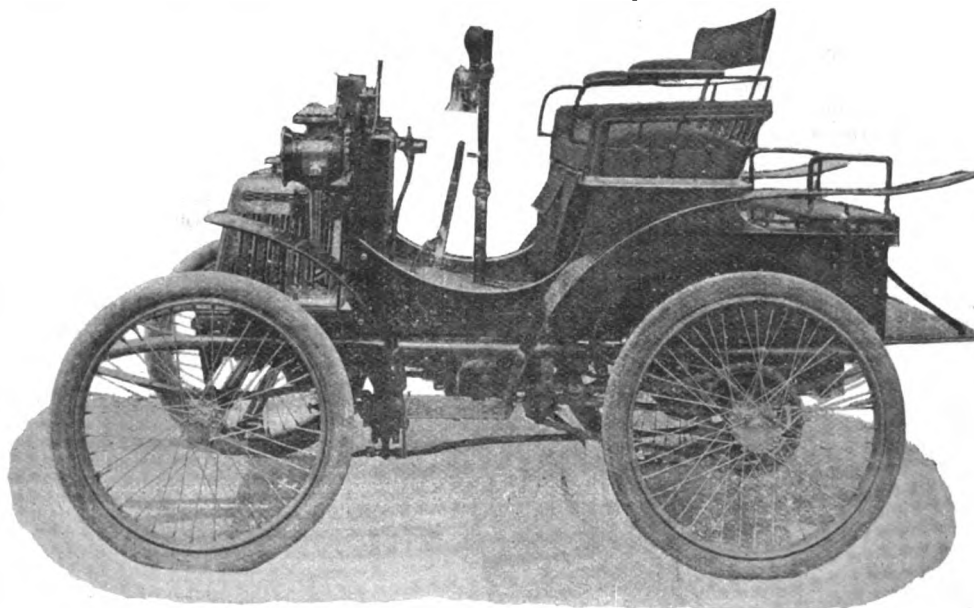


FIG. 1.—GENERAL VIEW OF THE BÉGOT-CAIL CAR.

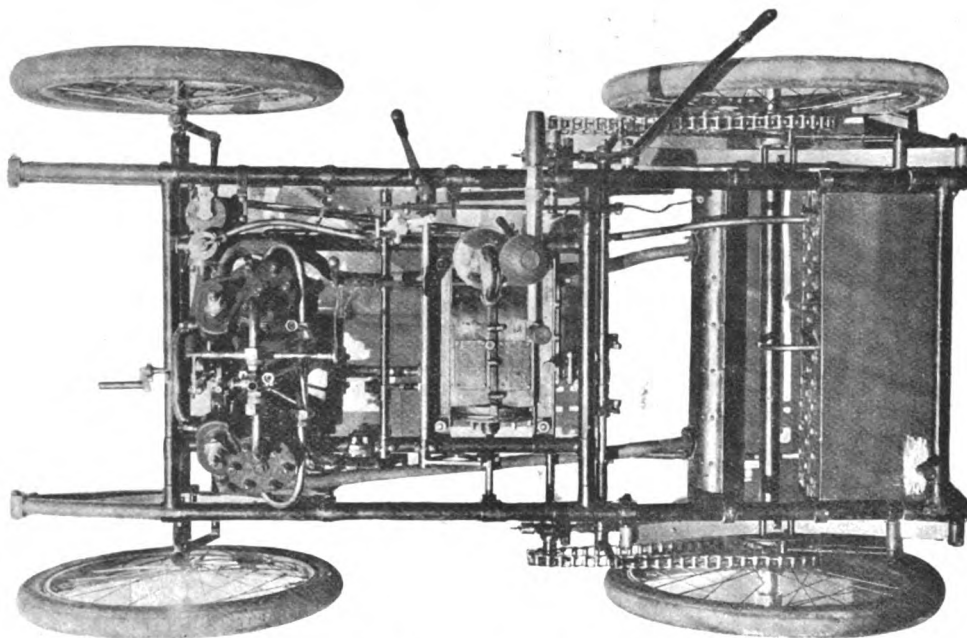


FIG. 2.—PLAN OF BÉGOT-CAIL CAR.

car can, it is stated, attain a speed of 30 kilometres (19 miles) per hour. Messrs. Bégot and Cail are, we understand, anxious to arrange for the introduction of their car into this country.

WE learn that Mr. R. Reynold Jackson has severed his connection with the Yorkshire Motor-Car Manufacturing Company of Bradford.

THE John O'Groats road map is the latest in the series of contour maps published by Messrs. Gall and Inglis. The route taken is from Inverness by Wick, a road of varied interest, though with only a few outstanding features or places of interest.

IN describing the automobile races at Ranelagh the *Sportsman* made mention of Captain Langrishe's "Pengot," Mrs. Kennard's "De Dion virturette," and Mr. Phillip's "Beht Duc." An Irish scribe describing the motor-car run to Killaloe saw a De Deri, a Morse car, an Aerial quad and several Daimlers.

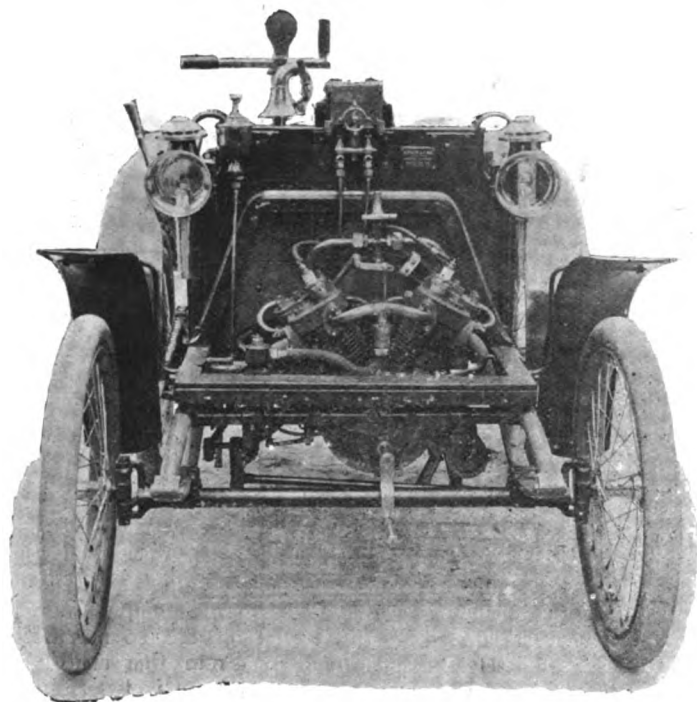


FIG. 3.—FRONT VIEW OF BÉGOT-CAIL CAR WITH BONNET REMOVED TO SHOW MOTOR (for description see previous page).

THE Altha Automobile and Power Company, of New York, has been incorporated in Delaware, with a capital of £100,000.

THE Eastern Yacht Club, whose clubhouse is at Marblehead Neck, Mass., has fitted up a shed for automobiles belonging to members. Facilities for charging accumulators are provided, and extensions will be added when necessary. At present about ten or twelve members own motor-carriages.

THE Motor Manufacturing Company, Limited, ask us to mention that the voiturette driven by Mr. A. Goodwin in the hill-climbing contest at Tilburstow Hill was fitted with one of their $4\frac{1}{2}$ h.p. water-cooled engines; a motor which they are now making as a standard pattern.

ARRANGEMENTS are said to be on foot for the establishment of an automobile factory in Ottawa, Ont. A number of gentlemen from Toronto, interested in the enterprise, have been in the Canadian capital looking over the ground. The establishment will be the Canadian branch of an American firm engaged in the manufacture of these vehicles.

THE Hon. F. Foley, of Barwell Court, Chessington, Surrey, has, we learn, just purchased a Roots and Venables heavy-oil car. Baron de Reuter, of telegraph fame, has also ordered a special car of elaborate construction of the same firm. The Roots and Venables car which competed in the 1,000-mile Trial has been purchased by Mr. H. C. E. Zacharias, who travelled as passenger for 320 miles.

THE PROGRESS OF THE AUTOMOBILE.

BY PROFESSOR R. H. THURSTON.

THE automobile should be a self-moving carriage which, to realise the ideals and needs of the automobilist, must be safe, reliable, comfortable, well adapted to the special purpose proposed in its use, handy, as speedy as may be found desirable, light in proportion to power, compact, simple, elegant, manageable, and inexpensive, both in first cost and in operation.

The problem of the designing engineer in this case is that of producing a design and plan which, when executed by the builder, shall fully meet the requirements of the proposing purchaser. He must ascertain what are the best materials for the several parts of the structure, must combine them in a carriage graceful, light, strong, and comfortable, in machinery of maximum power with minimum weight and volume, combine carriage, machinery, and running gear in such manner as to insure ample factors of safety in every part, while keeping down costs to those at which the market will take the automobile with a rapid and constant expansion of demand. The duty of the builder is to select the best material, standardise the dimensions and proportions of the several elements of the automobile, put together the carriage, the machinery and the running gear, and erect the whole construction in a permanent and durable form, and to make his manufacture so systematic and scientific that, making a standard automobile in sufficiently large lots, he can put it on the market at a reasonable price with a reasonable margin of profit to all interested—including the buyer.

The problem in design is much the same as that faced by the naval constructor and naval engineer when called upon to build an ironclad, or, perhaps, more accurately, a torpedo-boat, and that of the aeronaut, who, more than the engineer in any other branch of mechanical construction, is compelled to seek combined lightness and power as far as science and art combined can co-operate in solution of this most attractive and important of problems in engineering.

The carriage may be made of any form that may be found desirable and satisfying to the aesthetic instincts of the user. The removal of the animal from before it leaves the designer comparatively free to express his most artistic and most utilitarian ideas and to combine these often opposing demands in whatever manner his genius and inventive power may devise as the best combination or the best compromise possible. Great changes in form and decoration of the carriage will doubtless be found among the other modifications which will come of this entire freedom in design and construction of the carriage as a structure which can now be fitted to meet the requirements of the user as to comfort and elegance without being in any way hampered by compulsory adaptation to the peculiarities of the animal organisation and temperament.

The running gear must be light, strong, and capable of transmission of the impelling force; but otherwise of such design and proportions as shall best suit the user and subserve his primary purpose. The motor must be just as light as is possible within the limits of entire safety. As the motor is a part of the non-paying load, as viewed from the economist's standpoint, its weight, however small, is a tax upon the automobilist, and the space occupied, however small and out of the way, is a waste also, either as loss of availability for stowage purposes or as detracting from the elegance of the automobile.

The selection of the type of motor for the purpose held in view by the designer is his first task, and experience has already shown that at least three motors are more or less adaptable to this work—steam, already used for a hundred years more or less successfully, the internal-combustion or gas engine, also proposed for the purpose in the early part of the nineteenth century and lately employed quite extensively, and the electric current supplied by a "storage battery" or "accumulator" carried by the vehicle. The first is the oldest and best known, both as to its availability and its economies; the second has rivalled, and in some directions outfooted steam in these later years; the third is used very extensively and is the ideal motor in its operation, but far from

ideal in its endurance and its cost. Steam is troublesome and involves some risks, and is costly to maintain; the petrol engine and its relatives are subject to some objections in manipulation and in the character of the motor fluid; electricity brings with it what at present are insuperable objections for general work and especially for long route operation, in its weight, bulk, and great cost and limited quantity of energy storage.

"The Trend of Progress" at present with this new apparatus of transportation thus seems to be along a bifurcated, in fact a trifurcated, path. It is at the moment apparently true that no less than three distinct types of motor and as many types of automobile are finding use, and in considerable numbers, each in its own peculiar and specially suitable line of development: the steam-carriage, the electric vehicle, and the internal combustion engine with its appropriate running parts. Whether these several lines of progress shall hereafter fall into one can perhaps be better guessed after some of the facts of the case are developed before the reader; but just now one can only guess the future. There is no definite knowledge to be obtained permitting a positive

of a form of aeolipile involving Hero's principle, that of reaction, as utilised in the Greek rotary steam-engine.

Sir Isaac Newton was probably the first automobilist inventor, but, like many later inventors, unfortunately, he did not succeed with his scheme. The Cugnot carriage, of 1770, however, was a real and a working machine, and the antiquarian engineer or automobilist who chooses to study its construction at the Conservatoire des Arts et Métiers, in Paris, where it is still preserved in good order, will admit that, for its time, it was a remarkable bit of engineering.

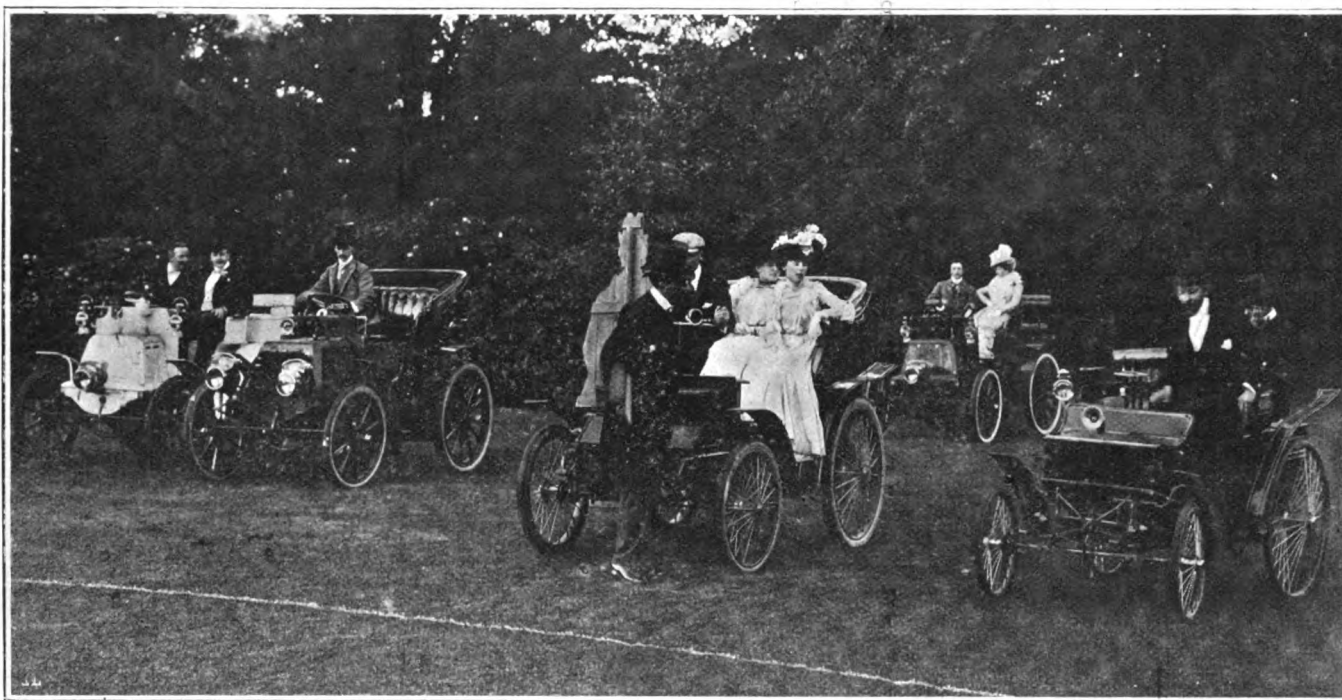
One of the first inventors of the gas-engine, Brown, in 1827, proposed its use for steam-carriages, and the steam-carriage itself was the precursor of the railway. Watt's steam-engine of 1784, his superintendent and manager Murdoch's model locomotive and automobile, and the full-sized and really successful steam-automobile constructions of Trevithick, at the commencement of the nineteenth century, were steps toward the modern automobile of no small importance, and practicable automobiles thus antedated the railway.

MR. F. H. BUTLER.

CAPTAIN LANGRISH.

MR. T. B. BROWNE.

HON. C. S. ROLLS.



MR. MARK MAYHEW.

MR. C. JOHNSON (starter).

MR. R. W. BUTTEMER.

STARTING FOR THE "CONTROL" RACE AT STRAWBERRY HILL HOUSE. (See last issue.)

Photo by

(Argent Archer, Kensington)

assertion. The probabilities may, perhaps, however, be stated after making a review of the practice of the day in its essential elements as bearing upon this question.

In reviewing the history of the possibly available motors for the automobile, one is struck by the curious fact that the most recent and the very lightest of all the existing types of modern heat-motors, employing steam as the working fluid, the steam-turbine, was actually known by the old Greeks and was described by Hero, two thousand years ago or more, and was even, possibly, old when Archimedes was seeking a lever-fulcrum from which to move the world. After all these centuries, the steam-engine has indeed caused the world to move and has given it an impetus in the single century just closing greater than had been acquired in the intervening centuries since Archimedes and Hero and their fellows of the Alexandrian era. How unfortunate that the old philosopher and engineer could not have found his fulcrum then and started this movement two millenniums earlier! It was not until 1680 that Sir Isaac Newton, proposing the construction of an automobile to be moved by steam, suggested the utilisation

The history of the automobile has illustrated well the tendency of the uninformed and the prejudiced populace to obstruct every economic movement essential to the most direct and effective social progress and to their own most rapid advancement. It was no sooner made a success by the inventors, mechanics and engineers of the early half of the nineteenth century than direct physical opposition and the restraints of legislation, urged in the interests of rival and less satisfactory methods of locomotion, brought the movement to a full stop, precisely as the same spirit had, in earlier days, destroyed Papin's steamboat and the "newly-invented" looms and the spinning frames of ruder times. It is only now that we find the legal pronouncement, through a New York court, that the ancient and inefficient must yield to the modern and efficient methods and mechanisms. Says this modern Solomon, recognising the spirit of the age, "If one should find it desirable to go back to primitive methods and trek along a city street with a four-ox team and a wagon of the 'schooner' variety it would possibly cause some uneasiness among the horses unused to such sights. Yet it could not be actionable, in

my opinion, if a runaway should result, provided due care were shown not unnecessarily to interfere with the use of the highway. Horses may take fright at conveyances that have become obsolete as well as those which are novel; but this is one of the dangers incidental to the driving of horses, and the fact cannot be interposed as a barrier to retrogression or progression in the method of locomotion. Bicycles used to frighten horses, but no right of action accrued. . . . The temporary inconveniences and dangers incident to the introduction of these modern and practical modes of travel upon the highway must be subordinate to the larger and permanent benefits to the public resulting from the adoption of the improvements which science and inventive skill have perfected."—*The Automobile Magazine*.

THE BENZ SPIDER PHAETON.

MESSRS. HEWETSONS, Limited, of Dean Street, Soho, London, W., have sent us the following brief particulars of the Spider phaeton illustrated on the opposite page—the latest production of Messrs. Benz and Company, of Mannheim. The vehicle has seating accommodation for four persons; it is fitted with a horizontal engine of 9 h.p. The crank shaft works in an oil-containing case, while a central lubricator supplies the oil for the working parts. The ignition is electrical, and the cylinders are water-jacketed, the water tank being located in the fore part of the frame. Four speeds forward and reverse motion are provided, the car being, it is claimed, able to maintain an average speed of twenty-five miles per hour. Steering is controlled by a horizontal hand-wheel.

WE learn that Mr. Frank F. Wellington has sold one of his 7 h.p. Aster racing machines to the well-known cyclist, Mr. H. A. Phelps, of the Catford Club.

MESSRS. P. SOUVESTRE AND COMPANY, late of Liverpool, are now making their headquarters in Paris, and have appointed the London Autocar Company, Limited, of Gray's Inn Road, W.C., their sole agents in Great Britain.

A NEW voiturette has arrived at Messrs. W. Newton and Company's establishment in Westgate Road, Newcastle, from the Progress Motor Works, Coventry. It was driven from Coventry by easy stages, leaving there on Friday and reaching Newcastle on Saturday evening last.

WE regret to learn that Mr. C. C. Potier, Sutton, met with a serious accident on Monday evening. He was riding a motor-tricycle on Banstead Downs, near to Sutton, when he was thrown off. He was found in an unconscious state, and a doctor who was summoned discovered that he was suffering from concussion of the brain. On regaining consciousness Mr. Potier was removed home in a trap.

A HURRIED run through the Daimler Works, Coventry, was made last week by our Midland correspondent, who reports that this firm are working almost night and day in the execution of orders. We understand that the Motor Manufacturing Company, Limited, Coventry, are in a similar happy position.

MR. E. L. STRONG, president of the Cleveland Automobile Club, Mr. Walter Root, and Mr. C. S. Ingalls, also members of the club, with guests, have started on a Canadian tour in motor cars. Going by boat to Buffalo, they will thence cross to Canada, at Niagara, and will visit Hamilton, London, Sarnia, and Port Huron, returning to American soil at Detroit, whence they will return to Cleveland by steamer.

OUR Midland representative had a short run this week on a Coventry Motor Company's car, in company with the manager, Mr. W. A. Taylor. The speed of the vehicle is limited to fourteen miles per hour, and this speed can be maintained on all ordinary up-gradients. Down hill the motor can be disconnected and allow the car to run free, thus giving the engine every opportunity of cooling down. Fitted with pneumatic tires, and weighing 3½ cwt., the car runs as silently as a bicycle down hill. The price of this car is not more than £100, and, for a light two-seated vehicle, fitted with a 3 h.p. De Dion engine, is one of the cheapest cars on the market.

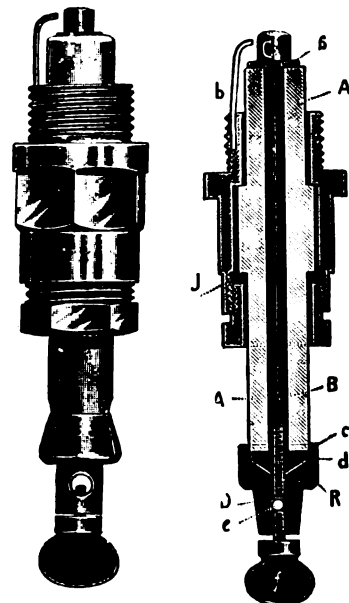
THE GEORGES RICHARD SPARKING PLUG.

AN improved sparking plug has lately been adopted by the Georges Richard Company, of Paris, whose cars are now being introduced into this country by the Automobile Manufacturing Company, Limited. The ordinary plug consists of a metal spindle passing down the centre of a porcelain tube, its end being near another rod which is connected to the main body of the motor. Between the points of these two rods the spark passes. The rod passing down the axis of the plug is fixed either by some kind of cement or by two nuts, which hold it at the ends only.

These two systems have their disadvantages. Under the influence of the high temperature cements deteriorate; while, on the other hand, if the rod is fixed by means of nuts, it often happens that, owing to the difference in the expansions of the rod and the porcelain, the joints are altered in such a way that a current of gas or air sufficient to extinguish the spark may be produced around the rod.

The illustrations below indicate the method by which the Georges Richard Company seek to avoid these causes of breakdown. *A* is the porcelain tube enclosing a metal rod, *B*, at the end of which is a head, *C*, separated from the end of the porcelain tube by a copper washer, *a*. Close to the head, *C*, is the rod, *b*, which is connected to the mass of the motor. At the other end of the tube is an asbestos washer, *c*, over which is a thin copper washer, *d*. A spring, *R*, presses against this washer. According to the usual practice the rod, *B*, has its end threaded to receive the nut, *D*, by means of which the rod, *B*, is firmly held in the porcelain tube; this nut, *D*, receives the electric conductor, *e*, the latter being held in position by the thumb-screw, *f*.

Owing to the spring, *R*, which is compressed by the screw, *D*, the head, *C*, is pressed firmly against the tube, *A*, and there is also a tight joint at the other end between *c*, *d*, and *A*. Thus a good joint is claimed to be formed, which does not allow the passage of gas or air when the parts expand, the difference in expansion being met by the action of the spring.



APPLICATION is about to be made to the Dominion Government for a charter incorporating the Canadian Motor-Vehicle and Battery Company, with a capital of £400,000. Hamilton, Ontario, is to be the headquarters of the company.

THE Allgemeine Radfahrer Union and the Alsace-Lorraine Automobile Club will, to-morrow, carry out an automobile race from Strasburg to Rheinau and back. The race is divided into four categories—(1) Racing cars; (2) Touring cars weighing more than 500 kilos.; (3) Touring cars weighing less than 500 kilos.; and (4) Motor-cycles.

THE Nottingham Autocar Company, Limited, has been registered with twenty members, each liable for £1, to manufacture and deal in motor-cars, vehicles, cycles, etc. The first directors are T. H. R. Bayley, P. Huskisson (managing director), and G. K. Hibbert. The registered office is at Starey's Horse Repository and Carriage Works, Upper Parliament Street, Nottingham.

PARIS EXHIBITION NOTES.

(From Our Own Correspondent.)

AS a very natural consequence of the position which the Mors firm holds in the racing world, their exhibit at Champ de Mars daily attracts a crowd of enthusiasts, who certainly find no lack of interest in the display. First of all, right in the centre of the stand there is to be seen a magnificent bronze, M. Antony's trophy, gained by him in last year's Paris-Saint Malo race, and this is backed by a series of excellent photographs representing an infinity of types of cars built by the Grenelle firm. Five of these designs are actually in evidence upon the stand, and they range in size from the dainty "Petit Duc" to the mighty 16 h.p. car. I suppose that there are but few automobilists in England who do not know the "Petit Duc," by sight, at any rate, and to those who have never ridden in it let me recommend them to take the earliest opportunity of doing so, for they will assuredly enjoy the drive. Another type shown is a 8 h.p. dogcart, with both seats, each carrying two persons, facing forwards. This vehicle is beautifully finished, the carriage work being by Rothschild, but the lines are stiff and far from graceful. The third car shown is a victoria on an ordinary—that is to say, not dropped—frame, and it appeals directly to that class of buyer who is on the look-out for a highly-finished town carriage. The motor attached is one of 6 h.p., and the carriage work is by Rothschild. Number four is a 16 h.p. vehicle, the body being of the *tonneau*, or *wagonette* type, painted a snowy white. It is a truly magnificent car, and as one faces it directly its rakish appearance gives the impression of great speed. No need to add that this impression is not an erroneous one, for all the world knows what the 16 h.p. Mors did in last year's races.

As probably but few English visitors will have an opportunity of seeing this season's speed cars, let them have a good look at this Mors vehicle and then picture to themselves that the new racing automobile is fitted with an engine developing nearly double the power of that used on this white monster. It will serve as a line, if not a very accurate one, at any rate. The carriage work is by Rothschild also, and with its snowy exterior and red upholstered interior, the car presents a very smart appearance. I have purposely reserved the tit-bit of the Mors exhibit until the last, but I can assure you that it is well worth waiting for. The new 10 h.p. car, as shown, is, to my mind, the most beautiful carriage in the whole exhibition. Built on similar lines to the 16 h.p., the new type presents the same racy aspect as does the larger vehicle, and Rothschilds have designed for it a remarkably pretty body. Four-seated, all facing forward, an ingenious contrivance is attached to one half of the rear seat which lifts upwards automatically upon the door at back being opened, so enabling ready access to the rear of the carriage. Attached to the pillar of the inclined wheel steering gear is an accelerator, and on the right of the driver a lever actuating the gear wheels. Three speeds and reverse are provided. The large round carburettor, as used on the new 16 h.p. cars, is employed. This carburettor is divided into four, by which

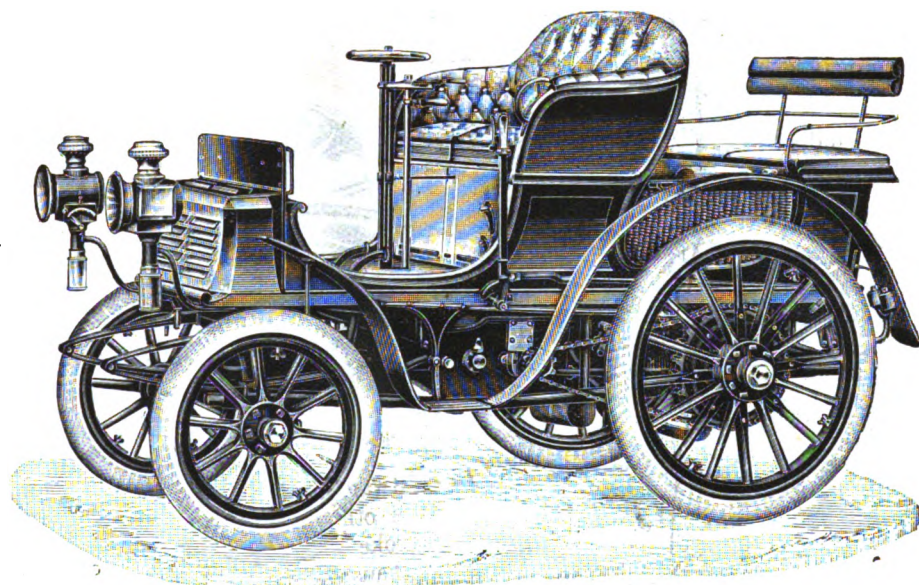
means each cylinder is assured of its proper proportion of the explosive mixture. The Mors firm have certainly made, with the production of this car, another step forward, and everything points to its becoming one of the most popular vehicles of the day.

Among the electric vehicles exhibited the three cars upon the stand of the Société Française pour l'Industrie et les Mines, of 45, Boulevard Haussmann, Paris, are particularly worthy of attention, for they are built upon the system of M. Krieger, one of the earliest pioneers of the electric car. The most striking of the three vehicles is the three-seated automobile, carrying its accumulators in front, and built upon the lines of M. Krieger's own well-known racer. It is of very handsome appearance, and for the man who is desirous of securing a large range of action it is the very class of car required, as by reason of its dimensions a great number of accumulators can be carried. The other vehicles shown are a coupé and a victoria for town work. All three cars carry their motors on the front axle, and are furnished with Fulmen accumulators.

Needless to say that some of the handsomest cars are to be found on the Peugeot stand, for the vehicles built at Audincourt are unquestionably among the most elegant of all the types upon the market. Indeed, there are many motor men who regard the Peugeot as the car, at any rate so far as appearance goes. Upon the stand under notice will be seen what is rather a departure for the Audincourt firm. This is a wagonette, or *tonneau*, furnished with wheel steering and the motor in front. The engine employed is the usual horizontal type, developing 8 h.p., although I understand that the firm are now building vertical motors. A couple of stylish cars for town work are a coupé and a cab victoria with lifting wooden apron. Both are fitted with 8 h.p. motors carried behind, and are built on dropped frames.

A dainty example of the 4 h.p. voiturette is also in evidence, the car in this case being four-seated and painted white. A fourth car carrying an 8 h.p. engine is a phaeton providing for four passengers all facing forward, and fitted with a small seat behind. The collection is completed by a magnificent 12 h.p. landau, a truly noble carriage. The front seat provides room for a couple of passengers, and then comes a spacious and luxuriously upholstered interior where four people will find more than sufficient space. A "spider" seat at the back carries a couple of passengers, and the car is quite one of the striking features of the whole show. The motor is hidden away under the front seat, a method frequently adopted in the case of these large family carriages, but open to criticism as to whether it is conducive to the best results. Speaking from practical experience I do not believe that an engine gets a fair chance when so stowed away and when running a little hot it frequently conveys a sensation of uncomfortable warmth to that portion of the driver's anatomy where the back loses its name. But this by the way, and as the Peugeot carriage is not intended for extended tours the opportunities afforded to the motor for over-heating are not numerous.

(To be continued.)



THE BENZ SPIDER PHAETON. (For description see opposite page.)

STEAM v. ANIMAL POWER FOR HEAVY TRACTION.*



THE Lancashire and Yorkshire Railway Company has had a steam-lorry made by the Thornycroft Steam Wagon Company working since 4th December, 1899. The lorry was used for town delivery from the company's Salford depôt, near Manchester, until 10th February, when it was transferred to the same class of work at Great Howard Street Station, Liverpool, where it is still working. The car has run satisfactorily, and has been found to be about equal to two one-horse lorries. As, however, it has been used on all classes of traffic to ascertain its suitability, the results obtained vary somewhat. It has been found particularly useful in taking loads of about 3 tons on journeys where, owing to stiff gradients over a portion of the road, two horses would have ordinarily had to be sent, whilst in Liverpool it facilitates delivery in allowing of a direct route being taken over gradients which a horse-drawn lorry could only surmount by taking a circuitous route.

Up to and including 31st March the car had run on ninety-four days, covering a total distance of 1,033 miles, or 10·99 miles per day, not including the distance travelled in collecting loads in the goods yards. In these calculations Saturday has been counted as a full day, although the car has not usually on that day worked after 2.0 p.m. The total load carried has been 670·14 tons in 289 loads, giving 3·07 journeys, with an average load of 2·318 tons per day. During the ninety-four days the car has been in steam 1,021·5 hours, or 10·86 hours per day. Careful records have been taken of the coke and water used, and it has been found that 259·7 lbs. of the former and 191·7 gallons of the latter are the average daily consumption, giving an evaporation of 7·38 lbs. of water per lb. of coke. This latter is obtained from the company's gasworks at Horwich, being made from Wigan coal.

ONE WEEK'S RUN OF A THORNYCROFT STEAM LORRY, EMPLOYED
BY THE LANCASHIRE AND YORKSHIRE RAILWAY COMPANY.

Date.	Distance travelled.	Total load carried.	Loads.	Hours in steam.	Coke used.	Coke per mile.	Coke per hour.	Water used.	Water evapo- rated per lb. of coke.
1900.	Miles.	Tons.	No.		Lbs.	Lbs.	Lbs.	Gals.	Lbs.
26 Feb. ...	15	10·16	4	13	290	19·33	22·3	248	8·56
27 " ...	17	7·59	3	13	280	16·41	21·53	249	8·9
28 " ...	14	11·63	4	12·5	300	21·42	24·0	190	6·33
1 March ..	15	11·53	4	12·5	320	21·33	25·6	269	8·42
2 " ...	14	9·15	3	12·5	270	19·28	21·6	184	6·82
3 " ...	12	3·95	2	9·5	210	17·5	22·1	156	7·44

* Statement by Mr. H. A. Hoy, the Chief Mechanical Engineer of the Lancashire and Yorkshire Railway, on the working of a Thornycroft motor-wagon, forming an appendix to the paper read by Professor Hele-Shaw before the Institution of Mechanical Engineers.

It is found necessary to clinker the fire after about seven hours' running, the operation taking about five minutes. The coke consumed has been 234 lbs. per hour, or 22·05 lbs. per mile, whilst the water evaporated has been 17·14 gallons per hour, or 16·15 gallons per mile. The figures have been calculated from the days on which records were taken of both the water and fuel consumption.

The results day by day of a week's run in Liverpool are given in the above table; these will be noticed to be slightly higher than the average given. This is due to the fact that on the first few days, both at Manchester and Liverpool, the results were not good, owing to the drivers not being accustomed to the yards and the methods of working.

THE AUGÉ PETROLEUM-SPIRIT MOTOR-CAR.



HEREWITH we are enabled to illustrate the new two or three-seated petroleum-spirit motor-car lately introduced by Messrs. Daniel Augé and Co., of 92, Rue des Arts, Levallois-Perret (Seine), France. Fig. 1 gives a general view of

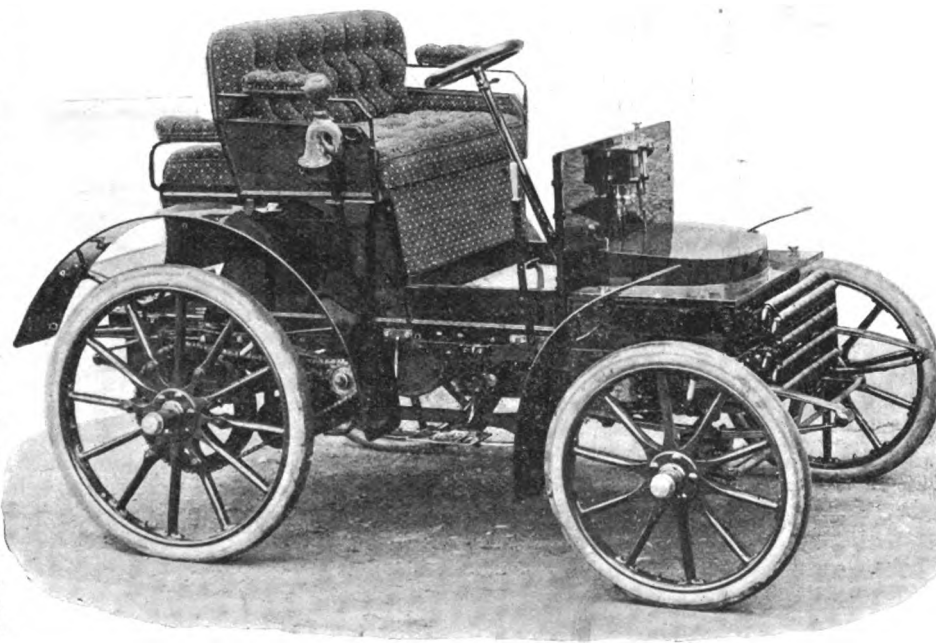


FIG. 1.—GENERAL VIEW OF AUGÉ CAR.

the car complete, while Fig. 2 shows the frame with body removed. The vehicle is propelled by means of a horizontal two-cylinder engine (Fig. 4), located in the fore part of the frame. There are several special features about the motor which are worthy of mention. It comprises two cylinders side by side, the pistons of which are coupled together by a double connecting rod with a single cross-head on the crank pin of the driving shaft. The motor is of the four-cycle type, and is arranged in such a way that one explosion takes place at each revolution of the crank shaft, that is to say, on the

outward movement of the pistons one cylinder is aspirating while the other is giving an impulse, while similarly on the return stroke of the pistons, one is compressing while the other is exhausting. A feature of the motor is that all the valves are so arranged as to form a detachable box, attached to the rear end of the cylinders. This box comprises a number of cocks arranged to be operated both by hand and automatically, and permitting a regulation both qualitative and quantitative of the explosive mixture. The distribution box comprises two explosion chambers communicating respectively with the interior of two cylinders, and an exhaust chamber capable of communicating with these two explosion chambers by the intermediary of two valves. To each of these explosion chambers is connected respectively a receiving chamber for the explosive mixture, capable of communicating with each of the explosion chambers by valves. Into the receiving chamber opens a cylindrical conduit on which are mounted special regulating cocks. The proportion of carburetted air and of atmospheric air admitted to the receiving chamber is controlled by means of one cock, while a second cock controls the volume of explosive mixture allowed to pass into the receiving chamber. This cock is composed of a hollow cylinder provided with two openings, and is capable of receiving two movements:—(1) A movement of

rotation on itself, controlled by a knob or hand-wheel which is provided with two pins traversing the bottom of the cylinder, this movement controlling the length of the orifice for the passage of the gases. (2) A movement of translation controlled by the governor which acts on the rod fixed to the bottom of the cock, by means of which the width of the orifice for the passage of the the gases can be varied. In this way the volume of the explosive mixture introduced may be regulated, either by hand or automatically by the governor. The speed can thus be varied by qualitative or by quantitative regulation. As soon as the

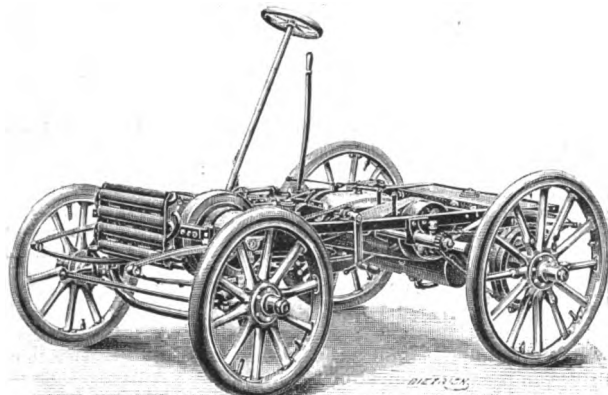


FIG. 2.—VIEW OF FRAME OF AUGÉ CAR.

speed of the engine increases, the governor acts on the spindle, allowing a smaller quantity of explosive mixture to pass.

The speed governor is mounted on the fly wheel. The feeding of the engine is effected according to its own requirements; an explosive mixture always of an equal composition enters the explosion chambers but in larger or smaller quantity; from this results, it is claimed, a variable compression, so that the force of the engine may be thus regulated between sufficiently wide limits by augmenting or diminishing at will the impulsive force of the explosive mixture, contrary to the ordinary method of regulation in which the speed is varied by suppressing the explosions. The exhaust valves are controlled by a series of levers and rocking arm, actuated by an eccentric mounted on a short intermediary shaft, and driven by means of gear wheels off the motor shaft at half the speed of the latter. A general view of the constant level carburettor is given in Fig. 5. It is described as being capable of micrometrical adjustment, permitting the spirit admission opening to be regulated to the 100th part of a milli-

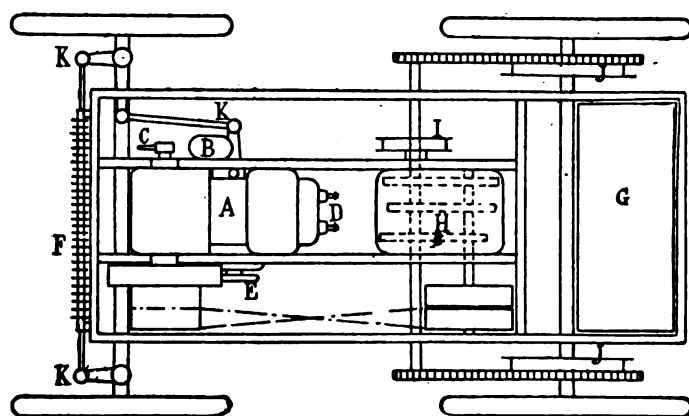


FIG. 3.—PLAN OF AUGÉ CAR.

metre. The motor, which is capable of developing 5 h.p., runs at a normal speed of 600 revolutions per minute. By means of the regulating cocks and the electric ignition, Messrs. Augé claim to be able to vary the speed while running from between 300 to 1,200 revolutions per minute. The motor is, of course, water-jacketed, a radiating coil, in connection with the water-circulation, being located in the front of the car.

Coming now to the transmission mechanism, two speeds

forward and reverse motion are provided. As has already been mentioned, the motor is located in the fore part of the frame (see Fig. 3). On one end of the motor shaft is a pulley connected by a belt to a fast and loose pulley on a counter shaft about the centre

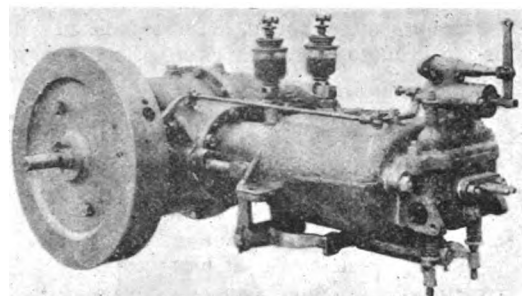


FIG. 4.—VIEW OF AUGÉ MOTOR.

of the frame. This shaft carries a series of pinions, working in an oil-containing case, and meshing with corresponding pinions on the differential shaft, on the two ends of which are sprockets conveying the power by chains to the rear road wheels. Steering is controlled by an inclined hand-wheel; the frame, which is of channel steel, is spring suspended on artillery wood wheels shod with pneumatic or solid rubber tires as desired. There are three brakes, one operated by a pedal and acting on the differential, and two controlled by a hand lever acting on drums connected with the sprocket wheels on the rear axle. The motor and



FIG. 5.—VIEW OF AUGÉ CARBURETTOR.

transmission gear all being mounted on a standard frame, Messrs. Augé are laying themselves out to supply these to carriage builders and others who may fit thereto any type of carriage body they desire.

THE Reuter Automobile Company has been formed at Dover, Del., to manufacture automobiles, etc. The capital is £100,000.

THE postal authorities at Buffalo, N.Y., are about to make some experiments with a petrol mail wagon. The car is to be built by the Conrad Motor Vehicle Company of Black Rock, and will carry from four to six bags.

AN association embracing all the operators of public automobiles in Chicago has been formed under the name of the Automobile Operators' Mutual Benefit and Protective Association. The object of the association is: To aid one another in time of need; to provide a club room and possibly later a club house where all operators when off duty may assemble and discuss the events and happenings of the day or night, and where the single men, especially, may have the comforts and privileges of a home and spend their time, which would be spent to less advantage elsewhere; to promote good fellowship among all concerned, and, in fact, to be of benefit and assistance to one another in every possible way.

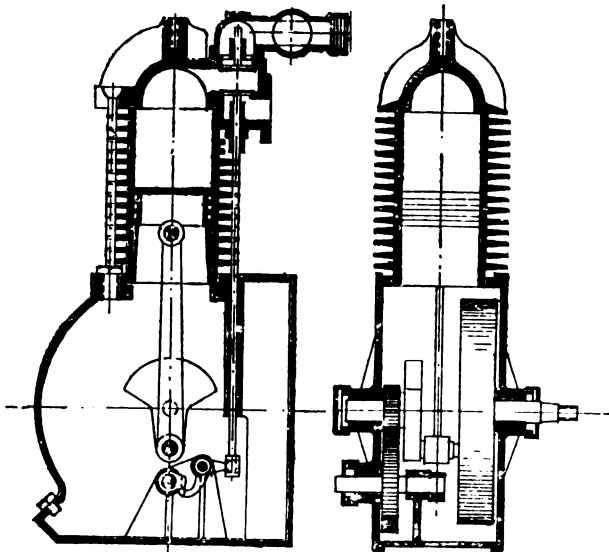
THE LOUTZKY MOTOR-TRICYCLE.

FIG. 1 of the accompanying illustrations shows the motor-tricycle which has lately been put on the market by the Gesellschaft für Automobil-Wagenbau (system Loutzky), of 49, Französischestrasse, Berlin, W. It is fitted with a single-cylinder air-cooled motor, of which two sectional views are given



FIG. 1—THE LOUTZKY MOTOR-TRICYCLE.

in Figs. 2 and 3. The engine, which is capable of developing 2 h.p., is provided with electrical ignition; it is located inside the rear frame between the bottom bracket and the rear axle, and is entirely enclosed by the perforated metal case seen in Fig. 1. It is geared to the rear axle in the usual way. A feature of the machine is that all the control levers, i.e. compression, sparking, carburation, etc., are mounted on the handle-bar and not on the top bar of the frame as usual. The petrol tank has a capacity of



FIGS. 2 AND 3.—SECTIONAL ELEVATIONS OF LOUTZKY MOTOR.

four litres. In addition to the usual front wheel tire brake, band brakes on drums on the rear axle are provided. On the level, the machine can, it is claimed, attain a speed of forty kilometres per hour; when intended for use with a trailer it can be fitted with a two-cylinder motor giving 3½-h.p.

MOTOR-CYCLE RACING AT MANCHESTER.

SUCCESSFUL as have been the Manchester Wheelers' race meets in the past, none has equalled that which was held on the Fallowfield track on Saturday last, when a couple of motor-cycle events were included in the programme. The club was as usual favoured with fine weather, though threatening clouds hung over the ground before the racing commenced. The clouds notwithstanding, about 12,000 spectators gathered round the track. The motor-tricycle races were an interesting novelty, though more excitement would have been aroused had not Mr. C. Jarrott been allowed to win both the mile and the ten miles so easily. Jarrott's driving was much admired. He showed superior skill in "taking the corners." Unfortunately he afterwards suffered from his riding. His left leg was weak before starting, and his efforts to "take the corners" skilfully have caused him to strain the sinews of his foot. In the ten-mile race Mr. C. Machin, the holder of the hour record, was put out of it owing to a punctured tire, Jarrott winning by 2½ laps from Lee, W. Dunn, of Birmingham, being third. The neck and neck racing of the latter couple in the earlier part of the race provoked the enthusiasm of the spectators. The following were the results:—Mile Motor Tricycle Scratch Race: C. Jarrott, London, first; C. Machin, London, second; V. Lee, London, third; W. Dunn, Birmingham, 0. Won by five lengths. Time, 1min. 42 4-5sec. Ten Miles Motor Tricycle Scratch Race: C. Jarrott, first; V. Lee, second; W. Dunn, third; C. Machin, retired. Won easily. Time, 16min. 32 1-5sec.

FURIOUS DRIVING CASES.

AT THE Edinburgh Police-court last week Frank Harwood, a motor-car driver, in the employment of the Edinburgh Autocar Company, was convicted of driving a motor-car in a reckless and careless manner in Corstorphine Road, on Saturday, June 23rd last, in consequence of which the car collided with a cyclist named Williamson, throwing him off and smashing the bicycle. Accused was coming in the opposite direction, and drove round a vehicle and into Williamson, who was riding slowly and on his proper side. The bicycle was considerably damaged. A fine of £2, with the option of fifteen days, was inflicted.

At the North Holderness Petty Sessions, at Leven, last week, Mr. John W. Tanfield, of Beverley, cycle and motor-car agent, was summoned for having furiously driven a motor-car on the road at Seaton, to the danger of the public on the 6th July. The complainant said that he was riding a valuable horse when he saw the defendant approaching him in a motor-car at the rate of 20 miles an hour. He put up his hand for him to stop, but the defendant refused to do so, and he had to get off his horse. The animal took fright, and began to plunge and rear, ultimately laming itself and him. The defendant, who pleaded that he could not go faster than 6 miles an hour, was fined 20s. and 23s. costs.

Before the Guildford County Bench, last week, Mr. John Dennis, of Guildford, was summoned for furious driving at Woking, on July 1st. P.C. Shortridge stated that at 12.50 p.m. on Sunday, July 1st, he was at Mayford Hill, and saw a motor-car coming down the hill at a furious rate, followed by a motor-tricycle. He shouted for them to stop. When the defendant dashed past him on the first car, Sir John Baker's carriage was being driven up the hill, and his shout warned the driver, who pulled the horse right into the side, and so prevented a collision. The first car was going fully twenty-five miles an hour. He did not know who was in the first car at the time, but had since made inquiries, and would swear it was the defendant. Richard Mitchell, coachman in the employ of Sir John Baker, said that the car appeared to him to be going more than fifteen miles an hour, but he hardly had time to see it. He could not say who was driving it. For the defence, Mr. Joseph Millis, manager to Messrs. Pickford, Onslow Street, stated that he saw the defendant start on Sunday morning on a motor-tricycle, and he returned at one. Mr. Raymond Dennis corroborated this; and defendant then gave evidence. He denied emphatically that he was on the motor-car in question the whole of the day. Throughout he rode a motor-tricycle, which had no car attached, nor could any car be attached to it. The case was dismissed.

OTHEN v. THE ELECTRICAL UNDERTAKINGS, LIMITED.

In the Chancery Division of the High Court of Justice, on Saturday, Mr. Justice Cozens-Hardy had before him a debenture stock holder's action against the company and the trustees of the deed. All parties consented to take the judgment in the settled form with the appointment of a receiver and manager. Mr. Justice Cozens-Hardy appointed Mr. C. E. Hare receiver and manager to act as manager for four months, but would not give liberty to the receiver to borrow £500 to carry on the business, stating that the parties would have to take out a summons in Chambers for that purpose.

THE automobile recently imported into America by Mr. W. K. Vanderbilt, jun., which has occasioned so much excitement by its high speed, is said to be a 30 h.p. Daimler. A French mechanic is in charge of it, Mr. Vanderbilt himself not attempting to run it.

THE Motor-Car Journal.

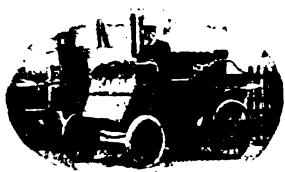
Vol. II.]

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[No. 73.]

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COMMENTS.



IN our last issue we mentioned that a motor-car was touring in the West of England. We have had the pleasure of making its acquaintance at Newquay, Cornwall, whither the hot weather had driven us from London. The car was of Daimler type, with wheel steering and a wagonette body, constructed to carry nine passengers—six behind, two passengers and driver in front. The “turn out” was altogether very smart; but whether it was a service vehicle or of private ownership we did not ascertain. It had been driven from Bristol, and made several days’ stay at Newquay, taking long motor trips daily, round the neighbourhood. The hills are what our friend Dominic Sampson would call “prodigious,” and the surface is none of the best. That a 6 h.p. car with nine passengers should be able to tour comfortably in such a neighbourhood shows that the ordinary type of motor-car is possible of doing all that any owner should reasonably desire. The touring party left Newquay on Saturday, intending to return to Bristol over the moors.

Newquay.

THE present is our first visit to Newquay, and we must confess our astonishment that there should be such magnificent hotels, considering the size of the place. That at which we are staying—the “Headland”—has only just been opened, and, as a matter of fact, our party was the first to “register” in the hotel book. The hotel is quite finished inside, and is resplendent in English oak and Devonshire marble, while the arrangements for the comfort of the guests will commend themselves to all. Practically the whole of the ground floor is a “lounge,” where afternoon teas, coffee after dinner, and smoking all day long may be indulged in.

The Lounge.

THOSE who have been on the many successful tours of the Automobile Club know how dissatisfied the ladies have been when after dinner they have been relegated to the drawing-room, while the mere male man has been content to finish his smoke in either the billiard or smoke room, leaving the ladies to their own devices. In all modern hotels the lounge is the most popular place, where either ladies or gentlemen have equal rights and meet on common ground.

Hotels.

WHEN we find a good hotel we are prepared always to call attention to it. The 1,000-miles Trial taught us that what were called hotels were—well, to say the least, unworthy of the name. We met all sorts. The inns were always comfortable and homely, and had no pretence to grandeur, while some of the anomalies called hotels in even leading towns

were beneath contempt. In Sheffield especially was this the case. We should not imagine, from opinions expressed, that there is a first-class hotel in the place. At the hotel where we stayed the milk was sent up to the breakfast-table in cream jugs not holding a tablespoonful. We measured, and therefore know. The butter was sent up in single small “pats,” and when either butter or milk was wanted the waiter had to go downstairs and fetch more. Those who were with us, and there were several, will well remember this. Our sympathy for good hotels and their need for sympathetic reference we are sure will be appreciated by our readers.

The Menu.

MR. TREVAIL, of Truro, is responsible for the growth of hotels round the Cornish coast, and his idea is that all the local produce should be used locally, and not sent away. This is all very well, and the notion is a good one; but the food, when one comes to the seaside and looks mostly for, is fish—fresh from the sea, where nature’s most bountiful harvest should be; but, *mirabile dictu*, the best of French chefs are not able to satisfy the customers in this direction in the Cornish hotels. Apparently, the Cornish men are content for their wives to take in lodgers, and they themselves are too idle to do aught but laze about; therefore the fish has to come from afar—say, Plymouth—and then has to travel in the broiling sun by rail and other means. Therefore the fish portion of the menu is always indifferent. Other *plats* in the hotels are as a rule excellent.

The Roads.

THIS Mr. Trevail is a very important public man in Cornwall, and we would urge upon him, now that he has erected such beautiful hotels, to attend to the roads of the county and make it possible for those who are likely to be his best customers to come and use his hotels. The roads we should not like to say are the worst in the kingdom, but we do not know what roads to compare them to. A General Wade is wanted to do for Cornwall what was done for the Highlands, and the result would be such an opening up of the Duchy as would bring prosperity to the county and pleasure to the tourist. The roads and lanes are so narrow that we have found ourselves wondering what would happen if a motor-car came across one of the Newquay coaches—many of them have five horses, two pairs and a leader. The only escape for the horses, if they desired to turn round suddenly, would be to jump the hedges.

The Latest.

THE scene was a country lane, and an old lady was in a wagonette, the coachman driving. “Oh!” said the old lady, excitedly, “there is one of those dreadful motors, Joseph. I know the horse will take fright. Hadn’t you better turn him round?” Coachman (who will have his own way): “Oh, let ’im alone, ’m; he’ll turn ’isself round, and pretty quick too, if he’s frightened.”

Dirt and Vibration.

At several garden parties recently held motor-vehicles have been well in evidence, and while nearly all observers are sympathetic in their opinion that "motors will be the vehicle of the future"—yet a qualification is generally made that they are "so dirty and they vibrate so." This remark, too, has been addressed to motorists—gentlemen wearing light gloves, frock coats, and silk hats, and to ladies in the most delicate of muslins. That it is also possible to get dirty in a railway carriage has been brought forcibly home to us in a 7½ hours' journey to the west. There was no water in the carriage, the heat was stifling, we had the windows open all the way, and the result was when we arrived at our destination we looked as if we had come up from a coal mine. We certainly have never got in such a state from motor riding. The vibration also was extreme, and it was impossible to sit still without wobbling, which we certainly do not find necessary when motoring; all of which goes to prove that people must say something and that something need not necessarily amount to sense.

Motor Dust-Carts.

SEEING that the Public Health Committee of the City of London Corporation could not get a dust cart propelled by electricity, the Streets Committee of that authority is seeking a motor dust cart propelled by steam. This should lead to some advance being made throughout the country in the same direction, for the presence of a motor dust cart in the City of London would unquestionably be a boon and demonstrate most thoroughly the advantages it possesses over horse-drawn carts for street refuse work.

Accidents in France.

THE *Vélo's* monthly record of accidents for May last has just appeared, and shows no less than 661 mishaps arising from horsey eccentricities. As a result of these accidents fifty-nine deaths occurred, and 602 persons were more or less seriously injured. Compared with these figures the automobile's record of thirty-nine accidents sinks into absolute insignificance. The latter moreover gave rise to but a couple of fatalities, the one occurring at Neuilly and the other at Sommières. In the former case a lady was knocked down and killed by an automobile in the Boulevard Maillot, while the mishap at Sommières was brought about by a horse taking fright at an approaching motor-vehicle and crushing the carter who endeavoured to pacify it. The bicycle accidents total up to eighty-three, and in three instances the results proved fatal to the victims. On the railway a like number of mishaps occurred, claiming sixteen deaths and sixty-seven wounded. The noble steed still maintains his advance over all other means of locomotion in the matter of accidents in spite of the marvellous number of automobile mishaps recorded daily by a certain section of the press.

Motor-Cars and Breweries.

BREWERS are watching automobile developments with considerable interest, for not only does motor traffic open up the prospect of economy, but it will do away with stables and hay stores about breweries. Cleanliness is absolutely necessary in connection with brewing, and as stable litter swarms with germs anything tending to do away with that is to be welcomed by the trade. In fact, where there are horses and stables there cannot be perfect cleanliness from the chemist's standpoint. And as motor wagons and cars give rise to nothing of a deleterious character their adoption would prove a boon to the brewing industry.

Irritating Courtesy.

PEOPLE who don't like motor-cars should not lose their tempers. The Hon. Lancelot Lowther was in a cab in Grosvenor Place when a motor-car passed. According to his own evidence the car went by like a flash of lightning, and the cabman pulled up his horse. Then, instead of stopping his motor-

car, the driver, a Frenchman, turned and kissed his hand to the occupant of the cab. This irritated the latter, who followed the car that had passed like "a flash of lightning" till he came across it in a mews. The sequel has been told in the Westminster Police Court.

A Trade Practice.

THE Motor Trades Association is seeking to influence manufacturers of motor-cars in this country to adopt the practice that has held good for many years in the engineering trade, viz., of declining to engage a factory hand until they have received a reference from the last employer of the applicant. A letter is now being sent, urging this advice, to all actual makers in Great Britain, and giving them a draft of a suitable form to be employed in this connection.

A Lincoln Appointment.

WE congratulate Mr. A. W. Goodall on his appointment to the management of the Lincoln Motor Bus and Parcel Delivery Company. It is a position he will be able to fill with credit, and the development of the new method of locomotion in the cathedral city is likely to be substantial under his guidance. We understand the company is running a regular public service, and doubtless its extension into the surrounding villages and hamlets will open up a good source of revenue.

Presence of Mind.

IN selecting drivers for automobiles something more should be looked for than the ability to drive and the knowledge requisite to understand the ways of a motor. Good general health is an essential factor in the driver's equipment. This is emphasised by an incident which recently occurred. The driver of a vehicle had a fit and lost control of the vehicle. The passenger, sitting by his side, promptly recognised the position, and sitting upon the driver's knees managed to steer the vehicle to the side of the road and then apply the brake. Fortunately a policeman was in sight, and the affair ended without mishap. But what would have happened had the passenger lost his presence of mind in such circumstances?

Glasgow's Motor Dust-Cart.

At the last meeting of the Glasgow Corporation the Mo-Car Syndicate Company report that, in view of the delay which has occurred in obtaining cells for the electric motor dust-cart on order, they are prepared to deliver a motor dust-cart to be driven by oil at a cost of £410 to £440, the cost of oil being about 2d. per mile. The Cleansing Committee have refused this alternative offer, being still hopeful of obtaining a dust-cart with an electric motor.

Another Gymkhana.

AN automobile gymkhana, similar to that recently arranged at Ranelagh, will be held at the Sheen House Club to-day (Saturday). No second prize will be given unless there are five entries. There will be six events, including a bending race, starting from "cold," motor-tricycle coat and waistcoat race, etc. Horses belonging to members of the Sheen House Club will be trained in the presence of automobiles from 11.30 a.m. to 2 p.m.

Canadian Postal Enterprise.

By the introduction of automobiles into the Toronto postal service and putting another clerk on the train which arrives in Toronto from Montreal at 6.50 a.m., the Montreal mail is now included in the first delivery throughout Toronto. The clerk leaves the city in the evening to meet the west-bound train, and by the time the train arrives the mail is all sorted to the central and various branch post offices. Auto-

mobiles, waiting at the station, hurry the bags to their destination in time for the first delivery by the postmen. By this means about three hours are saved in the delivery of Montreal letters in Toronto. The initial trip was made by Mr. J. E. McLeod, superintendent of the city post office. The automobiles have been furnished by the National Cycle and Automobile Company. The same system has been adopted for Montreal.

A Tribute to the Motor-Car.

At the last meeting of the Chippenham Rural District Council the surveyor gave a capital instance of the utility of motor-vehicles. He had heard that a gentleman went from Chippenham to Hereford, dined there, and returned to Chippenham the same day. It has often been urged that the motor-car is well calculated to promote friendship and sociability, and in country districts such examples as the one quoted at Chippenham might be multiplied.

A Note from the States.

SYRACUSE is an American town of about 130,000 inhabitants that has hitherto been chiefly associated with the bicycle trade. Now it is developing in connection with the automobile industry. At the present time, we learn from a correspondent in America, there are three or four factories at work turning out motors, and several vehicles of local production are running about the streets. The Locomobile Company has an agency there, and are doing very good business. Last month, in connection with the Syracuse Automobile Club, which has only just started, a run was arranged, to which Mr. C. G. Wridgway and Mr. W. Letts, late of the British Motor Coupé Company, were invited. The programme consisted of a parade around the town of about twenty-three motors, and a run out to Maple Bay, which is noted for its frog-leg suppers. The party arrived there late in the afternoon, sat down to an excellent meal, and journeyed back in the cool of the evening in a sort of go-as-you-like style. The English visitors spent a very pleasant time, and thought of the happy runs they had taken part in in the old country, and the fine times they had had on the Brighton road, coming to the conclusion that the roads in America are certainly very bad. Out into the country the roads consist simply of rut tracks. Some places have four or five inches of sand, so that a motor-car has to be well built to stand the wear and tear of such roads as these. The only motors seen in the States are the electric carriages and the little steam cars. Our correspondent's opinion of the latter is that they are built too light; but he admits that they go splendidly, and the manufacturers cannot keep pace with the demand, so well has the general public taken to this style of car. As soon, however, as a small petrol carriage to carry two people is put upon the market, he thinks there will be a great rush for them. The Mobile Company, of Tarrytown, of which Mr. John Brisbane Walker is the president, started selling the little steam cars at 650 dols.; so great has been the demand that a fortnight ago the price was put up to 780 dols., and even then the demand could not be met. They are turning out fifteen a day.

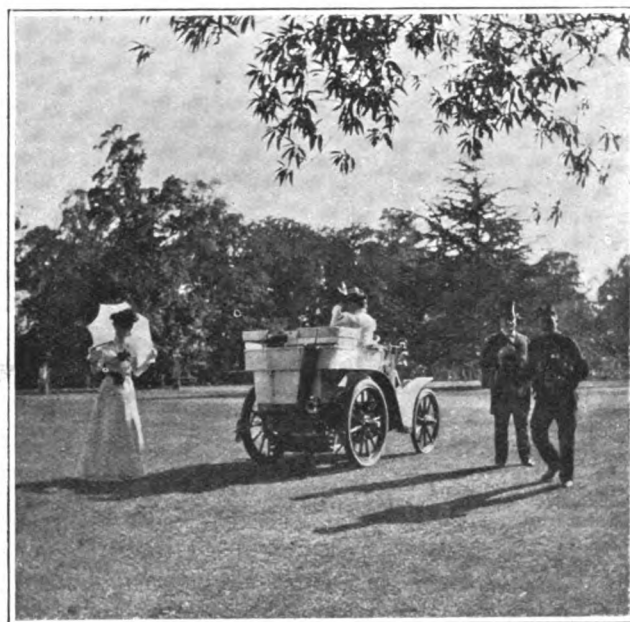
America to the Front.

"A SHORT time ago, when I was in Toronto," continues our correspondent, "I saw a new steam motor-car that was being manufactured there, something on the same lines as the Stanley, only that the engine was cased right in and was entirely dust-proof, and all the working parts were running in oil. It certainly seemed to me a very good idea. Of course, in the business on this side as well as at home, there are a lot of clever people who imagine that they are going to do something very wonderful, that no one else has ever done. One man told me quite confidentially that gears and belts for transmission were entirely wrong; that he was simply going to use compressed air as a means of transmission, and he would be able to have any speed he wanted. I can see more plainly every day that the American people are realising that to build a suc-

cessful motor they must work something on the same lines that we have been working on in England, France, and Germany for the last few years. In another eighteen months' time America will be very well up to the front in the manufacture of automobiles and accessories."

Motor-Car Hash.

SCARCELY a weekly paper catering for the wealthy classes has not its column devoted to automobilism. These contributions vary in many particulars, and few are really satisfactory, those in the *Field* being the most accurate and reliable, as it is about the only one that treats the subject in a serious and practical form. The *Traveller*, the latest addition to the ranks of the sixpenny weeklies, has a column of motor-car notes of a very general and discursive character. If our contemporaries think to interest their readers they will have to give really less ancient and more practical information than is at present the case.



MR. F. H. BUTLER AND HIS 6 H.P. PANHARD—MISS BUTLER AT THE HELM.

A Ferrying Difficulty.

A CURIOUS question has arisen in the fashionable American town of Newport. It appears that the ferry company, whose boats afford the only means for vehicles to reach Narragansett Pier, has refused to carry vehicles propelled by gasoline, and Newport automobilists are warm over the decision. Some strong protests were made, but the company appealed to the supervising inspector-general, who decided that Section 4,472 of the Revised Statutes absolutely prohibits the ferriage of naphtha or petrol on either freight or passenger steamships. Of course the statute was framed before automobiles were thought of as popular means of transport, and in view of the rapid extension of their use the situation created by the statute, if it should be generally applied, would be clearly impossible. Automobiles, whether petrol or other, must be ferried; and to empty the petrol tank on one shore and purchase a fresh supply on the other would be both impracticable and ridiculous. The danger involved in the fluid's retention, in the carefully guarded tanks provided for it, and with the motor quiescent, is insignificant. It is hardly too much to say that the ferry-boat is exposed to more risk in the act of crossing from other boats, stress of weather, and its own boilers than it would be from half a dozen petrol carriages. A measure framed in the interest of public safety, to prevent the carrying of petrol in bulk or in loose cans, should not be used contrary to public utility.

PARIS EXHIBITION NOTES.



(From Our Own Correspondent.)

A DISTINCT novelty is the motor-bicycle with speed-change gear exhibited by MM. Chapelle and Chevallier, an illustration of which is given herewith. Personally, I am by no means an advocate of the motor-bicycle, but, as they go, I find M. Chapelle's machine to be a capital one of its kind, if only by the fact that the motor is placed at the lowest point of the frame. Whether a speed-change gear is actually required upon an automobile of so light a description is a matter of opinion, but for those who consider it to be an unnecessary encumbrance MM. Chapelle and Chevallier build another type of motor-cycle without it. In both cases the motor carried is of $1\frac{1}{2}$ h.p. The two-speed machine is provided

costs £42, while the price of the other is £35. MM. Chapelle and Chevallier also sell their one and a-half horse-power motor alone, the price of which is £19.

Electric vehicles are to be found upon the stand of Mr. Jeantaud. There is first of all an example of his now well known cab, with its store of accumulators carried in a large box in front. The driver's seat is placed, as in the case of an ordinary hansom cab, high up at the back of the car. A great convenience is the shaded electric lamp throwing its light directly on to a voltmeter, so permitting an easy reading of the latter being made at night. Wheel steering is employed. Another car here shown is a phaeton, with hood and small "spider" seat behind. The wheel steering attached to this carriage is of the inclined type. A handsome Victoria is also exhibited, and the fourth and last car upon the stand is a small voiturette in blue, white, and gold. The exact purpose of this carriage is doubtful, for unless at a carnival or some similar festivity



A CORNER OF THE AUTOMOBILE SECTION AT THE CHAMP DE MARS.

Cliché de

(Le Chauffeur.

with a leather driving belt, which is extended by means of a lever placed conveniently before the rider. This belt drives on to two large pulleys, which give plenty of adherence and avoid slipping. The motor can be entirely disconnected when desired, and consequently the rider can at will pedal his machine as in the case of an ordinary bicycle. The maximum speed obtainable is 50 kilomètres per hour, while the constructors state that with the lower gear all hills can be ascended without pedalling at an average speed of 15 kilomètres per hour. Electric ignition is employed, a switch in the left handle rendering the cutting off of the current very easy. A trailing car or an "avant-train" can readily be attached to the frame of the bicycle. The motor is high speeded, running from 1,400 to 2,000 revolutions per minute, and it is so excellently attached that but very little vibration is conveyed to the frame. The carburettor is of a special type, and has been found to be very economical. The machine weighs some 35 kilogrammes, and the two-speeded type

the ordinary man would not care to mount so toy-like a vehicle.

The Société Européenne d'Automobiles, of Paris, exhibit a couple of steam-cars, each with seating capacity for four persons. Carried at the rear of the vehicles the engines are of 12 h.p., and are fed from water-tube boilers. Ordinary petroleum is used as fuel. The driving is performed through the medium of ordinary chains on to the rear wheels, the maximum speed obtainable being 45 kilomètres. The makers maintain that their boiler but seldom requires attention, the deposit made being infinitesimal. Wheel steering is fitted to both vehicles.

Among the voiturettes, that shown by M. Deschamps, of 31, Rue St. Augustin, Paris, is sure to attract some attention. The two-cylinder V type of petrol motor with which it is fitted is carried on the fore part of the car, and develops four horse-power effective. Three speeds varying from 5 to 45 kilomètres per hour are obtained through the medium of a conveniently placed lever.

The inclined wheel steering possesses a movable pillar, which in its forward position puts the motor into gear with the car. Pulled back it disconnects and causes the engine to run light. The weight of this little vehicle, which, by the way, is known as the "Excelsior," is 180 kilogrammes.

A couple of pretty little voituresses are exhibited by Messrs. Wehrle and Godard-Desmarest, of Neuilly-sur-Seine. The aluminium carriage body is carried on two C springs, and from practical experience I know the running to be very easy. Either the $3\frac{1}{2}$ h.p. De Dion or the new water-cooled Aster can be fitted to the frame as desired by the client. Three forward speeds and one reverse are obtained by the cog gearing contained in an aluminium case beneath the body of the vehicle, the speeds usually fitted being 10, 20, and 35 kilometres per hour. A friction clutch permits of all intermediate speeds being attained. The car is fitted with wooden wheels and the hubs are of bronze. A couple of brakes, one hand and one pedal, are employed.

Among the provincial firms showing is Messrs. Delaugère and Co., of Orléans, who are the makers of the Romain motor already illustrated in these columns. Built on the Otto cycle this engine is at present constructed in three sizes, viz, $2\frac{1}{2}$, 3, and $4\frac{1}{2}$ h.p.,

the two larger types being air or water-cooled at the customer's option. The makers claim that by means of a special disposition of the induction and exhaust valves in the body of the cylinder the return of the hot gases is prevented, and that considerable aid to the cool running of the engine is thus secured. In the case of the air cooled motors the cylinder head is provided with very prominent and vertically cut ribs, assuring perfect cooling. The ignition is electric. The motor is displayed fitted to three types of automobiles, these being a tricycle, a quadricycle, and a voituressette. This latter carries the engine in front and drives through the medium of cog-gearing. Three speeds are provided, and the water circulation and efficient cooling are secured by water circulation, pumps, and radiator.

(To be continued.)

THE partnership existing between G. D. Barnes and W. J. Colville, trading as the Middlesex Motor Carriage Company, at Walm Lane, Willesden Green, London, has been dissolved.

THERE were thirty-nine motor-carriages in line in Bridgeport's automobile parade on July 4. The silver loving cup offered by Mr. Griffin for the best decorated carriage was won by the Misses Emma G. Riker and A. M. Kennedy, of Bridgeport, U.S.A., who drove a Locomobile car.

THE Cooke Locomotive and Machine Co., of Paterson, N.J., U.S.A., are building a heavy steam-wagon under the Thornycroft patents, from drawings sent from England. We believe, states the *Horseless Age*, it is the only one of its kind under construction in the United States. It will have a 25-h.p. engine and water tube boilers, carrying 200lbs. pressure.

THE IRISH MOTOR TOUR.



(From Our Own Correspondent.)

THE further journeyings in Kerry of the two Daimlers driven by Messrs. Meeredy and Colohan are furnishing some interesting data on the possibilities of motor-vehicles in the multitude of circumstances which arise in extended touring through hilly countries. Kerry contains the highest mountains in Ireland, and a goodly supply of lesser heights which give the most adventurous driver quite as much variety in gradient as he is likely to need. The beautiful scenery is a compensation for the hilliness of the routes, whilst the surface is excellent. I think Kerry is a paradise for good cars, provided with adequately powerful engines, and driven by men who have perfect control over them. With weak engines and mechanism unable to stand sudden and powerful strains, a tour in such a place would indeed be a ghastly farce, and expensive withal, for repairs are unknown and railway accommodation is scarce. We have to go equipped as if in a strange land. The railway companies absolutely refuse to carry petrol, as do the steamer companies, and our only course was to get supplies by canal to a

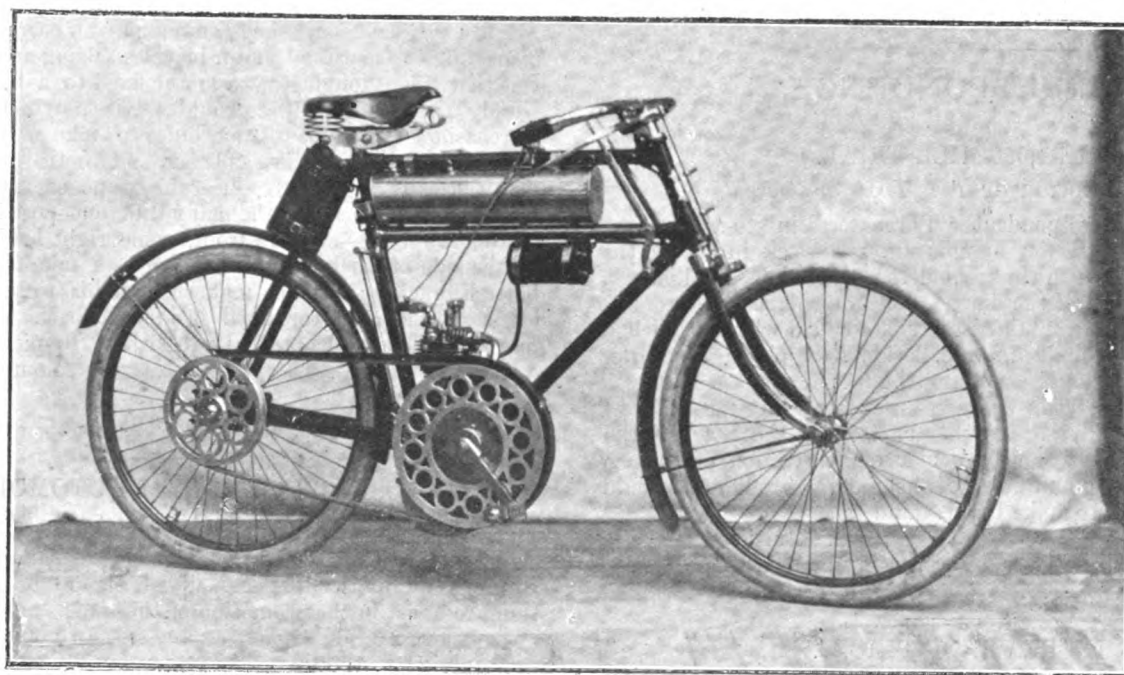
point on the Shannon and carry thither a quantity sufficient to do us for several hundred miles. Besides, we have a full complement of passengers, and considerable luggage.

Thus loaded, we had, on July 15th, journeyed sixty-eight miles from Killaloe, *via* Limerick, to Listowel in Kerry, over a fairly hilly road and through glorious scenery along the Shannon. On

the 16th we made a forty-one miles trip from Listowel, *via* Tralee, to Killarney, getting really in amongst the mountains and having some stiff climbs, alternated with glorious rushes, the engines running free. Our biggest task was on the 18th inst., when we mounted the hilly road which leads from the Killarney lakes up over the hills to Kenmare. There are eight miles of a terribly winding road, the average grade of which is one in twenty. At numerous parts the gradient is as severe as one in six. The road is very narrow, and overhangs precipitous heights at many points. A sharp look-out has to be kept for descending cyclists and coaches, which often sweep round at almost uncontrollable speeds.

The Daimlers mounted in splendid style. Only at one point had we to shed a passenger, and then it was as a matter of extra caution, for the engine on its fourth speed was strongly cutting out at the time, and we had a big reserve of power to call on. The climb amply repays for the strain, as from this road a series of the most magnificent views of Killarney are obtained, and the route itself, running through beautiful glades and woods, is a constant pleasure to the appreciative lover of Nature.

Topping the crest of the last bit of up grade we swung out on the free, the engines out of gear. It was a magnificent coast of five miles, and but for the sharp corners we could have slipped along at terrific pace. As it was we did a nice twenty-five, and



THE CHAPELLE AND CHEVALLIER MOTOR-BICYCLE.

found it wildly exciting when there were cows and coaches to be negotiated round double S bends. We had ample opportunity of testing the capabilities of our brakes in cases where their failure meant somebody going down to Killarney by the vertical aerial route; merely a matter of a few hundred feet. However, we kept faithfully to the miculim, and found the incidents exhilarating enough. Beyond Kenmare we had Sneem Pass to negotiate, and this necessitated some more miles of stiff collar work for the cars, though not at all so severe as the ascent from Killarney. The ensuing run down proved very enjoyable. Indeed, so far we have found that hill-climbing has its attractions owing to the excellent going generally found on the other side of the slope.

Hitherto we had occupied the main coach route and had no trouble as to road room. But at Cahirdaniel our itinerary led us on to a very narrow by-road of fearfully tricky gradient. The windings were bewildering, and many of the ascents sharp and sudden. To crown all a most treacherous slime tried our stability severely. It was one of the nastiest roads a car could be taken over, and the consequence of any error would have been most serious, as deep bogs bordered the way. However, we reached our destination without trouble, our cars once more showing what excellent road machines they are. Our total distance for the first four days comes to 273 miles, or an average of 68 miles a day.

CORRESPONDENCE.

THE 1,000-MILE TRIAL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent "Purchaser" in to-day's issue should have invested the humble 1d. per week in buying the *Motor-Car Journal*, which throughout the 1,000-mile Trial gave a most reliable account of the doings of all the competing cars.

The information contained therein, coupled with what I had gleaned by inquiry, enabled me to decide upon placing an order for a "Star" car, notwithstanding the fact of this car having a mishap during the trial, which your *Journal* duly recorded. I would respectfully advise "Purchaser" to visit the Star Works at Wolverhampton, when an ocular demonstration of the excellent workmanship and finish of the motor throughout would quickly enable him to make up his mind.

Yours truly,

99, Walter Road, Swansea,
July 21st, 1900.

A. A. JONES.

INCREASE OF PRICES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As another epidemic of rising prices seems to have set in among the makers, will anyone kindly explain why the increased demand for cars should be given as an excuse to raise prices? In all my connection with the business world increased demand tends to lower rates. I can only suppose that the motor industry is regulated by the rules of contrary. I hope the public will not buy at increased prices under these conditions.

Yours truly,

Clerkenwell, E.C.,
July 20th, 1900.

W. T. W.

MOTOR-CYCLE TOURING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Would some of your readers who have toured on motor cycles, or who have had them with them when staying away from home, be good enough to state whether they often or usually have difficulty in finding suitable quarters for their machines? Whether the hotels or inns in many cases have separate lock-up accommodation for them, and, if not, whether there is not considerable risk of them being tampered with? Is there any special channel through which one who is not "in the know" may ascertain in what towns and at what houses he is most likely to find suitable accommodation? I am deterred

from using my motor-quad, except for rides from and back to my residence, through a feeling that I should experience a good deal of trouble and perhaps annoyance in connection with the housing and cleaning of the machine.

Yours truly,

Bolton, July 23rd, 1900.

"SAMUR."

P.S.—I have copies of such petrol and hotel lists as I have as yet come across.

MOTOR-BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will you permit me through your columns to offer a word of advice in the matter of applying the brake on motor-bicycles? A few nights ago a friend of mine, whilst riding a motor-bicycle near Kenilworth, met with a serious accident through applying his brake too suddenly. It appears he was going down a hill at about sixteen miles an hour as a wagon-load of hay was coming in the opposite direction. Just before reaching the first horse the animal began to prance, when my friend applied his brake, and in doing so he naturally swerved, and he and the machine rolled underneath the horses' feet. Although terribly bruised, fortunately no bones were broken, but the motor-bicycle will never be ridden again.

By the way, some time ago one of your correspondents wrote respecting the merits of motor-bicycles. Being an old cycle racer, I at that time thought that a motor fixed to a bicycle would be simply perfection; but I would advise anyone that thinks of purchasing this type of machine to take *Punch's* advice to those about to marry—"Don't." I notice week by week many firms trying to introduce this type of machine, and it is quite amusing to notice the many different positions where the motors are fixed—some in front, some right behind, others fixed on the side of back forks, whilst others take the place of the bottom bracket; yet each maker claims his to be the best. The latest one is a motor fixed inside the back wheel. I notice, however, that one has to take the wheel to pieces to grind the valves in!

Yours truly,

Brighton Villa,

F. JACKSON.

Kenilworth, July 26th, 1900.

A PROPOSED BIRMINGHAM AUTOMOBILE CLUB.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Is it not about time we had an Automobile Club for Birmingham district? Personally, I should be glad to do anything to assist in the promotion of the same.

Yours truly,

July 24th, 1900.

"FORWARD."

THE Auto-Club Verbano is the name of a new club which has just been formed at Stresa (Lake Maggiore), Italy.

THE American Express Company has determined to make a trial of electric vehicles for delivery purposes, and with this object a Woods delivery wagon has been sent to the Milwaukee, Wis., office.

Two 6-h.p. heavy oil vehicles are being prepared for service as cabs in London by Messrs. Roots and Venables, of Westminster Bridge Road, S.E., who are in communication with the Chief Commissioner of Police with reference to the necessary licences.

IN a recent list of new Illinois incorporations was the following:—"The name of the An-T-Phat Company of Chicago is changed to the Chicago Automobile Company." We do not see the connection. Perhaps some humorist can supply the missing link.

It has at last been decided in France that automobile is masculine, and that it is correct to say "un automobile." The *Vélo* says that the Académie-Française has decided by vote that in future "automobile" should be masculine, the idea apparently being that it is an adjective qualifying the word "vehicule," understood.

THE CLEVELAND ELECTRIC CAR.

THE other day we had an opportunity of inspecting a new electrical car built by the Cleveland Machine Screw Company of Cleveland, Ohio, and lately introduced into this country by Mr. C. Eagle-Bott, of Donington House, Norfolk Street, Strand, W.C. The car, of which an illustration is given herewith in Fig. 1, takes the form of a two-seated hooded Stanhope. The frame is built up of solid steel rods and tubing; two "reach rods" extend from the front axle

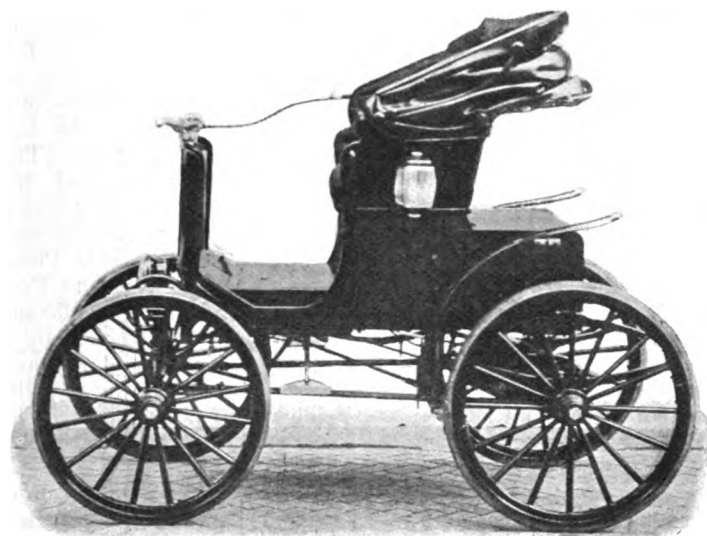


FIG. 1.—GENERAL VIEW OF THE CLEVELAND ELECTRIC CAR.

and connect with spring-supporting ball-bearing housings on the back axle near each wheel. The attachment at these points is by means of universal joints, allowing full freedom of movement on uneven roads, the plate springs at the front also working on a central oscillating joint with a similar object.

The electro-motor is of the bi-polar type; it is of 3 h.p. nominal, but has a large overload capacity. It is suspended in the centre of the frame immediately in front of the rear axle by a hinged joint on the latter and by trusses connected with the frame. The motor shaft carries a pinion which meshes with a spur wheel on an intermediary shaft, from which the power is transmitted to a spur wheel surrounding the differential gear on the rear axle. The whole of the motor and transmission gear is entirely enclosed. A mechanical two-speed gear is mounted on the intermediary shaft, this being brought into use when unusually steep hills are to be mounted.

Coming now to the accumulators, this consists of forty cells, the plates being of the Faure pasted type. The cells are of the seven-plate kind, and are carried in ebonite boxes. The positive plates are enclosed in a special fibrous envelope, which, while said to be unaffected by the acid, prevents the disintegration of the active material from the plates. The latter are further separated by means of plates of perforated and corrugated hard rubber. The battery has a capacity, at 24 ampères, of 120 ampère-hours, and will, it is claimed, run the car a distance of 75 miles over ordinary roads at an average speed of 11 miles per hour on one charge. The weight of the forty-cell battery is given as 880lb. The battery is adapted to be charged in position, but can be withdrawn if necessary. Every part of it is readily accessible, the top and end of the rear portion of the body being made to lift up; the seat can also be lifted off if necessary.

A feature of the car is the combination steering gear and speed controller, the latter being arranged to give three speeds forward and reverse. The controller of the Cleveland vehicle is novel and entirely original, all the actions of controlling being simplified by the use of a single handle. This handle not only serves for the steering of the vehicle, but puts on or shuts off the power, applies the brake, and reverses the direction of motion,

and also the vehicle may be securely locked while the owner leaves it for any length of time. The direction of the vehicle is controlled by lateral movement of the lever, the vehicle going in any direction to which the handle is pointed or aimed. Depressing the handle from notch to notch increases the speed, and pulling up the handle, as one would draw in the reins in case of emergency, instantly turns off the current and applies a hand brake on the intermediate shaft. This hand brake is adapted to work with the car running either forward or backward. The intensity of the brakes is increased as the handle is further raised. When the speed has been reduced, by again lowering the handle any of the speed notches can be readily picked up, the speed and brake being always under instant control, one hand only being engaged. The controlling handle is made either to stay where placed or is self-raising to the brake position to suit the fancy of the owner. The controlling handle lying nearly horizontal, the "aiming" action in steering completes the simplicity of the operation. The controlling head, which is shown in Fig. 2, is supplied with an indicator showing at all times the position of the controlling cylinder. The steering and controlling handle may readily be raised to an upright position for the convenience of occupants, especially for getting in and out on the driver's side. A small plug is provided in the steering head, the removal of which, when the car is left, prevents it being operated except by the driver. The controller and current-manipulating switches are located below the floor, and in front of the batteries, this, it is claimed, avoiding hydrogen detonation.

Special attention has been given to the question of rendering the vehicle dirigible, to the easy control of the guiding mechanism, particularly in regard to meeting obstructions, so that the mechanism should not be deranged, or the vehicle thrown out

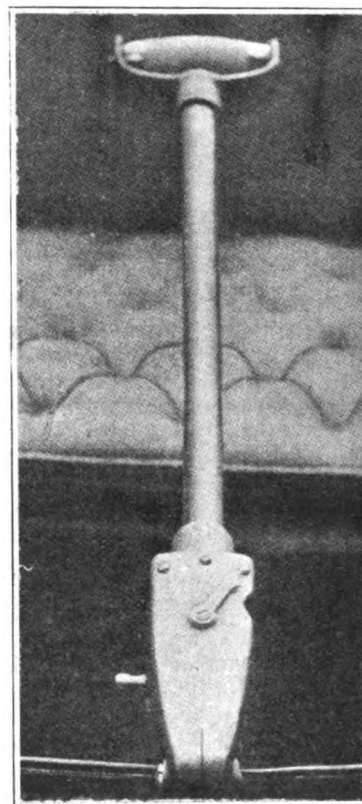


FIG. 2.—VIEW OF COMBINATION STEERING AND SPEED-CONTROL HANDLE.

of its course. After exhaustive experiments the Cleveland Company claim to have succeeded in finding a method of attaching the front wheels which seems to have overcome all difficulties. In tests designed to thoroughly demonstrate the practical operation of the device, and especially to compare it with the one ordinarily used, it was found that the amount of side thrust admitted to

the guiding handle was practically in proportion to the leverage measured by the distance between the steering axis and the plane of the wheel, at the highest point of the interception of the obstruction. The front or steering wheels are not mounted on the usual short vertical pivots, but the steering axis stands oblique, and is made to intercept the plane of the wheel up from the bottom or ground line, where obstructions are encountered, and where they may be met "head on" and therefore entirely neutralised, giving, it is stated, no tendency to deflection in either direction. It is also claimed that the arrangement gives the vehicle a quality of self-centring, or running straight-forward, hands off. The wheels when turned in the act of guiding describe a conic section, the lowest point of which is the straight-forward running position. Another peculiar feature is that in this action each wheel is entirely independent of the other, throwing no stress upon the connections or guiding rods.

A foot pedal operates tire-brakes on the rear wheel, and when these are applied the current is automatically switched off, and cannot be put on again until the brakes are released. In fact, when either brake system is in operation the current is automatically cut off, and cannot be again established until the controller is open circuited.

The front axle runs on ball bearings; the rear axle is not split as usual, but is built up of two axles extending one into the other for a length of about 12in. The joint which is in the centre is of peculiar construction, rendering the axle self-supporting. The headlight or front central lamp is mounted on the fore-carriage in such a way that it turns with the front wheels. The car is fitted with solid rubber tires, wood wheels, and weighs complete about 19cwt. It can attain a top speed of twenty miles per hour. The Cleveland Company are also building a 5 h.p. car, and also a small "runabout," having a battery whose capacity on one charge is from twenty-two to twenty-five miles.

THE FRENCH AUTOMOBILE CLUB'S FÊTES.

(From Our Own Correspondent.)

AS I stated some time ago in these columns, the dates originally selected for the two fêtes given by the Automobile Club of France in honour of the Commissioners of the Exhibition were July 18th and 19th, but by reason of the former date clashing with the visit of the Commissioners to the naval manœuvres at Cherbourg, it was found necessary to make a change, and the fêtes therefore actually took place on Thursday, the 19th, and Saturday, the 21st instant. These festivities were the more noteworthy on account of the new theatre being utilised for the first time. With a seating accommodation for eight hundred persons this beautiful *salle* is the most remarkable of all the magnificent rooms in the club house. It is situated on the first floor and directly above the *garage*, access to it being by way of the member's dining room or by a new staircase which mounts from the courtyard. The theatre consists of a ground floor and a balcony, the seats in every part of the house being of the most luxurious character and upholstered in yellow leather. The walls and ceiling are of a snowy whiteness and carry a number of bas-reliefs dealing with automobilism. The drop curtain is of yellow velvet, and handsome curtains of the same material decorate the various entrances. Handsome as the *salle* is in the daytime the effect by night is really wonderful, for the electric light installation is the work of an artist. Hidden away behind the two cornices, the one actually in the ceiling and the other almost at the top of the walls, are two rows of lights running entirely round the hall, giving a marvellously subdued light, and one changed at will from a warm rich rose to a golden yellow. Large arc lamps are placed against the walls, while around the underside of the balcony are arranged a number of dark coloured lights, which give a wonderfully pretty effect to the appearance of the theatre.

On Thursday evening this installation was not seen to advantage, for almost immediately after the numerous company

had been admitted into the hall the light failed entirely and it was only by very occasional fits and starts that it made its reappearance. As the visitors had been previously warned of such a possibility no panic or undue excitement occurred and everybody waited patiently for further developments. These came in the shape of an assorted collection of candles, lamps, and lanterns gathered together from every part of the club house, and by their united efforts sufficient light was thrown upon the stage to permit of the programme being proceeded with. By way of limo lights three large acetylene lamps, borrowed from cars in the *garage*, were utilised, and the sight of certain well-known club men manipulating these miniature lighthouses from the balcony will not readily be forgotten. This *contre-temps* was undoubtedly very annoying to the organisers of the fête, but it amused the audience vastly, and but few left the theatre until the curtain went down on the last number of the programme at two o'clock in the morning. The light on Saturday evening behaved itself, however, and the visitors were treated to a delightful soirée. Commencing with a selection by M. Bosc's capital orchestra, the programme's second item was the *Capricioso* of Mendelssohn, executed by Mlle. Picot. Then followed a one-act piece by MM. Eugène Maas and Paul Delay, the three rôles being played by Mlles. Mylo d'Arcyille and Grimault and M. André Royer. This item was succeeded by a series of ancient dances executed by Mlles. Christine Booss and Antonine Meunier, of the Opéra, who in turn gave way to Mlle. Christine Kerf and M. Viscussi, of the Palace de la Danse. The Spanish dances executed by the latter performers were especially good, and were greatly appreciated.

A pantomime entitled "Noir et Blanc" was the next item on the programme, and it was excellently played by Mlles. Zambelli, L. Mante, and Torri, of the Opéra. The ballet of the Palais de l'Optique then gave an exhibition of their phosphorescent dances, but it was not until after the conclusion of their performance and the lights had been again turned on that one saw anything whatever of the fair dancers. The second part of the programme consisted of a review by M. Jacques Redelsperger, with music by M. A. Bosc, entitled "Le Jeu de l'Auto." The review dealt principally with M. Lépine's regulations and the cyclist-policeman, the scene of operations being the garden terrace of the club. The cast was as follows:—The Muse, Mlle. Rollys; The Automobile Club, Mlle. Germaine Gallois; Stellite, Mlle. Paulette Filliaux; An Urchin, Mlle. Mylo d'Arcyille; Carburette, Mlle. C. Médal; An Englishwoman, Mlle. Louise Bignon; Pétrole, Mlle. Grimault; A Cyclist-policeman, Mr. Hirsch; An Englishman, Mr. Fordyce.

Rejoicing in bright and tuneful music and several witty songs, the review scored a great success, M. Lépine, who was himself present, being especially amused by the humorous caricature of his creation—the cyclist-policeman. In addition to the principal members of the Club and nearly all the Commissioners of the Exhibition, there were also present the Maharajah of Kapurthala, Prince della Rocca, Comtesse Cahen d'Anvers, Baronne de Bélinay, Comtesse A. de Golstein, Comtesse Cognard, Vicomtesse A. de Contades, Marquis de Gouvello, Comte de Nion, and many other visitors too numerous to mention.

THE local authorities of Newark, N.Y., have decided that an automobile is subject to the same law as a traction engine, and should be preceded by a watchman an eighth of a mile ahead.

THE President of the Bordeaux Automobile Club has been asked by the local authorities to appoint a committee to draw up regulations for cycle and motor-car traffic in the Bordeaux district.

THE Overman Automobile Company has been incorporated in New York, under New Jersey laws, with a capital of £50,000, to construct steam cars on the system of Mr. A. H. Overman, late of the Overman Wheel Company.

WE learn from Novara, Italy, that a steam road service has just been established between that town and Robbia. Similar services between other small towns in the district are contemplated.

THE ST. LOUIS MOTOR-VEHICLES.

AN AMERICAN CONCERN which claims to have got beyond the experimental stage is the St. Louis Motor-Carriage Company, of Vandeventer Avenue, St. Louis. At present a light two-seated "runabout," a park "phaetonette," a stanhope with hood, a light delivery wagon and a covered van are being turned out from their works, which are said to be well-equipped, the assembling department being under the direction of Mr. Charles Bates, who, according to their catalogue, was formerly at the Motor Manufacturing Company's works in Coventry.

Of the vehicles above mentioned we illustrate two, Fig. 1 showing the two-seated phaetonette, and Fig. 2 the light delivery wagon. The carriage weighs complete 9 cwt., and is propelled by a two-cylinder horizontal motor of 6-h.p. The cylinders are made of cast iron, and are of 4½-in. bore and 6-in. stroke. The cranks are balanced at 180 deg. The usual water jackets are employed, the circulation being by gravity, while the ignition is electrical. The engine is located about the centre of the frame. Its pull is taken by an adjustable arm swinging between the engine shaft bearing and the sprocket shaft bearing outside the gear box. Tilting of this gear box is said to allow perfect freedom to the rise and fall of the rear axle on bad roads, and at the same time the swinging arm secures perfect chain adjustment at all times. Two speeds forward and one reverse motion are provided, the power of the engine being transmitted by a single chain to a small countershaft parallel and close to the rear axle.



FIG. 1.—GENERAL VIEW OF TWO-SEATED PHAETONETTE.

The countershaft carries a series of pinions enclosed in an oil-containing gear case, any one of which can be made to mesh with corresponding pinions on the rear axle. One friction clutch, working on the engine shaft, only is employed. When the vehicle is standing the gears are disconnected, a catch preventing the engagement of the clutch unless the gears are in perfect mesh, thus preventing, it is claimed, the stripping of the gears. The rear axle is in one piece, not being cut where the differential is applied, as is usually the case. One road-wheel is driven by the axle, the other by a hollow shaft slipped over the axle. The carriage, which is geared up to a maximum speed of eighteen miles per hour, is controlled by two levers at the right-hand side of the vehicle. One throws in the clutch, and when the clutch is thrown out applies the brake; the other shifts the gears. The speed of the motor is regulated by a foot-pedal. The exhaust silencing device is described as being very simple. It consists of a cylinder about 2 ft. long and 6 in. in diameter, placed underneath the body, and containing a number of steel plates full of small holes. A row of larger holes in the centre of the outer circumference allows for the final escape of the exhaust. Steering is controlled by the usual tiller lever, acting on the front wheels. The engines, running gear, etc., are mounted on an angle steel frame. Every portion of the engine and gearing is easily accessible, and, if necessary, the body of the carriage may be

taken off by removing a few bolts. The wheels are of wood or steel as desired, the wooden wheels having metal hubs and steel rims. Three-inch pneumatic tires or 1½-in. solid rubber tires are fitted. The petrol tank has a capacity sufficient for a run of 100 miles, while the water tank, which is concealed in the rear, holds ten gallons.

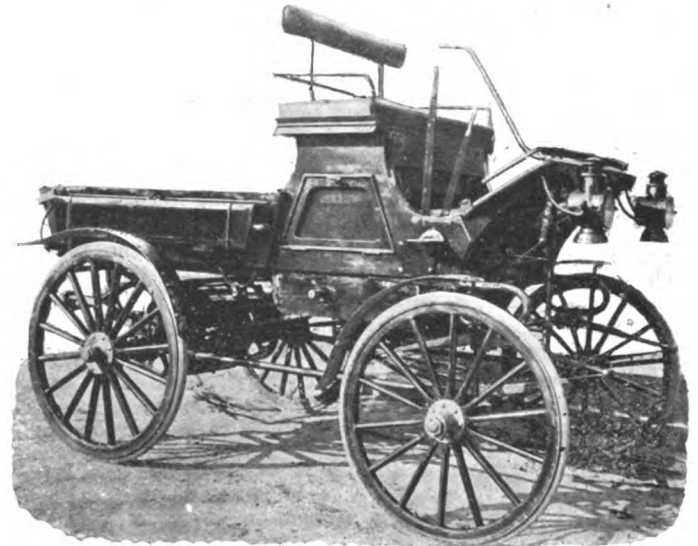


FIG. 2.—GENERAL VIEW OF LIGHT DELIVERY WAGON.

The light delivery wagon (Fig. 2) is fitted with a 6-h.p. two-cylinder motor, the transmission being identical with that in the car above described, the maximum speed, however, being only twelve miles per hour, at which it will carry a load of about 12 cwt., and mount gradients of 15 per cent. at a good speed. As will be seen, the car is fitted with wooden wheels and solid rubber tires.

THE New Dorp Beach hotel at New Dorp, Staten Island, U.S.A., is an up-to-date establishment, for in addition to a bicycle shed it announces that it has an electric charging station for automobiles.

THE London Motor Company, Ltd., has been registered with a capital of £30,000 to carry on the businesses of motor and other vehicle manufacturers and merchants, oil merchants, etc. The first directors are Messrs. S. F. St. J. Steadman, W. Dangerfield, and D. E. Cardinall.

AT the recent automobile congress at Padua, Italy, the organisation of a tour round Italy was proposed. The itinerary will be Turin, Alexandria, Genoa, Spezia, Pisa, Leghorn, Rome, Perugia, Florence, Bologna, Padua, Verona, Brescia, and Milan. The total length is 1,500 kilometres.

MR. ROLAND R. CONKLIN, of the North American Trust Company, New York, has planned an automobile trip with a 10-h.p. petrol car through France, Spain, Austria, Bavaria, and England. The party will include, besides Mr. Conklin's family, a Frenchman to run the machine and act as interpreter. The party has already left New York for Europe.

LOOKING in at the Automobile Palace on Holborn Viaduct, E.C., the other afternoon, Mr. Friswell showed us a number of new cars, including Brierre and Clement-Panhard voiturettes, he has now in stock. We were also just in time to see a novelty he picked up in Paris in the shape of a two-seated dog-cart—a little car arranged to seat two persons sitting *dos-à-dos*. It is propelled by a 2½ h.p. air-cooled Aster motor located under a bonnet in the fore part of a tubular frame. Two speeds are available, a single belt conveying the power to a short countershaft behind the rear axle, spur wheels connecting the latter. With inclined wheel steering and cycle-type wheels shod with pneumatic tires, the miniature car is said to run extremely well.

MOTOR-CARS ON THE CONTINENT.

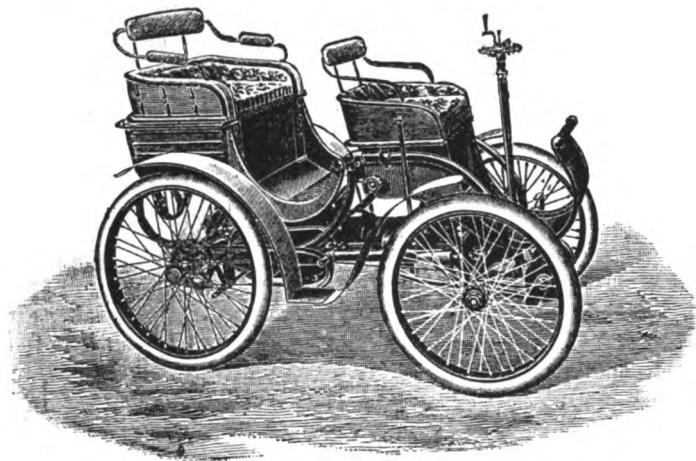
(From Our Own Correspondent.)

Racing at Turin.

THE Automobile Club de Nice has, says the *Velo*, come to an agreement with the Automobile Club of Italy regarding the programme of the automobile races which are to be held at Turin next April. The Nice automobilists will go in a large party, and after the Turin races will make a tour of Italy, which will last till May 9, the itinerary being as follows: Turin, Milan, Padua, Venice, Bologna, Florence, Rome, Pisa, and Genoa.

The Durkopp Car.

THE accompanying illustration shows a light petrol car, capable of seating two or three persons, built by the Bielefelder Maschinenfabrik Gesellschaft (Durkopp), of Bielefeld, Germany. The motor is located on the rear of the frame; it is of 3 h.p., and is fitted with water-jacket and electric ignition. Two speeds are provided, the engine driving the rear axle direct by spur-gearing. There are two sets of gears, either pair of which can be made to transmit the power by means of a friction clutch.



The frame is of special tubular construction, and the wheels are of the cycle type, shod with pneumatic tires. Ample brake power is provided, while the steering is of the Benz type. All the working parts run in oil, the crank and gear cases being of aluminium. The car can, it is stated, attain a speed of 30 kilometres (18½ miles) per hour.

The Brescia Meeting.

At a meeting of the organising committee, held on the evening of Wednesday, July 18th, it was decided to hold this year's automobile fêtes at Brescia during the early part of September, the exact dates selected being as follows:—September 6th to 10th, exhibition of automobiles; September 8th, automobile races on the track; September 10th, automobile road race. A congress will also be held at Brescia at the same time as the fêtes, and will doubtless bring together a gathering thoroughly representative of Italian automobilism. The president of the Milan Automobile Club has accepted the presidency of the committee of organisation, and under his able guidance the arrangements will assuredly be excellent.

A Tour of France.

A MOTOR-CYCLE ride of exceptional length has just been accomplished by the well-known racing man Joyeux, mounted on a "Perfecta" tricycle fitted with a Soncin engine. The distance was no less than 4,000 kilometres, or 2,500 miles, and in spite of the tropical heat experienced by him during the greater portion of the trip Joyeux only took eleven days nineteen hours to make the entire round. Last year Joyeux accomplished

the same tour in fourteen days and twelve hours, so his new performance beats the previous record by two days seventeen hours, a truly respectable margin. The record man has now departed to his home at Castillonès, to enjoy a well-earned rest and banish motor-cycles from his sight for a week or two. Personally, I should have no desire to make so long a trip in so short a time and under such trying atmospherical conditions as those experienced by Joyeux. The very thought of it causes me to mentally picture saddle soreness and a dozen other objectionable things.

Automobile Excursions in Algeria and Tunis.

Two large automobile excursions are being organised for October and February next, one in Tunis and the other in Algeria. The "Caravane Algérienne" is being organised by *La France Automobile* for February, and will be so arranged that automobilists can be back at Nice for the "Grande Semaine." It will last for seven days, during which the itinerary will be from Algiers to Tizi Ouzou, Bougie, Aumale, Hamman Rhira, and to various places worth visiting in the vicinity. Altogether 900 kilometres will be covered, and there may probably be a race from Bougie to Aumale. The second excursion mentioned, which is being organised by M. G. de Meaulne, will last a month. The automobilists will leave Marseilles at the end of October for Tunis, whence they will go to Kairouan, Sfax and Gabès. After three weeks passed in Tunis the excursionists will return *via* Algeria.

At Vincennes.

THE authorities would at last appear to realise the serious condition of affairs at the Vincennes annexe of the Paris Exhibition, for, as the result of the urgent representations made by the exhibitors and the *concessionnaires*, active steps are now being taken to remedy matters. That this tardy attempt to render the exhibition more attractive will have a considerable effect upon the attendance of visitors cannot be doubted, but it is equally certain that it is now too late in the day to make of the Vincennes show a real success. People will not trail right out into the suburbs to see an exhibition, especially when on all sides they hear nothing but discouraging reports. The show is too straggling, the buildings being scattered about over a very large area, thus making it a veritable labour to inspect the objects exhibited. Many of the police and attendants themselves, who are on duty within the grounds, do not know the whereabouts of the various sections, so the difficulty experienced by a stranger in finding his way may well be imagined. The present intention of the authorities is to make the month of August a special month of fêtes, and to this end preparations are going rapidly forward. Commencing on Monday, August 6th, and continuing until the following Saturday, there will be held an automobile cab competition, and on the Thursday of the same week a grand sporting fête will take place on the track running around the lake Daumesnil. A week later, or to be exact, from Monday, August 13th, to Saturday, August 18th, a competition for voiturettes will be decided, and this event is certain to secure an excellent entry. Thursday, the 23rd proximo, will see a series of motor boat competitions on the lake Daumesnil, for which already some ten engagements have been received. It is also the intention of M. Georges Longuemare, who is occupying himself very actively on behalf of the exhibitors, to interview the Committee of Amateurism at an early date, in order to discuss the practicability of organising an amateur meeting on the new municipal track.

MR. W. A. Taylor, of the Coventry Motor Company, Ltd., has just patented a new motion dispensing with transmission gears. We hope to be in a position to fully describe and illustrate the device in a few weeks time.

COLUMBIA UNIVERSITY, N.Y., U.S.A., announces a course in "Traction Engines and Carriages," which will treat the subjects of self-propelling road engines and automobile carriages. Prof. Frederick Remsen Hutton will conduct the new course.

THE SIRENE VOITURETTE.

IN our issue of April 27th last we gave a general illustration of the "Sirene" voiturette made by Messrs. Fernandez and Company, of Paris, and lately introduced into this country by Mr. F. F. Wellington, of Regent's Park, N.W. We are now able to give some additional particulars and illustrations of the little car. First of all it may be mentioned that the car is built low, the body, which has seating accommodation for two persons, being supported on a spring-suspended tubular frame.

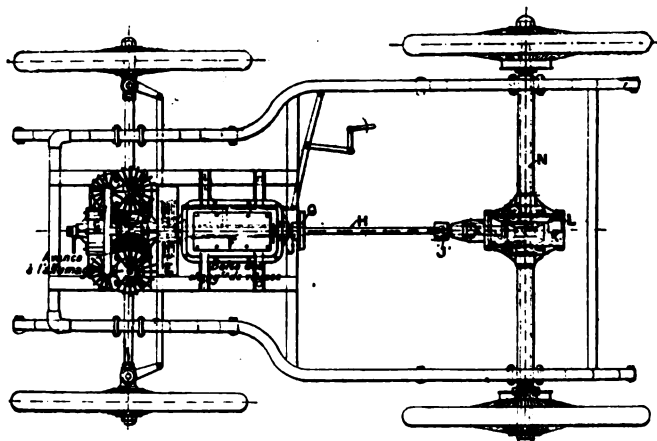


FIG. 1.—PLAN OF SIRENE VOITURETTE.

A feature of the car is the petrol-motor by means of which it is propelled. This is of the two-cylinder inclined type, Fig. 2, the piston rods working on to a single crank shaft. It is fitted with electric ignition and radial fins for air-cooling, and is said to develop from $3\frac{1}{2}$ h.p. to 4 h.p. Three speeds forward (10, 15, and 32 kilomètres per hour) and a reverse motion are available, any intermediary speed being

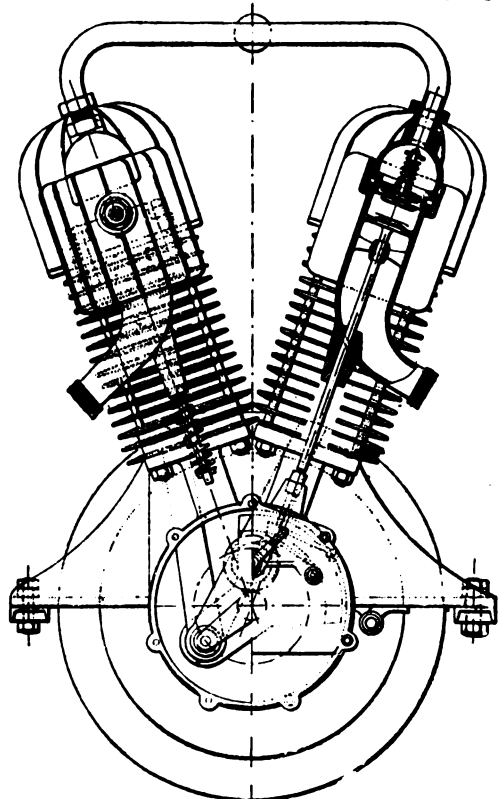


FIG. 2.—PART-SECTIONAL ELEVATION OF MOTOR.

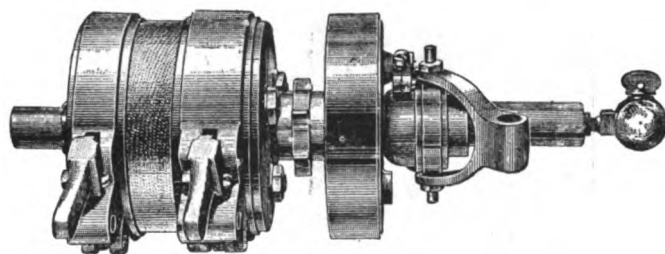
obtained by the variation of the electrical ignition. Referring to the plan (Fig. 1) it will be seen that the motor *M* is located in the fore part of the frame, where air has free access to the radial fins of the cylinders. The motor shaft carries at its end one half of the clutch *E* operated by a foot pedal. The variable speed

gear is very much on the lines of the Panhard, the box *F* containing three pairs of spur wheels, any one pair of which can be brought into mesh at a time. The reverse motion is obtained by the interposition of a small pinion between the gear wheels giving the slow speed. From the gear box the power is transmitted direct to the gear axle *N* through the universally-jointed transverse shaft *H* and the bevel gear *L*. Steering is controlled by an inclined hand wheel, on the standard of which are fitted the taps connected with the carburation and sparking. The variable gear is manoeuvred by a lever working in a sector at the side of the steering standard. A foot pedal operates a band brake on the transverse shaft, while there are band brakes on the hubs of each of the rear wheels controlled by a hand lever. The car complete weighs about 6 cwt. and can attain a speed of 40 kilomètres per hour on the level.

THE UPTON VARIABLE SPEED GEAR,

A NEW variable speed gear, giving two speeds forward and reverse motion, has lately been put on the market by the Upton Machine Company, of New York. From the external appearance it will readily be noted that the transmission is accomplished through the medium of a system of spur gearing. A concise explanation is perhaps best given by figuratively taking it to pieces and describing each piece in detail. To commence with the shaft: it extends through the centre of the gearing, and is made of one piece only. At either end it may be connected by half coupling directly to the motor shaft, or as an intermediate, by means of chains or spur gearing. Upon the transmission shaft, and an integral part of it, are the two pinion gears which are the direct drivers.

The disc furthest to the left rotates loosely upon the shaft, and by means of three studs placed equidistant from the hub acts as the support of three small spur gears. These gears are in mesh with one of the pinion gears and an internal gear. By compressing the brake the disc is rigidly held and the movement of the pinion being imparted to and continued by the three spur gears, causes a reverse movement of the annular rack surrounding them. The rack is firmly fastened to a metal ring, a section of which would show a Z-shaped forma-

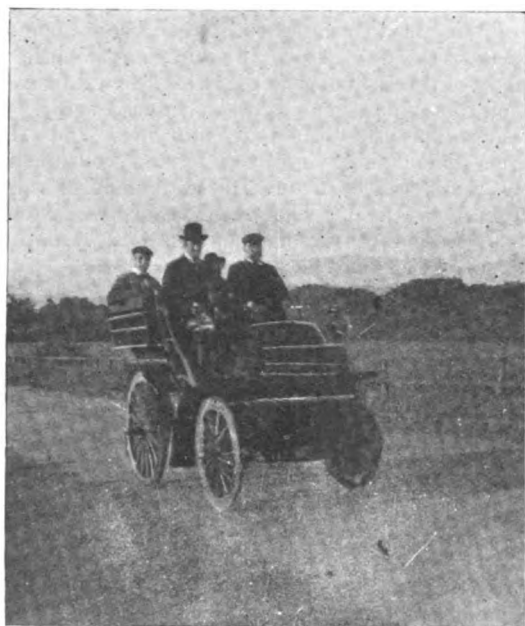


tion top and bottom; and the internal gear, being fastened to and enclosed by one side of the ring, the other side is used as a support for the casing holding the second annular rack, which is also flanged for a brake band, the casting revolving loosely on its support. Compression of the brake in this case holds the rack, and as the support of the rack also carries three spur gears in mesh both with the rack and the other central pinion, it will be seen that, the rack being held, the rotation of the pinion driver must be continued by the three spur gears, and the supporting studs around which the gears revolve, being not only attached to the Z or cone-shaped structure, but also to the flange which carries the chain sprocket; it will be seen that the movement of the three spur gears is coincident with the movement of the sprocket, and the slow speed ahead is produced. The purpose of the sprocket or spur gear, should one be substituted, is to effect the connection with the rear axle. Next to the sprocket is a friction clutch. By this clutch the mechanism, in its entirety, is locked to the shaft and the fast speed is obtained. Lubrication is accomplished by means of a special oiling device on one end of the shaft, which is made hollow for that purpose. The gear is made suitable for cars up to 4 or 5 h.p., and weighs only 35lb.

THE SCOTTISH AUTOMOBILE CLUB'S RUN.



THE first outing of this club, which is affiliated with the Automobile Club of Great Britain, took place on Thursday last week, when some eight or ten cars, with about forty members and friends, journeyed to the Highland Agricultural Society's great show, held this year at Stirling. Five carriages left St. Andrew's Square, Edinburgh, at 8.15 a.m. for Linlithgow, where it had been arranged to meet the Glasgow and West of Scotland contingent and have breakfast. Linlithgow was reached about 9.20, where three cars from the west had already put in an appearance along with Mr. Pullar, of Bridge of Allan, on his tricycle. Lord Kingsburgh, president of the club, had driven in from the Forth camp at Lochcote, bringing with him Mr. Stirling and party, whom they had picked up two miles out, Mr. Stirling's 8 h.p. Stirling-Napier having met with a slight mishap on the way. In endeavouring to give a wide berth to a couple of timber wagons, he had gone too close to the hedge, when the front wheel dropped into a deep rut, which could not be seen for the long grass, with the result the wheel was disabled. Ten minutes after the accident Lord Kingsburgh's car appeared and rendered useful service in conveying the party to Linlithgow. An excellent breakfast was partaken of, and brief speeches were made by the President and Mr. John McDonald, when Lord Kingsburgh gave an invitation to the club to visit his summer quarters at Auchterarder. The journey was resumed at 11 o'clock, and the outskirts of Stirling reached by the leading cars shortly after 12 o'clock. A halt was made at St. Ninians, in order to allow the other



MR. STIRLING'S 8 H.P. STIRLING-NAPIER ON THE ROAD NEAR DENNY.

cars to come up before entering Stirling. At 1 o'clock Mr. P. Drummond, on his De Dion tricycle, arrived and kindly acted as pilot for the club on the journey to the show ground, where the Highland Society had provided suitable accommodation for the cars. On two occasions during the afternoon, at the request of the directors, the vehicles paraded in the show ring, creating a vast amount of interest. Shortly before starting on the return journey, Mr. Stirling's *mécanicien* drove in with his 8 h.p. Stirling-Napier, a new front wheel having been procured for it from the Hamilton works. The following were among those who took part:—Lord Kingsburgh (Daimler wagonette), Dr. and Mrs. Turner (Delahaye victoria), Mr. John MacDonald, C.A. (Daimler dogcart), Mr. T. R. Outhwaite (Parisian-Daimler), Mr. and Mrs. Stirling (8 h.p. Stirling-Napier), Mr. J. D. Brimlow (Stirling-Daimler dogcart), Mr. John Naismith (Stirling-Daimler wagonette), Mr. Pullar (De Dion tricycle), Mr. P. Drummond (De Dion tricycle), Messrs. Ross and Sleight (Caledonian char-a-banc),

Mr. John Wilson, Liberton; Rev. J. Ferguson, Hamilton; Dr. Edwards, Glasgow; Dr. Sommerville, Bradford; J. Duncan,



MR. J. NAISMITH'S AND MR. J. D. BRIMLOW'S CARS LEAVING STIRLING FOR GLASGOW.

Glasgow; Mr. Newton, Secretary of the Scottish Automobile Club; etc.

THE Foye Hub Motor and Automobile Company has been incorporated in Jersey City, U.S.A., with a capital of £40,000.

AN automobile club has been organised at Buffalo, N.Y. The first club run will take place September 4th, and a parade is talked of.

BARON ARTHUR DE ROTHSCHILD has been elected one of the vice-presidents of the recently formed Motor Club de France, which has now over 500 members.

A CORRESPONDENT is seeking information as to the best kind of carburettor for use in connection with a motor of the Pennington type that has so far had gravity feed.

THE Motor Manufacturing Company are enquiring as to the whereabouts of a De Dion engine, No. 92, made by them and removed by some unknown person from their London showroom.

NEGOTIATIONS are in progress to place a large number of motor-omnibuses on the streets of St. Louis, U.S.A. It is reported that these vehicles will carry thirty passengers each, and that they will have the same gauge as the trolley-cars, so that they can run on the rails if desired.

THE Harrogate Athletic Sports are to be held on Bank Holiday, the 6th prox., in conjunction with the North of England Cyclists' meet and camp. The programme of events includes a two miles handicap motor-cycle race, open to machines of not more than 4 h.p., and carrying not more than two riders.

WE learn that Mr. Frank F. Wellington, of Regent's Park Road, N.W., is introducing and putting on the market a new German silver ignition tube for motor-cars to take the place of the platinum tubes which are now so expensive. These tubes will be found very useful to carry about in case of emergency, and their cost compares very favourably with that of platinum tubes.

THE Centre Steering Tractive Company, Ltd., has been registered with a capital of £1,000 to acquire from W. E. Carmont and A. C. Larking a patent for improved means of steering road vehicles, and to manufacture and deal in motor-tractives, motor and other vans and carriages, and all their component parts and accessories. The registered office is at 536, Mansion House Chambers, Queen Victoria Street, E.C.

THE RAOUVAL MOTOR-CARRIAGE.

ONE of the latest French engineering concerns to take up the construction of motor-carriages is the Société de Mécanique Industrielle d'Anzin, of Anzin Nord, one type of whose productions we are able to illustrate herewith in Figs. 1 to 6. The motive power is supplied by a two-cylinder vertical motor of the "Pygmée" type; it is capable of developing from 6 to 8 h.p., the speed ranging from 650 to 800 revolutions per minute, the cylinders being 110 mm. in diameter, by 150 mm. stroke.

The motor is located at *M* (Figs. 3 and 4) in the front part of the frame, with its shaft arranged longitudinally. The motor

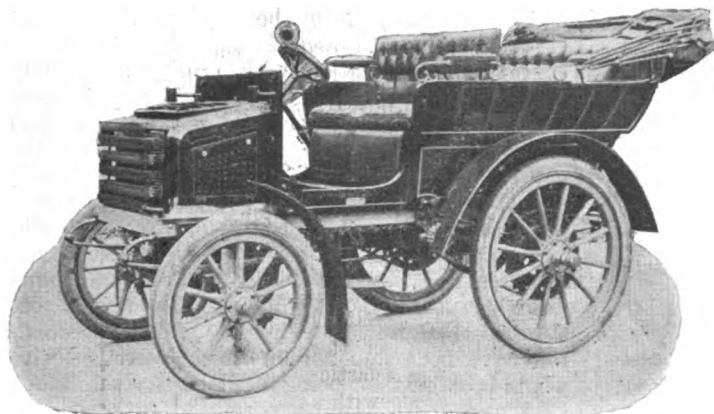


FIG. 1.—GENERAL VIEW OF RAOUVAL CAR.

shaft *O* carries the fly-wheel *U*, which forms the female portion of the clutch, the male portion *U'* being loose on the shaft. The disc *U'* is connected by means of the coupling sleeve *F* with the variable-speed gear shaft. Three forward speeds and a reverse motion are provided. The speed-changing gear is enclosed in the case *K*, and comprises three spur-wheels gearing with corresponding pinions on a short intermediary shaft below and parallel to *O*. The reverse motion is obtained by means of a lever *L* (Fig. 3) acting on the bevel wheels *L'* *L'* on the differential countershaft *G*, the direction of running of the car depending on which of these

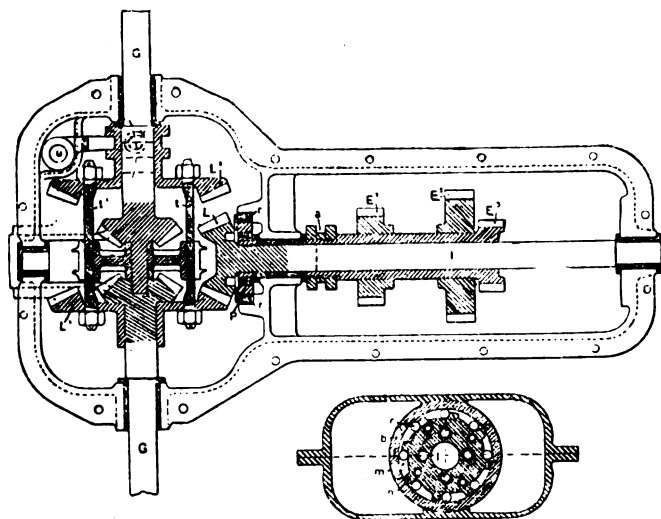


FIG. 2.—SECTIONAL VIEW OF VARIABLE-SPEED GEAR.—RAOUVAL CAR.

wheels is in gear with the bevel pinion *L* (Fig. 2). From this intermediary shaft, *G*, the power is conveyed through duplicate sets of sprockets and chains to the rear axle. To prevent any reverse motion to that desired a sort of free-wheel arrangement is introduced on the end (*P*, Fig. 2) of the variable-gear shaft *I*—a section of the clutch being given at the bottom of Fig. 2.

The control levers are located close to the steering pillar, *N*, controlling the variable speed gear and *L* the reverse motion. The mixture is controlled by a handle, *H*, in the centre of the steering wheel, connected with the valve of the carburettor by a steel cable. Steering is controlled by an inclined wheel; it is of the "progressive" type. The movement of the hand wheel *m* is transmitted by an eccentric pinion *k*, and a sector *h*—resulting in a progressive angular displacement—to a second shaft *g*, at the extremity of which is a lever *f*, the end of which is connected by an arm *e* to the rod *b*, which actuates the arms *c* and *d*. By means of this arrangement a full "lock" is, it is stated, obtained by the movement of the hand-wheel through a third only of a revolution.

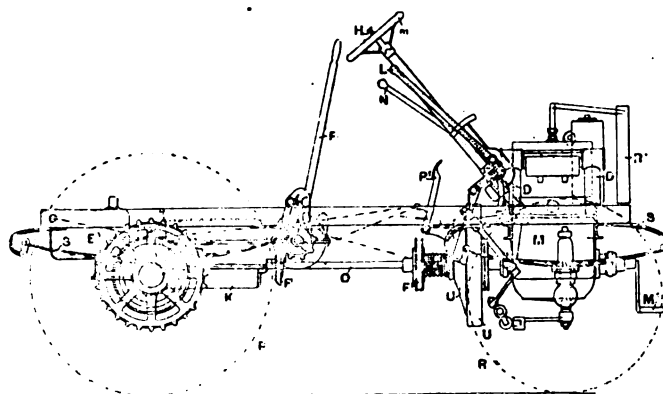


FIG. 3.—SECTIONAL ELEVATION OF RAOUVAL CAR.

The frame *T* (Fig. 4) of the car is built of U-section connected by five stays of similar material; it is supported on the axles by means of plate springs, the body being entirely separate from the frame. Any type of two or four-seated carriage, or a delivery van, may be fitted thereto. The road wheels are of wood, 40 in. diameter rear, and 31½ in. front, and are shod with pneumatic tires. The water-tank is located at the rear, while a cooling coil is carried in front, the circulation being maintained by a small pump. The petrol tank is arranged under the seat of

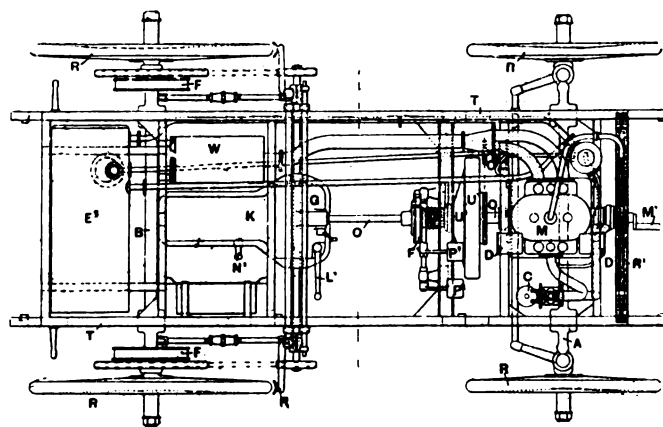


FIG. 4.—PLAN OF RAOUVAL CAR.

the body. Three brakes are provided: one acting on the hubs of the rear wheels, one on the differential shaft, and shoe brakes on the rear wheel tires. The foot pedal controlling the hub brakes is also so connected that, on its being pressed down, the friction clutch *U* is also put out of engagement; a similar arrangement is provided not only in connection with the pedal which actuates the brake on the differential, but also in regard to the hand lever controlling the tire brakes.

THE PROGRESS OF THE AUTOMOBILE.

BY PROFESSOR R. H. THURSTON.

(Continued from page 350.)

SEVENTY years, two generations, ago a committee of the British Parliament, after a long and painstaking investigation of the working of automobiles in and near London—where there were, a little later, twenty or more at

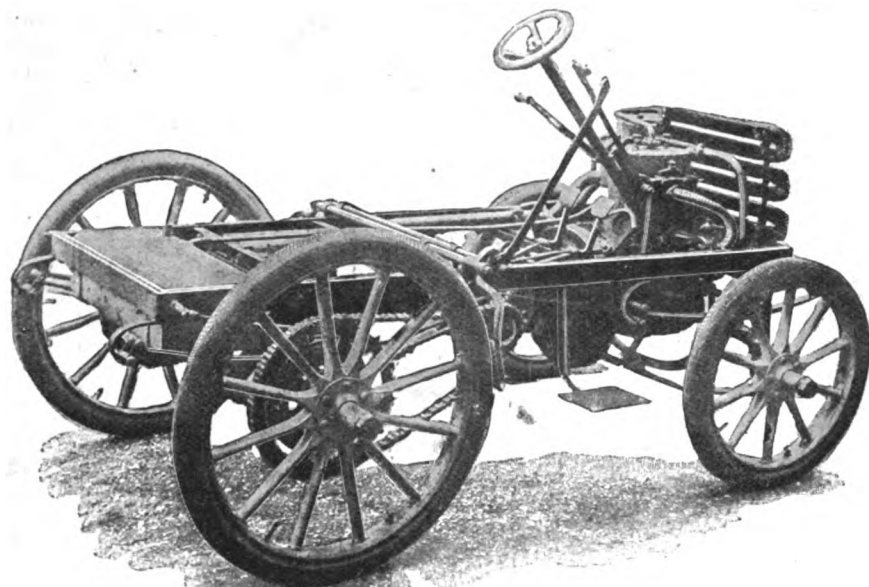


FIG. 5.—THREE-QUARTER SIDE VIEW OF FRAME OF RAOUVAL CAR. (For description see page 367.)

work, traversing thousands of miles and carrying thousands of passengers annually—after consulting the great mechanical engineers of the day and catechising the inventors, makers and users of the machine, and after cross-examining their opponents among the stage-coach proprietors and drivers, reported that they had become convinced that “the substitution of inanimate for animal power, in draught on common roads, is one of the most important improvements in the means of internal communication ever introduced.” They considered its practicability to have been “fully established,” and predicted that its introduction would “take place more or less rapidly, in proportion as the attention of scientific men shall be drawn, by public encouragement, to further improvement.” The success of the system had, as they stated, been retarded by prejudice, adverse interests, and prohibitory tolls; and the committee remarked: “When we consider that these trials have been made under the most unfavourable circumstances, at great expense, in total uncertainty, without any of those guides which experience has given to other branches of engineering; that those engaged in making them are persons looking solely to their own interests, and not theorists attempting the perfection of ingenious models; when we find them convinced, after long experience, that they are introducing such a mode of conveyance as shall tempt the public, by its superior advantages, from the use of the admirable lines of coaches which have been generally established, it surely cannot be contended that the introduction of steam-carriages on common roads is, as yet, an uncertain experiment, unworthy of legislative attention.”

Gurney had run his carriage between 20 and 30 miles an hour; Hancock could sustain a speed of 10 miles; Ogle had run his coach 32 to 35 miles an hour, and ascended a hill rising 1 in 6 at the speed of 24½ miles. Summers had travelled up a hill having a gradient of 1 in 12, with nineteen passengers, at the rate of speed of 15 miles per hour; he had run 4½ hours at 30 miles an hour. Farey thought that steam-coaches would be found to cost one-third as much as the stage-coaches in use. The

steam-carriages were reported to be safer than those drawn by horses, and far more manageable; and the construction of boilers adopted—the “sectional” boiler, as it is now called—completely insured against injury by explosion, and the dangers and inconveniences arising from the frightening of horses had proved to be largely imaginary. The wear and tear of roads was found to be less than with horses, while with broad wheel-tires the carriages acted beneficially as road-rollers. This parliamentary committee finally concluded:—“(1) That carriages can be propelled by steam on common roads at an average rate of 10 miles per hour; (2) that at this rate they have conveyed upward of fourteen passengers; (3) that their weight, including engine, fuel, water, and attendants, may be under three tons; (4) that they can ascend and descend hills of considerable inclination with facility and safety; (5) that they are perfectly safe for passengers; (6) that they are not (or need not be, if properly constructed) nuisances to the public; (7) that they will become a speedier and cheaper mode of conveyance than carriages drawn by horses; (8) that, as they admit of greater breadth of tire than other carriages, and as the roads are not acted on so injuriously as by the feet of horses in common draught, such carriages will cause less wear of roads than coaches drawn by horses; (9) that rates of toll have been imposed on steam carriages which would prohibit their being used on several lines of road were such charges permitted to remain unaltered.”

The one positive obstruction, legislation for adverse interests, practically killed the automobile before 1840, although here and there an inventor or an enthusiastic automobilist struggled against

all artificial as well as natural impediments.*

The commercial evolution of the lighter automobile systems practically dated from about 1895, though a few makers and users were earlier in the field after the renaissance of the art. In fact, here and there an enthusiastic mechanic and inventor has operated automobiles, usually with steam as the motor, from the time of the decadence of 1833. But the recent remarkable evolution of so many competing systems and classes of motor has

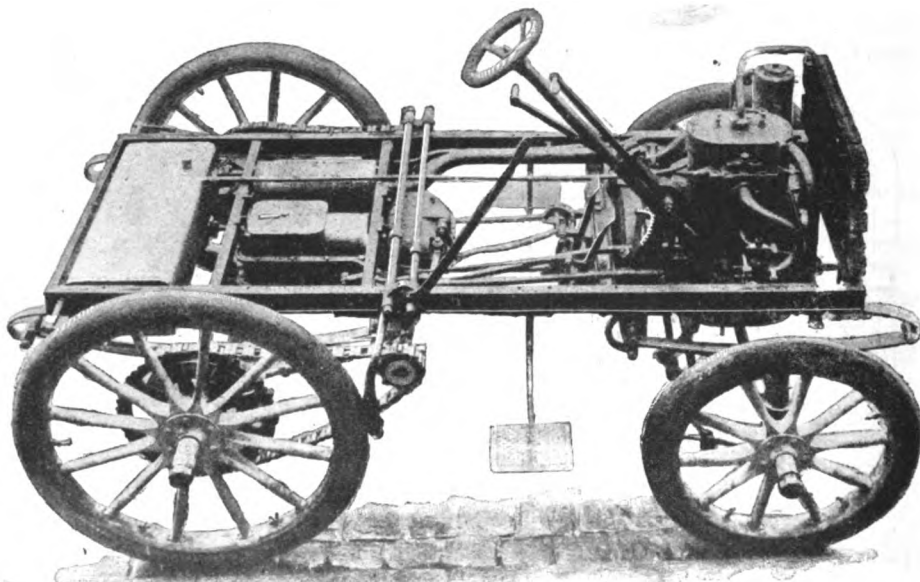


FIG. 6.—BIRD'S-EYE VIEW OF FRAME OF RAOUVAL CAR. (For description see page 367.)

given an interest coming of wider competition that the enterprise formerly lacked and has aided in the stimulation of the development of the automobile most wonderfully. Within two or three years, the business manufacture of all practicable—and of some utterly impracticable—forms of automobile has been undertaken by many capitalists, mechanics, and engineers, and in some cases

* The writer rode in a steam automobile as late, or early, as 1860.

on a very large scale. Electric, steam, and petrol motors seem to have come to stay, each for its special work.

With a hundred, possibly two hundred, manufacturing and exploiting companies in the field, it is obvious that a majority must soon "go to the wall"; but there will undoubtedly, legislation permitting, be a few systems which will conquer all obstacles and a few companies that may secure a market and make a financial success with mechanically practicable forms of vehicle. There will unquestionably result complete failure with the great mass of ill-considered and amateur schemes. There are now in America a very few, not a half-dozen, making the electric automobile, about as many producing the internal-combustion machine, and a somewhat smaller number building the steam automobile. There were, probably, January 1, 1900, less than a thousand automobiles, of all classes, actually operated in America, and not half that number with entire satisfaction. Perhaps two-thirds of these machines are electric, and these are mainly employed in the large cities.

The progress of the automobile has been particularly rapid during the year just closed, especially in England, where the statute which has at last freed all such vehicles generally from the earlier restrictions has been productive of an immense advantage, and in the United States, where native inventive genius has only recently been generally and earnestly attracted toward this great and now most promising field. Should the evolution of the automobile continue unrestricted by unfairly discriminating and hampering legislation, either due to real apprehension of danger, in cities and on the highways, or through the tendency of some legislators toward "strikes" against enterprises involving the extensive use of capital, the progress of the immediate future seems likely to be in the nature of an acceleration, and of astonishing rapidity, extent and importance. The art has passed well through its preliminary stages of experimentation in the cases of the steam-engine as a motor and of the electrically-impelled vehicle, and probably is well advanced in the field of internal combustion motors and of carriage construction. Even progress in the use of the heavier and safer petroleums, both as fuels and as working fluids, is exhibiting some marked advances. Petroleum-spirit motors, however, have thus far led this advance and have a long start in this respect. The French have hitherto been in the van in the operation of the latter class, and England with steam motors; but the indications are that the United States will soon be an acknowledge leader in all lines of improvement of the automobile, as previously with the bicycle. In electric-motor construction the difficulties still remain largely with the accumulator, or storage battery, the size, weight, and cost of which have not been greatly reduced, except at the sacrifice of durability and reliability. Should the storage battery become satisfactory in all respects, we may look for an enormous advance in that line of work.

(To be continued.)

THE 600-mile tour of the three Cleveland automobilists, Messrs. F. L. Strong, W. S. Root, and C. S. Ingalls, through Canada from Buffalo to Detroit, was an entirely successful one, with no breakdown or hitch of any kind. Much of it lay through country where motor-carriages were as yet unknown, and the rural population derived much excitement from the event. Even the village schools suspended session while the unaccustomed machines went by. The longest day's run was from London to Detroit, 105 miles, which were covered in eleven hours, including stops.

MR. FRANCIS E. STANLEY, accompanied by his wife, son, and daughter, made a quick trip from Newton, Mass., to Lewiston, Me., on June 30. Leaving Newton at 4 o'clock in the morning, they reached Portland at 12 o'clock, having made two stops aggregating one hour. The road was rough and heavy, and a very strong head wind was blowing. The actual running time was seven hours, and the cyclometer showed that they had travelled 128 miles. The total distance travelled from Newton to Lewiston, Me., was 161 7-10 miles, and the total running time was nine hours, making the average nearly eighteen miles per hour.

THE GAILLARDET VARIABLE-SPEED GEAR.

WE illustrate herewith a speed-changing gear devised by M. Gaillardet for use upon light motor-carriages. The apparatus comprises a differential gear, a gearing for obtaining two speeds at will, an automatic friction clutch, an automatic brake for controlling the backward and forward running of the vehicle, and a chain-wheel with ratchet. The advantages

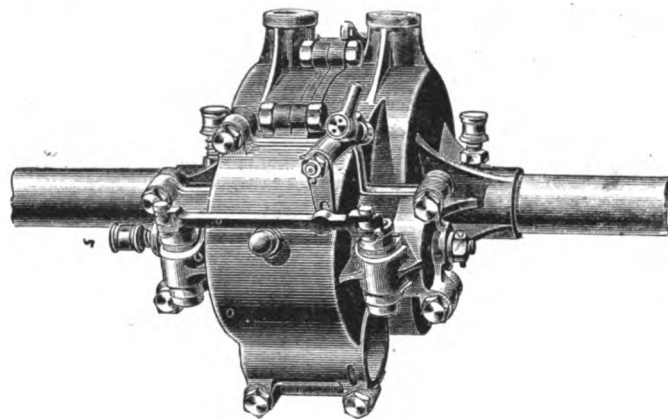
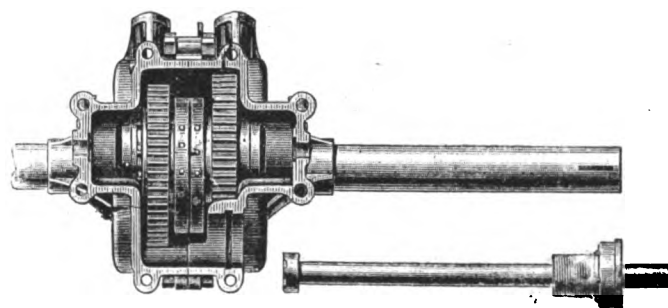
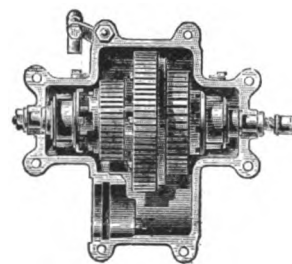


FIG. 1.—GENERAL VIEW OF GEAR.

claimed for this system are as follows: (1) It permits of throwing the motor out of gear; (2) the change from a low to a high speed, or inversely, during the running of the vehicle, is effected without any shock; (3) the chain is rendered immovable while the motor is in operation; (4) axles connected with the differential gear through joints assure the transmission of motion without



FIGS. 2 AND 3.—SECTIONAL VIEWS OF GEAR.

resistance even though bearings are out of order or the axles are bent.

The axles are 24 mm. in diameter and 22 mm. at the collar. The entire mechanism is of cemented steel, refined and tempered. It is enclosed in a cast-steel case and operates in a bath of oil.

In addition to the mechanism, the complete apparatus comprises the hubs and the ball-bearings, that is to say, with the exception of the wheels, all the elements of a motor hind-carriage for a motor-cycle or a voiturette.

THE new prices of the United Motor Industries will come into force on the 1st prox., when the firm's new price list will be ready.

MOTOR-CAR ACCIDENT NEAR COVENTRY.

MR. J. W. MAUDE, of Coventry, met with a startling accident last week whilst driving his motor-car along the Kenilworth Road. In the car with him was his wife and mother, whom he had been taking for a drive through Berkswell, and was returning home. On reaching Gibbet Hill, and while the car was running at about ten miles an hour, the axle of the vehicle snapped. Mr. Maude, with cool presence of mind steered the car on to the grass at the side of the road, where the vehicle overturned, and the occupants were thrown out. Though severely shaken, they marvellously escaped serious injury. Mrs. Maude, sen., who is over seventy years of age, suffered most from the shock; it was feared that she had sustained injuries to her ribs and collarbone, but it was found that her injuries were confined to bruising and shock. Mrs. Maude, jun., was considerably shaken and bruised, and also sustained some laceration of her face. Mr. Maude escaped with a shaking. The vehicle was badly damaged. The cause of the axle breaking is attributed to a fracture caused by a collision some time ago, and which careful examination had failed to reveal, although after it had snapped, it was evident that it had been holding together by a small portion only. The two ladies were kindly conveyed home by Mr. Hugh Rotherham in a wagonette, and are making satisfactory progress.

FURIOUS DRIVING CASES.

AT the Worthing Petty Sessions last week Mr. Allan Hickman was summoned for furiously driving a motor-car in Brighton Road, on the 6th July.—Mr. Staplee Firth appeared for the defence.—P.C. Prior deposed that he was on duty near the Half Brick, on the day in question, when he saw the defendant in company with another man driving a motor-car along the Brighton Road at a speed of twenty-five miles an hour. Witness called his attention to the rate at which he was going, and he replied that he could go as fast as he liked when there was nobody else in the road. Witness timed him over a certain part of the road—from Onslow House to the Half Brick—and on measuring the distance the same evening he found the distance covered in the minute was 860 yards.—Cross-examined by Mr. Firth witness said his watch was not a stop watch, but it had a second hand. He did not understand the mechanism of a motor-car, and could not say whether or not it was possible to drive it at a speed of twenty-five miles an hour. He did not behave rudely to the defendant. He saw no one on the road who was in danger from the motor-car, but a lady cyclist was riding along the road in the opposite direction.—Frederick Strudwick, a gardener, living in Brighton Road, said he was in his garden on the day in question, and saw the motor-car go past. When he first saw it, the motor was passing Onslow House, and he watched it till it got out of sight. Witness thought the motor-car was travelling twice as fast as those which went along the Brighton Road daily, or say at twenty miles an hour.—Addressing the Bench for the defence, Mr. Firth pointed out that his client had been summoned for driving at a greater speed than was reasonable and to the common danger of the public, and he submitted that no evidence had been adduced of anyone having been in danger in this instance. The Chairman, after consulting his colleagues, said the Bench accepted Mr. Firth's definition of the law, and the summons would be dismissed. Mr. Firth said he had brought two witnesses from Sutton, Surrey, and one from Northampton; he asked the Bench to allow something towards their expenses. The Bench agreed to allow railway fares, 10s. each for the witnesses from Sutton, and £1 1s. 6d. for the witness from Northampton. Superintendent Bridger handed a statement to the Bench, and protested against any expenses being allowed.—The Chairman, to the defendant: We did not know before that there were two previous convictions against you. You ought to be very careful. Mr. Firth protested that the Superintendent had no right to bring any record against his client, unless the Bench had found him guilty of the present charge.

THE Buxton magistrates on Saturday last fined George Smith, cycle agent, Buxton, 40s. and costs for furiously driving a motor-tricycle in Spring Gardens on July 8th. Two constables swore that defendant was going at the rate of fifteen miles an hour. Defendant contended that the machine was incapable of such a rate.

AT Oxted Petty Sessions on Monday, Mr. William H. M. Burgess, of Norwood, was summoned for furiously driving his motor-car at Godstone on July 7th, on which day the club held a hill-climbing contest at Tilburstow Hill. The police stated that the defendant drove into Godstone at a speed of from seventeen to twenty miles an hour. Mr. Burgess, however, said his pace did not exceed fourteen miles, and the case was dismissed.

A. E. PRICE, Foleshill Road, Coventry, a driver in the employ of the Daimler Motor Company, was summoned at Northampton on Saturday for furiously driving a motor-car.—William Goode, a tram-driver, employed by the Northampton Streets Tramways Company, said on June 26 he was driving through Northampton when he saw a motor-car approaching on the wrong side of the road. The motor crossed the road, ran into the tram, and injured the horse's leg. The front of the tram was damaged, and he was knocked through the door, his ribs and shoulders being cut and bruised.—Defendant said the motor was not travelling more than seven or eight miles an hour. The car skidded on the tram lines, or he would have been able to pass.—One witness estimated that the car was travelling between twenty and twenty-five miles an hour.—A fine of £5 and 13s. costs was imposed.

MOTOR-CAR FATALITY.

MUCH excitement was caused at Kenilworth on Monday by a motor-car accident which, unhappily, terminated fatally. It appears that Mr. Harris Ely, of Ulverstone, the consulting engineer to the North Lonsdale Cycle Company and district inspector for the National Telephone Company, had purchased a motor-car from Messrs. Allard and Co. on the previous Saturday. He started on Monday for his first tour, intending to go to Bristol. He got along at a fair speed until at Kenilworth his car suddenly stopped dead for an instant, rose upon its front wheels, and overturned forwards, dashing the unfortunate gentleman with great force to the ground. His companion immediately rushed to Mr. Ely's assistance, as did several people who were in the vicinity, and heard the hissing noise of the overturned car; but they found that he was lying dead, with the fore part of his head crushed in. When the police righted the car to take that along as well, they found, it is stated, that a pin was missing from the steering gear actuating one of the front wheels of the car, which had, apparently, turned broadside on, and stopped the car dead, with the result, of course, that it instantly capsize. The missing pin, it is further stated, was found lying in the road near a cottage a little way further up the hill.

At the inquest held on Tuesday Mr. James Montgomery, Messrs. Allard and Co.'s works manager, said he was riding on a motor-cycle in company with the deceased on the car, on the morning of the accident. He had since examined the car, and believed the deceased had put the low speed belt on the motor in descending the hill, which would have a checking effect upon the car. There was also a pin missing from a joint on the rod which connected the two steering wheels. Either of those matters would cause the accident, and witness could not say which. The witness explained to the jury that the low-speed belt, if put on, would act as a brake on the car and check it to about five miles an hour, no matter how steep the hill was. He said he was convinced that this was the cause of the accident until he saw the pin. He was of opinion that the deceased had been running down the hill with both belts off, and at the time of the accident had put the slow belt on. He thought it was probable that the pin which came out had had several severe wrenches on Sunday, when the deceased was trying the car, and swerved the steering of it several times violently, and once ran into the bank in trying to turn it round. The deceased had overhauled the car on the morning when he started, and witness considered it possible that he had loosened the pin in doing so. It was possible that it might work loose, like all nuts and bolts. Mr. Valentine, Leamington, consulting engineer, who said he had owned and driven motor-cars, gave it as his opinion that the loss of the pin and the freeing of the wheel caused the same to turn outwards and lock, with the result that the steering bar went among the spokes and the car overturned, the whole weight of the machinery being in front. The jury found that death was due to a fracture of the skull, produced by the overturning of the car, which the loss of the pin from the steering gear caused.

AN ASSAULT CASE.

THE Hon. Lancelot Lowther, of 33, Lowndes Square, W., appeared at the Westminster Police Court on the 25th inst., in answer to a summons charging him with assaulting M. Ferdinand Bouquet, a Frenchman, employed as a motor-car driver.—Mr. J. D. Langton said on the afternoon of the 17th inst. the complainant was driving a motor-car from Hyde Park, and encountered considerable traffic on crossing into Grosvenor Place. He slowed down in consequence, but having cleared it, increased his pace to eight miles an hour. The defendant, who was in a hansom cab, was also crossing Grosvenor Place, and the two drivers, each under the impression that the other would cross his front, pulled up. Then the motor-car went on, the complainant taking it to the stable in Royal-oak Place, Eaton Square, about three-quarters of a mile from Hyde Park Corner. The complainant was attending to the machinery, when suddenly, to his astonishment, he found the defendant by his side, having followed him in the cab. The defendant used some very offensive expressions, lifted his stick, and struck him across the face with it.—The complainant, in bearing out Mr. Langton's statement, said he drove a motor-car for Mr. Mulholland, of Sloane Street.—Cross-examined by Mr. Danby, who appeared for the defence, complainant said he had had five years' experience in London and Paris as a motor-car driver.—Mr. Danby said his case was that the motor-car was driven at the rate of fifteen or sixteen miles an hour, and the defendant's cabman had to pull up sharply to avoid a collision. The defendant being annoyed, instructed the cabman to follow the car, and admitted that he did "tap" the man with his stick in anger. The defendant, who elected to be sworn, said he was irritated when his cabman had to pull his horse back on its hocks. The motor-car went by like a flash of lightning. He shouted to the driver to stop, but he only turned and kissed his hand to him. He thought it disgraceful that a man should be allowed to behave so, and followed the car to some mews. He remonstrated with the driver, but he only giggled and gesticulated, and at length he said, "If you go on laughing at me like that any longer I'll give you a good hiding." The man giggled and grinned again, and raising his stick struck him. He afterwards saw the defendant's master and apologised, but the defendant asked for £20 compensation, saying that he would then hold his tongue about it, and the affair would not get in the papers. He refused to do anything of the sort.—Mr. Horace Smith suggested that something in this way might be done now, and after a brief consultation Mr. Langton consented to withdraw the summons on payment of the costs and reasonable compensation. It was understood that the motor-car driver received a £5 note.

THE Motor-Car Journal.

VOL. II.]

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COMMENTS.

TOURS in Ireland are becoming very popular this year, and the success of the several private trips that have been made should do something to bring nearer the tour which the Automobile Club may make, some day, in the Emerald Isle. Several members of the Irish aristocracy are enthusiastic motorists, and we now learn that Lord and Lady Iveagh have started for a tour round

Ireland in their Panhard motor-car. They intend to be away two or three weeks, visiting for the night those friends whose houses are on their route, Lord Waterford's beautiful place, Curraghmore, being one. Mr. Ernest Guinness, Lord Iveagh's second son, and Mr. Ward are making the same tour in a smaller vehicle, and luggage and servants follow by train. In some of the remote districts of Ireland motor-vehicles are very unfamiliar things, so that these trips are really educational as well as pleasant.

A Generous Motorist.

ONE of Lord Iveagh's sons driving a Mors car in Ireland last week, had the unpleasant experience of being involved in a rather serious accident, through a horse yoked to a hackney car taking fright at the motor. The animal made such a kick-up that two of the passengers were flung heavily to the ground, one of them being severely injured; whilst the car was completely wrecked. Though in no way to blame for the mishap, the motorist behaved in a manner befitting the munificence of the Guinness family, as he had the victims promptly attended to and since then richly compensated. The jarvey also has been presented with a new car, and in all probability is a material gainer by the occurrence.

Railways Spoil Automobilists' Plans.

MR. ALFRED HARMSWORTH had the intention of touring in the West of Ireland recently on his Panhard car, but he found that owing to the refusal of the Irish railway companies to carry petrol this would be almost impossible. Consequently he relinquished the idea and visited Connemara in the manner of the ordinary tourist. He was much impressed by the suitability of that district as a motor-touring venue. The roads are of good surface and mostly level, whilst the scenery is only second to Kerry in its grandeur and variety. Excellent hotels also are numerous. The only drawbacks are the climate and the petrol difficulty. We trust that the latter will be speedily removed; and then the weather clerk may be shamed into giving a better climate.

Stag Hunting and Automobilism.

THE usefulness of motor-vehicles to hunting parties has long been recognised in France and occasionally proved in this country. Now that the stag hunting season has commenced large parties of enthusiastic sportsmen are making their way to the moors, and doubtless the automobile will be to the front in the transport arrangements. We learn that a party of motorists is being made up to journey to Dulverton in September, and at the end of that month a notable company will be assembled at a popular inn at that place, including Sir Walter Besant, Mr. Rudyard Kipling, and Mr. Conan Doyle.

Gymkhanas.

THE recent automobile gymkhanas at Ranelagh and Sheen House have occasioned much discussion, and considerable diversity of opinion has arisen as to whether they are calculated to increase the popularity of the motor-car among the class of people likely to become purchasers. Unfortunately, the public does not realise that the panting and throbbing often associated with a car at rest is lessened considerably when running, and to bring crowds of people to see motor-vehicles waiting to start on short contests is an advantage of dubious value. On the other hand, it is claimed that such displays afford opportunities for demonstrating the perfect control which can be obtained over the car, and so giving confidence to those who are sympathetically inclined.

At Sheen House.

THE ground at Sheen House was much smaller than that which the Automobile Club obtained at Ranelagh, and although the circular nature of the course was rather against the higher powered cars, the spectators were better able to see the whole of the proceedings than was the case at the earlier gymkhana. There were six events last Saturday, and although the attendance was not large, the various contests were greatly enjoyed. At the conclusion of the programme the prizes were distributed by Mrs. Arthur Firth.

The Contests.

THE first event was a bending race for motor-carriages in which, after going to the outward destination, the vehicle had to return backwards. This was won by two lengths by the Hon. C. S. Rolls from scratch on his 12 h.p. Panhard, Mr. J. W. Amps, who was allowed fifteen seconds start, being second on a 4 h.p. Daimler. In the contest in which the motor-carriages had to be started from cold, Captain Langrishe (five seconds start) got home first on his 6 h.p. Peugeot, being about twenty yards ahead of the Hon. C. S. Rolls (scratch), who was second. Perhaps the most amusing event of the afternoon was the motor-tricycle coat and waistcoat race. At the end of the first lap the competitors had to stop, dismount,

take up their coats, and hang them on numbered pegs; at the end of the second lap they had to take off waistcoats and hang them on the same peg; at the end of the third lap they had to put on coats and waistcoats, and having fully buttoned both, finish at the end of the fourth lap. In this Mr. Rolls, who had 7sec. start, was first, Mr. C. Jarrott, starting from scratch, finishing second. Mr. Jarrott, however, turned the tables in the obstacle race, finishing first with 41sec. start, Mr. Rolls (scratch) being second. The starting and stopping handicap concluded the contests. Of the seven starters none knocked the "brick wall" over. Mr. Jarrott (5sec.) was in first, Mr. R. E. Phillips (3sec.) being second, only an inch or two in front of Mr. Rolls (scratch).

More Competitors Wanted.

ONE unfortunate point in connection with these contests—both so far as gymkhanas and motor-racing are concerned—is the fact that no new competitors seem inclined to participate. Occasionally we have a new man, but as a rule the events are all taken part in by the same people. Of course they are proficient and their performances are good, but the success of such gatherings in the future will largely depend on whether new competitors are found. Otherwise the novelty is likely soon to wear off.

The Liverpool Association Run.

THREATENING weather at the start prevented anything like a good representation of the Liverpool Self-Propelled Traffic Association taking part in Saturday's run. The programme was to leave Seacombe ferry shortly before one o'clock and proceed to Leasowe Castle Hotel for luncheon. Thence *via* Hoylake, West Kirby, Caldy, Thurstaston, Heswall and Eastham, to Hooton Park Club, for tea, after which the members were to disperse at their convenience, but not before 6 o'clock. The inclemency of the weather in the forenoon caused the withdrawal of no less than eight cars, and only Mr. W. Winwood Gossage and Mr. E. Shrapnell-Smith, on Perfecta quadricycles, went round. Mr. and Mrs. J. Walwyn White crossed to Seacombe, but their car had been detained in Manchester. The weather turned out fine and bright, and a most enjoyable run was the reward of the few who decided to risk the threatening aspects. The roads were good. Mr. Shrapnell-Smith had a spill in the Leasowe Castle Grounds. Riding his machine round a sharp corner he was pitched off, executing a somersault in consequence. Fortunately he escaped with nothing more serious than a hurt ankle, which will keep his foot from the ground for a while.

A Motor-Car In Camp.

THE Forth Volunteer Infantry Brigade, which has been accompanied by Lord Kingsburgh, has been in camp at Lochcote, Linlithgowshire, and a motor-car has been employed to carry the mails from the camp and the railway station. It has considerably facilitated matters and demonstrated another aspect of its value. Certainly in this matter Scotchmen seem more enterprising than the people south of the Tweed, and the Volunteer leaders are showing greater intelligence than the War Office.

An Early Steam Car.

THE credit of having produced in the early part of the century a steam coach, excelling in commodiousness and luxuriousness the horse-drawn stage coaches and travelling carriages of the time, is due, it would appear, to a Mr. W. H. James, who, in conjunction with Sir James Anderson, Bart., constructed and ran about 1829 the road coach illustrated on page 378. This commodious coach was driven by two separate engines, each comprising a pair of horizontal cylinders, one engine being allotted to the near side driving wheel, and the other to the off side, the axle being made in two distinct portions. Indeed, it was a twin-carriage both in regard to engine and boiler,

the advantages of which were demonstrated on one occasion when, in running through Epping Forest, one of the boiler tubes—which were nothing more nor less than ordinary gas pipes—split, and put out one of the fires; with the remaining boiler and engine the carriage returned home at the rate of about seven miles an hour, carrying a load of more than twenty passengers. It was a very heavy and substantially built vehicle, weighing, with its complement of passengers, something like seven tons.

Motor-Car Auctions.

As previously recorded in our columns Mr. Ernest Owers occupies an unique position as being the only auctioneer who is interesting himself in motor-vehicles—not only from the practical but also from the selling point of view. At his auction sale last Saturday three cars—a Daimler, a Benz, and a Decauville—were sold, and also a motor-tricycle. Owing to the holiday season there will be no auction sale in August. The next public sale by auction will take place on September 28th.

The English Motor Club.

ON Saturday, the 11th inst., the English Motor Club will organise a run to the White Swan Hotel, Cobham, Surrey, where tea will be served at 4.30 p.m. The run will be extended to the Pond House, Frensham, *via* Guildford, Godalming, and Chart; dinner will be taken at Frensham at 7.30 p.m. The return to town will not be till after lunch on the following day. Motorists generally are invited to take part in the run.

The Roads Round Cardiff.

So bad are the roads in some parts of Wales that the local authorities have refused to license motor-cars to run thereon. That is the most charitable view we can take of the action of the Cardiff Corporation. At the last meeting of the Cabs Committee of that body the clerk read an application from the Cardiff, Whitechurch, and District Motor-car Company for leave to run motor-cars between Cardiff and Whitechurch. Mr. Chappell was of opinion that it should not be granted, and Mr. Hallett remarked that the road did not seem to be in a fit state for such traffic. Besides, the road was dangerous, especially at the Maindy Dip, and it was a wonder to him that there had not been many vehicle accidents on that road. No doubt a good service was wanted on that road, and if the road were put in proper order he would support the application made by the company. Ultimately it was decided not to grant the permission asked. Will the Corporation improve the roads?

Improving the Roads.

SEEING that the local authority has, in this case, practically acknowledged the unsafe character of the roads, the practical men on the council should recognise their duty without delay; for the development of the roads round about that pleasant town would not only be a source of delight to the residents but also a means of profit to the hotel keepers and others. Wales has been long neglected by the great body of automobilists and it only needs an improvement of some of the roads to attract them thither.

The Side of the Road.

ONE can understand unpaid magistrates who have had no legal training failing to appreciate legal distinctions, but it is surprising to hear of a magistrate of Mr. Francis' reputation giving it as his dictum that the fact of a vehicle going on the wrong side of a refuge is (*per se*) evidence that the public are in danger. In fact, if this dictum has anything in it, every automobilist will be convicted, not for what he has done, but for something which he might do. Such a misconceived notion of the law it is difficult to appreciate, especially as the learned magistrate had quoted to him by the advocate for the

defence several cases which were decided in the High Court, in which it was held that where qualifying words are introduced there must be affirmative proof of the condition to support the circumstances set out in the qualifying words.

A Practical Point.

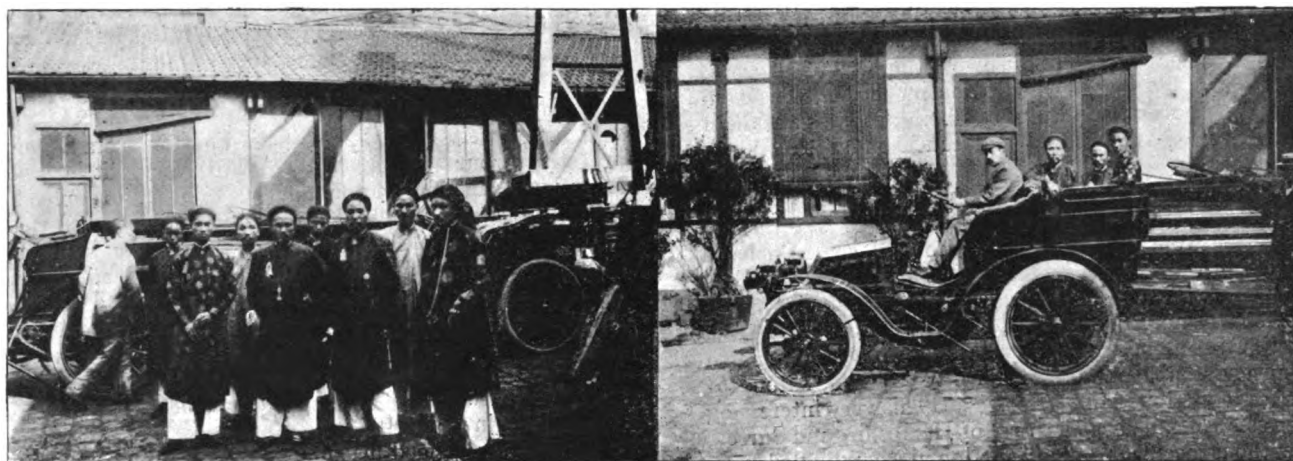
In one of the Norwich papers a correspondence has been going on with regard to motor-car speed which has elicited a reply from Mr. Ernest Estcourt, in the course of which he says:—"My experience, after driving cars 30,000 miles without injuring man, woman, child, or dog, is that the best thing to do in passing vehicles going in the same direction is to get by at a good pace. The horses take less notice, and when once passed the quicker the car is in leaving the horses the better for all. In meeting a horse it is better to come near at a good speed, as by so doing the engine can be thrown out of gear, and the car run past on its own momentum, thus saving the noise of the engine and gear. Experienced motor-car drivers have found this is best, and in a few years the drivers of horses will think so too, and not trouble so much about the speed as the care of the driver

Safety in Lincoln.

THE progress of the motor-car in Lincoln has aroused the ire of a resident who rather deplores its extended popularity in the city. We are glad to see, however, that he is practically alone, and that the editor of a local contemporary declares that anyone "may cross the streets without the slightest fear of being knocked down." There is no doubt that the fears of nervous folk with regard to automobiles are mainly the result of a too vivid imagination which sees trouble in common matters and danger in everything.

A Trip on an Electric Car.

ELSEWHERE we record a run to Brighton on an electric car, the carriage work of which was by Mr. Mulliner, of Northampton, and the electrical and mechanical part by Messrs. Joel and Potter, of London. During the run only one charge of electricity was used, and the total run on the day was fifty-three miles by cyclometer. We give the particulars of power, etc., as being of interest to all interested in the development of electrical cars, and the further performances of this voiturette will be regarded with considerable interest.



Cliche de

VISIT OF THREE GOVERNORS FROM ANNAM TO THE MORS WORKS.

[La France Automobile.

in other respects, such as preventing noise, giving plenty of room, not attempting to pass until there is room, not blowing the horn near horses, etc. My experience also teaches me that in nine cases out of ten the drivers of horses are much more frightened than the horses are. In proof of this I would say that my London stables are situated in a mews where there are about 200 horses, and although I have kept my cars in the centre of this mews and opposite a stable that usually contains 120 horses, I have never once been asked to stop for a restive horse. The men expect me to drive in and out just the same as though I was driving a horse."

Motor-Cars at Sandown.

MOTOR-CARS are becoming familiar at all race meetings, and the fact that the Prince of Wales went down to Sandown on a motor-car should do something to render them even more popular in such circumstances. In the members' enclosure, Mr. Hwfa Williams received His Royal Highness, and while they were standing, before moving on to the Royal stand, the starters for the Cobham Plate came filing down from the paddock, some of them looking at the motor-car with curious eyes, but none showing any alarm. There is a great difference between blood horses and half-breds in the matter of courage and intelligence—and this applies to all phases of equine experience. Anyone shipping horses, for example, will find it as easy again to ship a thoroughbred as a half-bred.

Celestials Inspect the Motor-Cars.

IN connection with the Exhibition, three great mandarins, governors of the three states of Annam—Vu-Quang-Nha, Tran-Dinh-Luong, and Hoang-Trong-Phee, have with their suite lately been doing the sights of Paris. Included in the programme was a visit to the works of the Mors Company at Grenelle, where the visitors displayed great interest in the construction of automobiles. But their delight was the greatest when an opportunity was afforded them of making a short trip on one of the cars. Our first illustration shows the party just arrived at the Mors works, while the second one shows the three governors making their *début* in an automobile.

Looking to the Future.

THIS suggests the many markets that will be open to motor-car manufacturers in the future—when the countries of the East are more settled in their governments and manners. In some of those remote countries the motor-vehicle will be very serviceable in connection with transport arrangements, and as commercial men open up new sources of trade they will do well to bear the advantages of automobilism in mind. Certainly the interest of Chinamen, Japanese, and others in motor-cars is very apparent whenever they are able to enjoy trips on automobiles in Europe. The time is coming when the export trade as well as the home market will have to be considered.

MOTOR-CAR TRIPS.



FROM BOURNEMOUTH TO LONDON.

MOTORISTS are pleasantly familiar with the delights of automobile excursions, and will hear with pleasure that the members of some of our local authorities are also becoming appreciative of such excursions. Some of the members of the Pokesdown Urban District Council have recently had a two days' motor-car excursion to London and back, and the outing was thoroughly enjoyed. No hitch occurred to mar the gaiety and the novelty of the proceedings, while from an economical point of view the excursionists should be well pleased. Mr. F. Elcock, the chairman of the Council, seems to have been the leading spirit of the enterprise, and having made arrangements with Mr. F. J. Bell for the hire of one of his cars for a couple of days, made up a party of the following gentlemen:—Messrs. J. Carter, R. Parsons, G. Fall, and F. Elcock, members of the Pokesdown Urban District Council, and Messrs. J. Edwards, G. Carter, F. Scott, and S. Whittaker; W. McArdle was the driver. They started from Pokesdown, Bournemouth, at six a.m., and passed through the following towns and villages to Putney, which was reached at seven p.m., viz.:—Christchurch, Lyndhurst, Totton, Redbridge, Millbrook, Southampton, Chandler's Ford, Winchester, King's Worthy, East Stratton, Popham, Basingstoke, Nately Scures, Hook, Hartley Row, Hartford Bridge, Blackwater, York Town, Camberley, Bagshot, Sunningdale, Egham, Staines, East Bedfont, Feltham, Twickenham, Richmond, Mortlake, and Putney. Breakfast was partaken of at the Black Swan, Winchester, and luncheon at the White Hart, Hook.

After visiting their friends in London the company started at 8.30 on Tuesday morning, and returned home via Putney Heath, Kingston Vale, Kingston, Surbiton, Esher, Cobham, Ripley, Guildford, the Hog's Back, Farnham, Alton, New Alresford, Itchen Abbas, Winchester, Standon, Hursley, Anfield, Romsey, Owen, near Rufus Stone, Crow, Kingstone, Avon, Sopley, and Christchurch, arriving at Pokesdown at 10 p.m. In the down journey stoppages were made at the Crown, Alton, for lunch, and tea was partaken of at Romsey. This very interesting trip, through some of the loveliest parts of Hampshire and Surrey, took place without accident of any kind, and the divided cost, embracing hire of car two days, two luncheons, one breakfast, and one tea, with fee to driver, amounted to £1 11s. 8½d. each person, which certainly was very moderate considering the amount of pleasure that was experienced all round. So successful was this first venture that it is Mr. Elcock's intention to get up one or two other like excursions to other places before the close of the season.

FROM LONDON TO BRIGHTON.

On Saturday last a pleasant trip was enjoyed on a two-seated voiturette propelled by electricity, and constructed under the patents owned by the National Motor-Carriage Syndicate, Limited. The two trippers started from Wilson Street, Finsbury Square, at 11.30 a.m., and passed through the congested traffic over London Bridge by the Borough, Kennington, Brixton, Streatham, Croydon, Merstham, Redhill, Horley, Crawley, Handcross, Hickstead, and Patcham to Brighton. The voiturette is equipped with two 2 h.p. Joel electric motors, running at a speed of 600 revolutions per minute with thirty volts. These two motors are fixed on a detachable spring frame, and drive the two back wheels of the carriage separately by lin. chain gear of 9 to 1. The current is supplied by thirty-two Rosenthal storage batteries, made up in two sets of sixteen cells, joined in parallel, giving thirty-two volts and 20 to 40 amperes, with an output of 140 ampere-hours. The total weight of the carriage is under 12cwt.; of this 7½cwt. is battery, motors 2cwt., and the carriage itself only 2½cwt. The wheels have pneumatic tires, the back wheels are 2ft. 9in. diameter, and the front wheels 2ft. 6in. diameter. The front track is 3ft. and back track 4ft. 6in., and the base is 4ft. 6in. The controller is very simple in construction and action. The system of electrical changes is such that when the voiturette is ascending hills the motors work at

their highest efficiency and at normal speed; they are geared down to run the car up hill at six miles an hour, whilst on the level the car is run from eight to twelve miles, or faster if desired. There are also two slow speeds forward of three and four and a-half miles, and a slow speed backward of three miles per hour. When going down hill the motors act as a brake, and on steep hills give a back charge to the batteries. A careful series of tests were made on the journey, and the current used was measured. On level roads, such as from the Elephant to Croydon, the current varied from 10 to 20 amperes per cell; on inclines of 1 in 40, such as experienced between Croydon and Merstham, the current rose to 40 amperes per cell, the average current used being about 20 amperes per cell. On the steepest part of Redhill the current touched 45 amperes per cell, this with a pressure of 32 volts giving an effective of 4 h.p. to the carriage. On the other hand, when going down Merstham hill, Earlswood Common, Handcross hill, etc., the battery was recharging about 15 amperes per cell, or practically returning about one-fourth of the current, the returned current making an appreciable difference in the run. Of course, on level roads the distance travelled would have been very much greater. The run was made at an average speed of ten miles per hour, or in five and a quarter hours' actual travelling, and varied from fifteen miles per hour on the level or slight inclines to six miles per hour going up the hills. The roads were in good condition, but a very strong head wind prevailed throughout.

FROM MANCHESTER TO LONDON.

I fancy, writes Mr. J. Reginald Egerton from Sheen House Club, that your readers have heard very little about the "Century" tandem motor-tricycle, except its splendid performances during the 1,000-mile Trial, therefore I venture to send you a short description of it, as I feel sure it meets a long felt want—namely, a reliable machine, which is at the same time a good hill climber, free from noise and smell, and easy to drive and manipulate, and last, but by no means least, comfortable. I speak from personal experience, having driven many of these machines, two of them from Manchester to London, one fitted with a 3½ h.p. water-cooled engine, and the other with a 2½ h.p. air-cooled engine.

On the first-named machine, which was, of course, much the fastest, we ran, in the early hours of the morning, several miles just under 1½ min. per mile, and we actually cleared 37 miles in one hour, but our average was completely spoilt by having to run very slowly during the dark hours. Never having been over the road before we had to stop at almost every sign post to try and find out the way. On more than one occasion we had to retrace our steps. I had a mackintosh on over my other clothes, and my passenger wore a sweater as well as a mackintosh, and so we managed to keep fairly warm. One stop we had, besides the necessary one for oiling up, feeding and lubricating ourselves, and for finding the way, and that was to find out why the water-cooled engine was not being cooled with water, though the pump was revolving quite as it should do. This, however, was not a very difficult thing to discover, and when put right we had no more bother with the water circulation, the engine always keeping beautifully cool at the highest speeds.

We left Altrincham, just outside Manchester, at five o'clock in the evening, and travelling via Knutsford, Holmes Chapel, Newcastle, Stone, Rugeley, Lichfield, Coleshill, Stonebridge, Coventry, Dunchurch, Daventry, Towcester, Stony Stratford, Fenny Stratford, Dunstable, St. Albans, and Watford, reached Uxbridge (180 miles) at nine o'clock next morning, having had a most enjoyable ride—I speak for my passenger as well as myself—over, in most places, absolutely perfect roads. One piece of road, though, was anything but good, being practically disused, and ending in a sort of dried water-course, up which, to save the tires, we pushed the machine. It was between Rugeley and Coleshill, and, curiously enough, when going over the same course with the air-cooled Century two weeks after, and though taking special care to watch all the sign posts, and so on, yet we were once more confronted by the self same pre-historic road, and also, curiously enough, I have not as yet been able to make out where I went wrong, and by what road I should have travelled. As I shall

probably have occasion to travel from Manchester to London on several future occasions, I should be much obliged, if any of your readers who know the district which baffled me could give me help on the subject.

The run down on the 2½-h.p. air-cooled Century was, take it all round, a better performance than the previous one. Of course we had no pump troubles, being air-cooled, and we had much less frequently to retrace our steps; and again, there being a full moon, one could run faster during the night, and one also knew more when the nasty turns and corners were coming, so that, although our machine was ever so much slower than the water-cooled one, we got to Kilburn and Brondesbury station at 1.29 noon, only leaving Altrincham at 9.40 the previous evening, and stopping at Stony Stratford a long time, quietly looking over the machine, and tightening any nuts that might be loose (as the machine was brand new, and had had no chance for things to shake down into their proper places before) the usual motor-man's wash and breakfast, and a quiet lounge in the smoking-room.

Besides this prolonged stop, we got down about every 25 miles to oil up, and once pushed the machine up a hill to warm ourselves, as we were both actually chattering with the cold, and my passenger, who by the way is the owner of the machine, was wrapped up in a thick mackintosh. I am told that on the night in question, July 14th, people could not get to sleep for the heat, and they look at me with a "bit-of-a-liar-myself" sort of look when I tell them I was unbearably cold for about three hours that night. Motorists will, however, credit my statement I know.

Now, as to the machine, the frame, which is made of large steel tubing, is the same for either engine—the choice of the engine being absolutely left to the buyer—and is so constructed that the front wheels when going round a curve lean over towards the inside of the curve. The front seat, which is upholstered in leather and hides two large supply tanks, is suspended on C springs, making it very comfortable. The footboard is so constructed that it can be heated in the winter by the hot exhaust. The machine is chain driven, first on to a counter-shaft, on which are two friction clutches, and thence to the back or driving wheel. The chains are of the automatic pitch type, and are very strong indeed, and cannot come off. The vehicle has two speeds and a free wheel, and two brakes, namely, a tire brake and a band brake on the hub of the back wheel, both of which are operated with the foot. The steering is controlled by a side lever, and it is difficult to believe how simple it is. The ignition, which is electric (dry battery and coil), is timed by a little lever on the steering handle, which is very easy of manipulation, and by the use of the electric switch, convenient to the driver's hand, the current may be switched off at any time. The carburettor is a modification of the surface type, and is under the footboard of the driver's seat, the float being under the driver's eye, as is the whole engine.

OUR Midland representative writes:—I called at the Star Motor Works in Wolverhampton a few days ago and was shown by Mr. Prew his new carburettor at work in one of the Star cars. The great advantages claimed for it are that it will work with either light or heavy oil, is much more economical in its consumption of oil, and is, as a matter of course, most suitable for tropical countries. I was afterwards shown one apart from the motor and was struck with the simplicity of it; there is nothing about it that can get out of order, and every part of it is easily accessible.

A NEW price list is being issued by the United Motor Industries, Limited, which is a considerable improvement on the old one. It now has an index, obsolete lines have been removed, and many new lines have been introduced, and in this particular the catalogue will be of especial interest to those firms who propose building cars in this country. The prices have been rearranged and in some cases reduced, and in a few cases where there has been no option in the matter they have been increased. The catalogue comprises 130 pages, and is issued at one shilling. The illustrations are a special feature worthy of notice.

SOME NEW MOTOR-BICYCLES.

IN our report of the recent Automobile Exhibition at Brussels we referred to the motor-bicycle shown by La Société des Usines Delin, of 7, Marché au Poisson, Louvain. We are now able to publish in Fig. 1 an illustration of the machine, together with a few additional particulars. As will be seen, the frame is of special construction, to enable the motor to be carried within it just in front of the bottom bracket. The motor is of the single air-cooled cylinder type, it is of 1½ h.p.

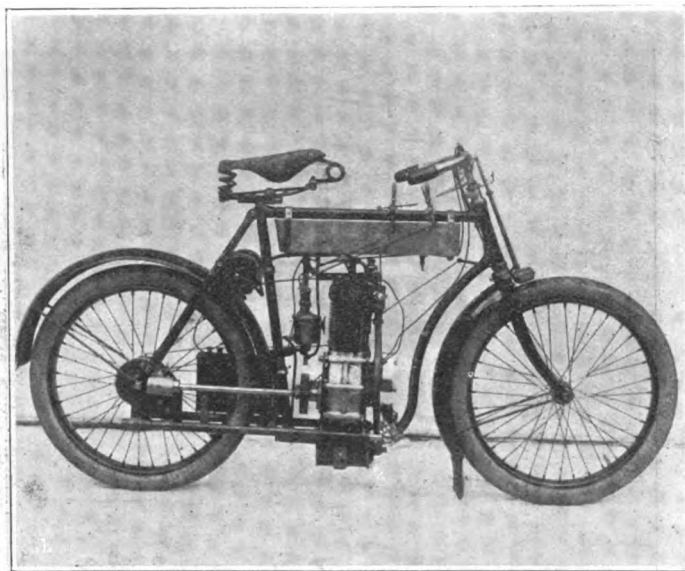


FIG. 1.—THE DELIN MOTOR-BICYCLE.

capacity, and has electrical ignition and Longuemare carburettor. No pedals or chain are provided, the motor driving the rear wheel hub through a long shaft and bevel gearing, very much on the lines of the chainless bicycle. Two brakes are provided, a tyre brake on the front wheel and a band brake on the rear wheel hub. The machine, which weighs complete 176lb., has been tried on some of the worst roads, and it is stated to have attained an average speed of 60 kilometres per hour. The position of the motor is stated to render the machine exceedingly stable.

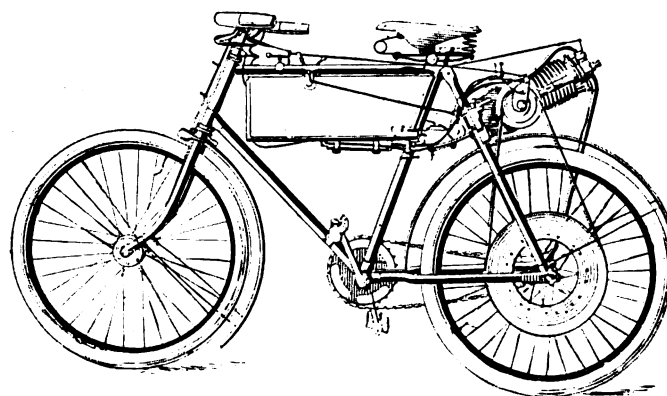


FIG. 2.—THE "CENTAURE" MOTOR-BICYCLE.

Fig. 2 shows the "Centaure" motor-bicycle recently introduced by a Paris firm. The motor, as will be seen, is supported behind the saddle over the rear-wheel; it develops just over 1 h.p., and weighs 22lb.; it is air-cooled and provided with electric ignition. The transmission is effected by a strap working on a pulley attached to the rear wheel. The small pulley is not fixed on the crank shaft, but on a short shaft driven by spur wheels off the crank shaft at half the speed of the latter. The petrol tank has a capacity sufficient for a run of 100 kilometres. The weight of the machine complete is given as 74lb.

CORRESPONDENCE.



A NEW CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Herewith I send you a photograph of an experimental car, designed by Mr. F. L. Martineau and myself, which may be of interest. We are very pleased with the results obtained, as, although we have only $3\frac{1}{2}$ h.p. and the car weighs 10 cwt., we can average seventeen miles per hour over hilly country, the top speed being over twenty miles. This is due to the very efficient chain transmission. We have quite got over



the pump trouble by the simple expedient of not using one, and find we can run over one hundred miles on a hot day without renewing our water supply, which is under three gallons. The car is very silent and smooth in running, and quite comes up to our expectations.

Yours truly,
155, Buckingham Palace Road, T. B. BROWNE.
London, S.W., July 30th, 1900.

THE 1,000-MILE TRIAL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. Jones, I take in *The Motor-Car Journal*, and have spent some pounds in looking for a "silent, simple, and reliable car." I certainly do not find it in the vehicle named, which, like the rest of oil-driven motors is noisy, uncertain, and complicated, and in the trial did not face the Shap Fell Hill, which the "Locomobile" steam-car did with its two passengers. My experience and trial is very much in favour of the "Locomobile." It is silent, certain and easy to handle.

My object in writing was not to advertise any particular car, but to obtain some data as to working, cost, and repairs, which in the Trial was not taken into account, but to an ordinary buyer is an all important matter, and to me seems a serious item with oil cars.

A PURCHASER.

Reading, July 30th, 1900

PNEUMATIC TIRES AND PUNCTURES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your readers inform me why a layer of thick leather belting should not be fixed between the inner tube and outer casing of pneumatic tires. The leather belting might be chamfered off at the sides to allow for curvature of tire. If successful, this ought to render a puncture impossible and would also, no doubt, tend to lessen the bounce which a heavy, fast car shod with pneumatics will give on bumpy roads. When I ordered my Mors car twelve months ago I was talked into having pneumatics, but found the car bounced like a rubber ball over bad roads. So when I had a puncture I had solids put on, but finding that steel spokes will not stand solid tires, am thinking of going back to pneumatics if I could do something to make them less liable to puncture, and also lessen their bumping qualities.

Yours truly,
White Lilies, Clewer, Windsor.
August 1, 1900.

W. VANDERBYL.

A MOVEMENT is reported to be on foot in Des Moines, Ia., U.S.A., to establish a line of public motor-vehicles.

THE patents of the General Electric Automobile Company were sold by auction in Philadelphia on 11th July for £5,800, in order to satisfy the claims of creditors.

MESSRS. WILLIAM H. BURGESS have changed their offices to 21, Charterhouse Street, E.C., and have secured a warehouse in Steedman Street, Walworth, near the Elephant and Castle.

LICENCES have thus far been granted in Chicago to six lady operators of motor-vehicles. No licences to run steam or petrol carriages have thus far been granted, neither of the latter being considered safe in the unmechanical hands of feminine drivers.

A HERNE BAY cycle firm which is devoting attention to motor matters is Messrs. Root and Clarke, of Station Road. One of our staff called there the other day and found them engaged on the construction of a two-seated vehicle to their own designs. This being the busy season in the cycle trade it is probable that the completion of the machine will be somewhat delayed. The firm are well equipped to undertake repairs to motor-cars and cycles, and at the time of our call had a motor-trike and an "Esculape" voiturette on hand.

It is the intention of Collector Bidwell to institute a service of Locomobile cars between the Appraiser's stores and the Custom House in New York. At present two cabs are used to convey the invoices from the Custom House to the Public Stores. By the installation of one Locomobile, which will make regular trips to convey the official messenger with invoices, it is expected a better service will be given. Collector Bidwell himself has for some time been using a private steam-car to convey him to and from the Custom House.

WHAT is described as the first international automobile tournament ever held in America opened at Newhaven, Connecticut, on the 25th ult., and was attended by thousands of spectators. Over one hundred racing automobiles owned by millionaire amateurs and professional *chauffeurs* were entered for competition, and fully 200 motor-cars were on exhibition from nearly all the leading American and foreign manufacturers. Skinner, the American champion, Wridgway, the English automobilist, and Champion, the famous French *chauffeur*, took part in the contests.

THE American Consul-General at Frankfort, in reporting to the State Department at Washington, states that the Spuyer Automobile Company organised last year has five automobiles in use. They are propelled by a petrol motor in front of the vehicle, of 10 h.p., and were built by the Daimler Company, of Cannstatt. Each car is capable of carrying twenty-eight passengers, and the company has a contract with the Post Office Department to carry the mails to Dudenhofen, Geinsheim, Hohnofen, Hartausen, Mechtersheim, Otterstadt, and Waldsee—two to ten miles away. In the five months since starting more than 40,000 passengers have been carried.

THE PARIS-TOULOUSE RACE.

(From Our Own Correspondent.)

AS in the case of the International Cup event all the automobile world was kept in suspense up to the last moment as to whether the Paris-Toulouse-Paris course would or would not be decided, a proceeding which assuredly renders the holding of such a race infinitely more dangerous than is the case where ample notice is given and organisers, competitors, and public alike permitted to complete their arrangements leisurely. The extreme indecision of the authorities is difficult to explain, and for their own reputation it is to be hoped that any future applications received by them will be dealt with decisively one way or another. It was largely due to their vacillating manner of dealing with the question of the International Cup race that the arrangements on that occasion were so woefully incomplete, and although no very serious complaints have been made under this heading with regard to Paris-Toulouse, still the arrangements were certainly prejudiced and the organisers greatly handicapped by the policy of indecision adopted by the authorities. It was only at 1.30 in the afternoon of Monday, the 23rd ultimo, that Monsieur Waldeck-Rousseau, Minister of the Interior, informed Monsieur Jeantaud, the manager of the automobile sections of the Paris Exhibition, that the event might be decided, and the news spread so rapidly that soon all the automobile world of Paris knew of it. Organised by the Automobile Club of France on behalf of the Exhibition, this Paris-Toulouse-Paris race was *dolé* with money prizes amounting to no less than 47,000 francs, or some £1,880, in addition to medals and similar souvenirs of the event. No fewer than nine prizes of the total value of £1,200 were allotted to the big car category, these ranging from £320 for the first car home to £20 each to those finishing eighth and ninth. Seven prizes were offered to the *voiturettes*, the winner taking £160 of the gross total of £360. For the motor-cycles thirteen prizes were put up, and of the total value of £320 the first arrival had the right to £80. Prizes worth winning, I think I hear you say. Yes, but requiring winning also, I can assure you. The selection of the route gave rise to numerous difficulties, and it was only after several changes that the following was finally decided upon. Starting from Montgeron on the road to Fontainebleau, the course led via Melun, Fontainebleau, Montargis, Gien, Bourges, Issoudun, Chateauroux, Limoges, Périgueux, Bergerac, Agen, Castelsarrasin to Toulouse, a distance of 733½ kilometres (458 miles). Upon the return journey the total of 733½ kilometres was divided into two stages, the selected halting place being Limoges. The roads, taken as a whole, were excellent, but the organisers would have done better to have selected the Marmande and Tonneins route between Bergerac and Agen, as that actually followed, via Bouniages, Castillonnes, Caucon, and Saint Antoine is dangerously mountainous.

The passage of the racers through the towns was regulated by a cyclist riding before each vehicle, a method which ensures the safety of the inhabitants. The event called forth quite an exceptional number of entries, no less than seventy-six all told sending in their names. This total was made up by twenty-seven cars, fourteen *voiturettes*, and thirty-five motor-cycles, a motor-bicycle figuring in the ranks of the last mentioned class. The sealing of the competing cars was effected on Tuesday, the 24th ultimo, before the doors of the Automobile Club in the Place de la Concorde, the parts actually sealed being—on the cars, the axles, and the hubs; on the *voiturettes* and motor-cycles, the motors, the frames, the hubs, and the differential shafts. This work accomplished, the majority of the competitors dispersed to make their final arrangements, and the next meeting was at the *contrôle de départ*.

This, originally fixed at Montgeron, a small village situated on the P.L.M. line was at the last moment transferred to Lieusaint, some 10 kilometres nearer to Fontainebleau, with the result that many enthusiasts, who had travelled out by train from Paris to the former place, were there hopelessly stranded, local trains at two o'clock in the morning being as rare on the P.L.M. as on most other railway lines. The fact is that, by reason

of the stringent regulations now enforced, the starts and finishes of big races are of necessity located very far afield, with the result that, unless the owner of an automobile, one has great difficulty in reaching the desired spot, more especially when one has to be there by about three o'clock in the morning. In spite, however, of all the trials and tribulations to get there, some six hundred spectators were congregated together at the railway level crossing at Lieusaint when, at 3.55 a.m. on Wednesday morning, the 25th ultimo, M. Gaudichard gave the starting signal to M. René de Knyff, whose big Panhard car was the first of those inscribed on the list of entries. A couple of minutes later M. Voigt, driving M. Charron's winner of the Gordon-Bennett cup, got under weigh, and then followed MM. Girardot and Giraud, each driving similar types of cars. A Mors champion then followed, M. Hourgières, mounted upon a car said to be even faster than that of M. Levegh. The latter himself came after, and then after Comte Boson de Périgord, driving a Panhard, Gordon-Bennett type, followed the Belgian contingent headed by M. Jenatzy, M. Pinson on this year's Panhard racer, de Turckheim, Brillié, de Lorys, Cuchelet, Ravel, Edge, Gauveau, Huguet, and Antony completed the list of starters in the car category, while in the *voiturette* section the following got under weigh:—MM. M. Renault, L. Renault, G. Grus, Mercier, Corve, Cottereau, Camus, and Schrader. The motor-cyclists were MM. Osmont, Tart, Gasté, Bonnard (motor-bicycle), Bardin, Testé, Gleizes, Collignon, Bardoux, Levasseur, Joyeux, Laurens, Demester, Marcellin, Béconnais, Loste, Coindet, Villemain, Perrault, Battaiellie, Deliclé, Clément, Durand, Geo, Caillé, Vial, Fournier, Deckert, and Ollier. The first noteworthy incident *en route* was the closing of the road to the racers between 6.2 a.m. and 8.15 a.m., by reason of the firing school at Fontainebleau, but due note was taken of the competitors' arrival, and the corresponding allowances made. At Fontainebleau the leaders in the three categories were René de Knyff, L. Renault, and Tart. At Gien, 113 kilometres (70½ miles) from the start, de Knyff was leading Giraud and Hourgières; L. Renault was still first in his class and Testé and Gasté were the pioneers of the motor-cycle section. As the day advanced so did the heat increase, until the blazing rays of the sun began to work havoc among the tires, and without exception the racers had their troubles. Bad luck awaited Mr. S. F. Edge and the Hon. C. S. Rolls on the 16 h.p. Napier. Just before the start they had trouble with the water circulation. They succeeded in remedying this, and overhauled several other competitors, when the electric ignition went wrong. The car was not fitted with lamp ignition as an alternative, as Mr. Edge's experiences with electric ignition had been so fortunate that he had pinned his faith to that alone, and it was hard lines that it should fail him at such an important moment. At Bourges (178 kilometres) de Knyff had dropped back into fourth place, Giraud, Voigt and Levegh preceding him. L. Renault still maintained his advance, and Testé had succeeded in gaining eleven minutes on Gasté, who was lying second. Hourgières and Girardot had broken down. Some 45 kilometres further on, that is to say at Issoudun, Levegh held a nineteen minutes lead over Voigt, de Knyff being third. The fortunes of the race fluctuated tremendously, for burst or punctured tires were quite the order of the day, and no man was safe to guard his position any length of time. Levegh only experienced punctures—as if they were not enough—and succeeded in augmenting his lead, but the others changed positions continually as the result of more serious troubles. The order of the leaders at Villeneuve-sur-Lot, 582 kilometres (364 miles), was as follows:—

	H. M. S.		H. M. S.
1. Levegh	... at 2 55 11	2. de Knyff	... at 3 12 53
3. Pinson	... at 4 20 44	4. Voigt	... at 4 38 9
5. Testé	... at 4 39 4	6. Giraud	... at 4 40 34

It was here that de Knyff abandoned the race, as the result of continual punctures, and the look of disgust on his face when, after the finish of the race, I recalled the circumstances to mind was worth going a long way to see. Levegh was never headed, and ultimately pulled up at the finish, some 10 kilometres outside

Toulouse, at 5h. 18min. 25sec., having covered the 721½ kilomètres from Lieusaint in 13h. 13min. 25sec. The crowd had a long and impatient wait before the second man put in an appearance, this being Voigt, whose time was 15h. 24min. Giraud next appeared upon the scene, but having taken only 14h. 58min. 34sec. to cover the distance he was classified second before Voigt. The final classification for the first day was eventually completed as follows:—

CARS.—Levegh, 13h. 13min. 25secs.; Giraud, 14h. 58min. 34sec.; Voigt, 15h. 54min.; Pinson, 15h. 16min. 21sec.; Antony, 16h. 19min. 24sec.; Turekheim, 21h. 10min. 17sec.; Brillié, 26h. 42min. 5sec.; Ravel, 29h. 53min.

VOITURETTES.—L. Renault, 21h. 34min. 55secs.; Schrader and Oury, 30h. 7min.

MOTOR-CYCLES.—Testé, 14h. 40min. 32sec.; Collignon, 17h. 11min. 45sec.; Bardin, 17h. 13min.; Gasté, 18h. 44min. 52sec.; Gleizes, 24h. 32min. 19sec.; Demester, 24h. 42min. 10sec.; Fournier, 29h. 53min.; Vial, 32h. 44secs.

Hourgières, having a "seized" differential, spent the night at Limoges, travelling on to Toulouse on the Thursday morning.

M. Renault ran into a wagon when within a few kilomètres from the finish, and Cottereau also met with an accident, neither racer, however, suffering any injury, but both cars being badly damaged. So ended the first stage, and during the following day the *chauffeurs* were afforded an opportunity of a little repose during the time that their mounts were on exhibition at the Pré-Catelan. A very pleasant *réunion* took

place in the evening, the competitors being the guests of the Automobile Club Toulousain. The following morning, before a very considerable crowd, M. Huet sent all the racers named above, with the addition of Hourgières, on their way, the first to leave at 6.20 a.m. being Levegh, who, however, after travelling a couple of hundred yards, punctured a tire and lost a full quarter of an hour in effecting repairs. The last to leave were Schrader and Oury at 7.49 a.m., by which time the earlier departures were in the vicinity of Moissac. At Agen, 109 kilomètres from Toulouse, the route was fairly swarming with *chauffeurs* and cyclists anxious to witness the passage of the mighty racers. The first of these to arrive was Voigt, who came in at 8.13 a.m. Nine minutes later it was the turn of Levegh, and then followed Giraud and Pinson. The last arrival at Agen was de Turekheim, and he made a four hours' halt to repair his radiators. At Villeneuve-sur-Lot (139 kilomètres) Voigt still conserved his advantage of nine minutes on Levegh, and Giraud, who was suffering from a damaged hand, had lost a couple of minutes in 30 kilomètres. The same condition of affairs existed at Bergerac, as also at Périgueux (248 kilomètres), and although Levegh gained a little between that town

and Limoges he had to rest content with second place, nine minutes behind the leader—and second place, too, only so far as the order of finishing was concerned, for the official category returned him as third, the second place being occupied by Pinson. This official list for the second stage of 351 kilomètres was as follows:—

CARS.—Voigt, 5h. 43min. 49sec.; Pinson, 6h. 1min. 48sec.; Levegh, 6h. 11min. 1sec.; Hourgières, 6h. 14min. 15sec.; Giraud, 6h. 14min. 50sec.; Antony, 6h. 37min. 46sec.; Ravel, 6h. 47min. 27sec.; Brillié, 8h. 54min. 2sec.

MOTOR-CYCLES.—Testé, 6h. 45min. 55sec.; Demester, 7h. 28min. 29sec.; Collignon, 7h. 29min. 14sec.; Gleizes, 8h. 5min. 13sec.; Bardin, 8h. 20min. 32sec.; Gasté, 8h. 59min. 4sec.

VOITURETTES.—L. Renault, 8h. 47min. 1sec.

For the two days over a total distance of 1,074 kilomètres (671 miles) the return was:—

CARS.—Levegh, 19h. 24min. 26sec.; Voigt, 20h. 45min. 43sec.; Giraud, 21h. 13min. 24sec.; Pinson, 21h. 18min. 9sec.; Antony, 22h. 57min. 10sec.; Hourgières, 36h. 32min. 4sec.; Brillié, 35h. 32min. 4sec.; Ravel, 36h. 40min. 27sec.

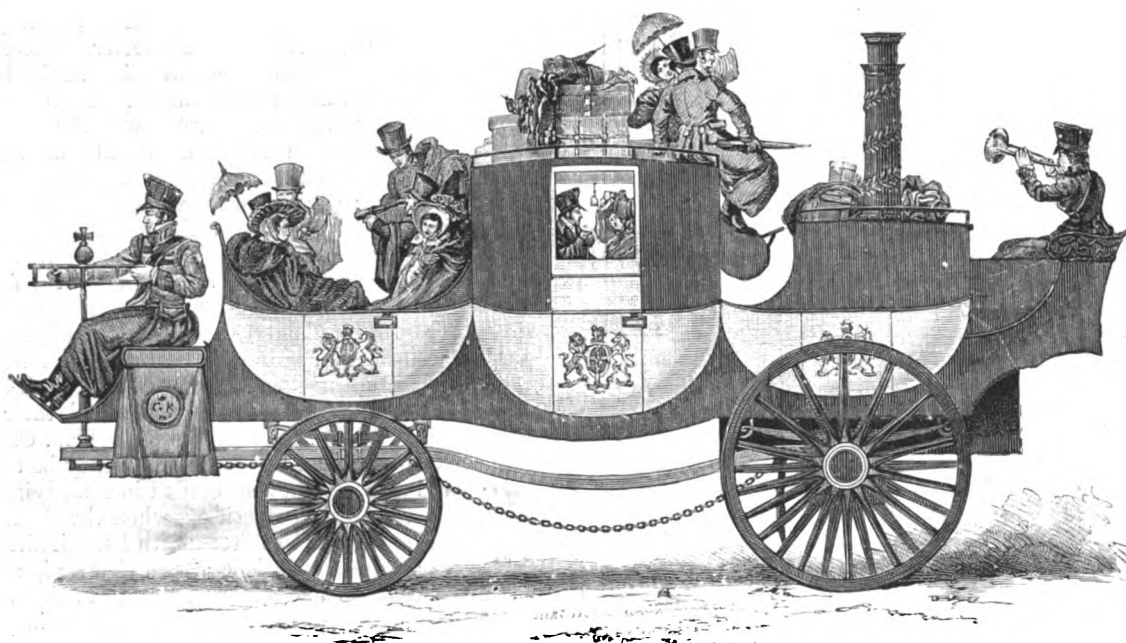
MOTOR-CYCLES.—

Testé, 21h. 26min. 27sec.; Collignon, 24h. 42min.; Bardin, 25h. 35min.; Gasté, 27h. 43min. 4sec.; Demester, 32h. 10min. 39sec.; Gleizes, 32h. 37min. 13sec.

VOITURETTES.—L. Renault, 30h. 21min. 56sec.

Vial, the motor-cyclist, did not finish, as, when at Maison-Rouge, a small village near to Périgueux, he came a bad cropper over a dog, and

was conveyed in an unconscious condition by Schrader and Oury to the hospital at Thiviers, where at the time of writing he is still lying. At Limoges the local cycle club did the honours during the evening, and at an early hour the following morning all the world was astir to see the racers set out on the last stage of their long journey. Levegh had again the place of honour, and his start was effected at 4.15 a.m., exactly half an hour before Voigt, who followed him. The others followed at irregular intervals, and it was not until 7.18 a.m. that the whipper-in made a start for Lieusaint. Levegh had, at Chateauroux (120 kilomètres) considerably increased his advance, Giraud, Voigt, and Pinson following him in the order given. At Issoudun (147 kilomètres) the leader lost half an hour in effecting repairs, and it was about here that Fournier had a curious experience, for his motor took fire and for a minute or so burned gaily. Levegh still led by twenty-five minutes at Bourges (183 kilomètres), and it was remarked that Giraud's car carried a front spring badly damaged and bound with thick cord. For the rest of the journey a desperate struggle took place between Pinson and Voigt, first one and then the other leading, with Levegh, however, always ahead. In the neighbour-



THE JAMES-ANDERSON STEAM OMNIBUS, BUILT ABOUT 1829. (See page 372.)

hood of Gien a nasty accident occurred to Hourgières, for at the moment when he was passing a wagon the horse took fright, and as a result of the collision the car was overturned and travelled upwards of thirty yards upon its side. Hourgières broke a rib against the brake lever, and his mechanic escaped with nothing worse than a shaking. At Montargis (295 kilomètres) Giraud punctured a tire and effected repairs, aided by De Knyff, Charron, and Girardot, who had run out from Paris in a 12 h.p. Panhard. Through Nemours, Fontainebleau, and Melun, right up to Lieusaint, Pinson and Voigt struggled hard for second place, and the victory would probably have gone to Pinson had not his clutch commenced to slip when 10 kilomètres from home. The competitors arrived very late at the finish, for we, who had got up at 5.30 a.m., and journeyed out from Paris by train to Lieusaint and walked 6 kilomètres from the station to the scene of their arrival, had to wait patiently during an hour and a quarter until the first, Levegh, put in an appearance. He arrived at a great speed and smothered in dust. Having signed at the *contrôle* he waited until the succeeding cars had appeared upon the scene, his admirers meanwhile attaching a magnificent bouquet to the splash-board of his racer. About twenty-five minutes later we were treated to a real sensation, for Voigt arrived at full speed, hotly pursued by Pinson, a bare minute separating the two at the finish. A back spring of the former's mount was broken, and the vehicle had settled well down to the right; Pinson's car only showed traces of the tremendous strains to which it had been subjected in the damaged footboards, nearly all of which were broken. A long, long wait then ensued, and gradually the little group of spectators, which included Mr. Mark Mayhew and Mr. Frank H. Butler, commenced to diminish. Mr. Butler was accompanied by his daughter, Miss Vera Butler, who had driven his Panhard car from London to Paris, thus achieving the distinction of being the first lady motorist to steer an automobile between the English and French capitals. M. and Mme. Albert Lemaitre, on a Peugeot racer, Comte de Dion and M. Bouton on a voiturette, Comte Boson de Périgord, driving a Panhard, and many other notabilities in the automobile world only remained long enough to see Giraud arrive at 12.43 before setting out for Paris. MM. René de Knyff, Charron, and Girardot made a flying visit to the *contrôle*, and carried off the Comte Chasseloup-Laubat to lunch at Montgeron. As for the rest of us, we just waited on for some time, but no results of our patience being forthcoming, we also turned upon our heels and left the officers of the *contrôle* all alone in their glory to watch and to wait for the errant *chauffeurs*. Their complete return was as follows:—

CARS.—1, Pinson, 6h. 44min. 18sec.; 2, Voigt, 7h. 16min. 26sec.; 3, Levegh, 7h. 19min. 27sec.; 4, Giraud, 7h. 32min. 44sec.; 5, Antony, 9h. 41min.; 6, Ravel, 9h. 50min.; 7, De Turckheim, 9h. 5min.; 8, Brillie, 14h. 17min.

MOTOR-CYCLES.—1, Fournier, 8h. 13min. 43sec.; 2, Bardin, 8h. 13min. 51sec.; 3, Testé, 8h. 25min. 26sec.; 4, Gasté, 8h. 35min. 47sec.; 5, Collignon, 8h. 39min. 10sec.; 6, Gleizes, 9h. 32min. 48sec.

VOITURETTES.—1, Renault, 10h. 4min. 50sec.

The final classification for the entire race was:—

CARS.—1, Levegh, 26h. 43min. 53sec.; 2, Voigt, 28h. 2min. 7sec.; 3, Pinson, 28h. 3min. 16sec.; 4, Giraud, 28h. 46min. 6sec.; 5, Antony, 32h. 38min.; 6, De Turckheim, 43h.; 7, Ravel, 46h. 30min.

MOTOR-CYCLES.—1, Testé, 29h. 51min. 53sec.; 2, Collignon, 33h. 21min. 16sec.; 3, Bardin, 33h. 48min. 51sec.; 4, Gasté, 36h. 18min. 51sec.; 5, Gleizes, 42h. 9min.

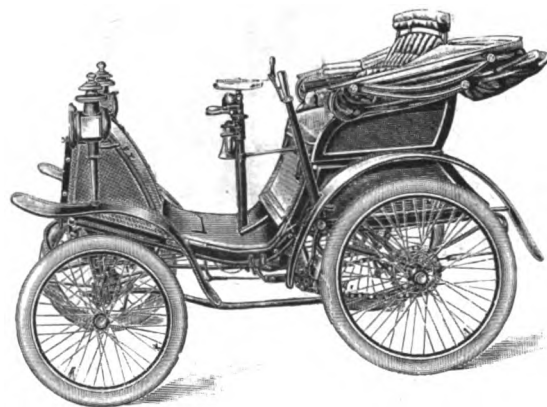
VOITURETTES.—1, Renault, 40h. 27min. 40sec.

From Lieusaint the competing cars were driven by their owners to the Vincennes annex of the Exhibition, for one of the conditions governing the contest was that the competitors should expose their racers during the week following the finish of the *course*. The presence of the cars has proved a distinct attraction at Vincennes, and on Sunday last, in spite of the rain, a great number of people journeyed out by the new Metropolitan Railway expressly to see them. Needless to say, the flower-bedecked winner came in for considerable attention, and its rakish lines excited much favourable comment. A number of well-

known automobilists were also in evidence, for the jury of the Exhibition contests were in conference under the presidency of M. Forrestier, so the day was quite an automobile one. With this event automobile racing is likely to remain quiet for some time to come—indeed, it would not surprise me if it proved to be the last long-distance *course* of the year. Comparatively little difficulty should be experienced in obtaining the necessary permission for the hill-climbing contests, but I fear that but little chance exists of deciding the Paris-Ostend or any similar event.

THE KAYSER MOTOR-VOITURETTE.

THE latest German cycle-making concern to turn out a motor-voiturette is the Pfälzischen Nahmaschinen und Fahrradfabrik Gesellschaft (vorm. Gebrüder Kayser) of Kaiserslautern. The company have been building motor-cycles for some time, but only recently took up the construction of cars. The accompanying illustration gives a general view of the two-seated vehicle they are now putting on the market. It has a tubular frame, on which is mounted at the front a Kayser vertical petrol engine under a perforated metal bonnet. In the particulars issued by the company no mention is made of the horse-power of the engine, but they state that it is of sufficient capacity as to drive the car at a speed of 30 kilomètres an hour on ordinary roads and of enabling the car to mount all ordinary hills. The ignition of the explosive charge is effected electrically, the company employing a system of their own for which they claim several advantages. As for the cooling of the motor, the cylinder walls are fitted with radial ribs, while the explosion chamber is provided with a water jacket; the circulation of the water is maintained generally on the thermo-syphon arrangement, but if desired a pump and cooling coil can be fitted.



Coming now to the transmission gear, this is a combination of belts, cogs and chains. Three speeds are available—7½, 15, and 30 kilomètres per hour. The motor transmits its power by a single belt to a countershaft. On the latter is a train of cog-wheels, any one of which can be made to mesh with similar wheels on the differential shaft, which is connected to the rear axle by the usual duplicate set of chains and chain-wheels. The steering is controlled by a small hand wheel on a vertical standard, on which the variable-speed control handles are mounted. There are both hand and foot brakes, the former acting on the tyres and the latter on the differential shaft. The levers controlling the foot brake are so arranged that when it is applied the driving belt is at the same time slipped on to the loose pulley, thus throwing the engine out of gear from the transmission mechanism. The crank shaft of the engine and the variable-speed gear work in oil-containing cases, while the road wheels, which are of the cycle type, shod with pneumatic tyres, are mounted on ball-bearings. The car is about 7ft. long by 4½ft. wide, and weighs complete about 6 cwt. The petrol tank has a capacity sufficient for a run of about 150 kilomètres.

The Stutzman Automobile Company has been organised in Williamsport, Pa., U.S.A., with a capital of £10,000.

THE PANTZ MOTOR-WAGONETTE.

IN our issue of January 26 last we gave an account of the system of motor-cars introduced by M. Ch. Pantz, of Pont-à-Mousson, France, the feature of which is the mounting of the motor and the whole of the transmission gear on a distinct frame, which can be detached from one vehicle and applied to another. The accompanying illustration shows a seven-seated wagonette lately constructed on this system. The frame carries a two-cylinder petroleum-spirit motor of 6 h.p., provided with electric or tube ignition and Longuemare carburettor. Upon the motor-shaft are mounted three pulleys, of different diameters, transmitting power by means of belts to corresponding pulleys on the countershaft. Each of the pulleys on the countershaft comprises a fast pulley and an idle one. At the end of the countershaft is a pinion operated directly by the shaft for forward motion, and by a system of internal gear for the reverse. When the frame, with motor and gear, is placed in a vehicle this pinion engages with a gear which transmits its motion to a second counter and differential shaft on the vehicle.

Each side of the frame has two bolts, the heads of which fit in grooves in the framework of each vehicle in such a manner that the pinion engages with the gear of the vehicle, which trans-



mits the power to the rear road wheels. The motor and machinery being in the proper position it is merely necessary to fasten the four bolts to render the whole vehicle firm and safe. The speed mechanism is then connected to rods which are attached to the controlling levers. It is claimed that when these bolts are all securely set the vehicle is almost as firm and solid as though the motor had been an integral part of the vehicle. Each car has its own water-cooling device, steering and control levers and its special transmission, carrying the differential and the pinions operating the transmission chains.

To facilitate the change of the motor and transmission gear from one vehicle to another, a stand is provided having grooves similar to those in the vehicles, so that when the motor apparatus is drawn out of the vehicle it rests upon the stand and can easily be inspected and repaired. The stand has an arrangement whereby its grooves may be adjusted to the same height as those of the vehicle. The entire operation of changing the motor and transmission frame from one vehicle to another requires, it is claimed, but a very few minutes.

THE Canford Cliffs Motor Omnibus Company, Limited, have been fined at the Bournemouth Petty Sessions for committing two breaches of the bye-laws at Parkstone: by erecting a building without having deposited plans, and further with building without the approval of the Town Council.

THE TRIUMPH OF THE TURNPIKE.

THE opening of a brand new Border hotel on a lonely country road ten miles away from anywhere deserves more than a passing notice. The event is full of significance as an index of the change that is taking place on our country roads. Already a great stream of life is flowing along them. The cycle has begun to give them back to us, and the motor, says the *Scotsman*, will complete the gift. Macadam, after being clean outpaced by Stephenson for more than fifty years, is coming away with a big spurt, and is promising to make a great race of it for the pre-eminence in the coming century. The opening of this inn is only typical of what is happening throughout the length and breadth of the country, albeit in humbler and less striking significance. Everywhere the cyclists' needs are being waited on. Lonely wayside inns are blossoming into Cyclists' Rests. And cottages by the roadside, away up on the wine-red moor, that a score of years ago would have only a carrier's cart and an occasional wayfarer to tell them of the great busy world outside, have now their finger on the throbbing pulse of humanity, and are prescribing milk and biscuits from their windows for the suffering pilgrim of the road.

And all this we are fain to believe is but the curtain-raiser, the prelude to the play. Enter Hamlet—on a motor-car! To quote from the *Spectator*—"The motor-car will, in fact, do more fully what the bicycle began—i.e., give the nation back its roads." The motor has really come to stay—so most of us are persuaded, after the thousand miles' exhibition trial. In France for some years now they have recognised this fact; but that only goes to prove what Matthew Arnold failed to do, though he asserted it often enough—the greater readiness of our Gallic neighbours to take in new ideas. Already cars are reported there to be doing something not far short of fifty miles an hour on the highway. And this opens up a whole world of possibilities, every one of them a triumph, for the immediate future of our turnpikes; provided only that the county councils bestir themselves and give us a better surface on our roads.

To own a motor is still, of course, fame, and to hire one for the day confers distinction, and makes the occasion something of a "ploy." But, as a matter of fact, this latter at least is now within the sphere of practical politics. Already we who dwell in country parts have had our friends from town drive in their motor-car to our gates; and before long we look to see them commonly, quite as a matter of course, just as the cyclist drops in to-day. Once only the ownership of motors becomes a rule rather than a striking exception, and the hiring of them becomes a commonplace; it requires no prophetic vision to see the flood of travellers that will be surging along every country road. On business—e.g., to accomplish a twenty or thirty miles cross-country journey and back again in the same day—who will ever dream of doing it by rail when his motor stands solicitous at the door? At his own good pleasure, having breakfasted at his usual hour and leisurely, he steps into his car, and in something under a couple of hours he is pulling the door bell at his destination. No bother of early rising to catch the only suitable train; no bolted breakfast and hurried scamper to the station; no changing of trains or anxiety about catching connections; no fuss, or strain, or worry. But, instead, a bracing spin at your own time and convenience, returning by a different road if you will, and the whole thing accomplished in not more time than the railway journey would require.

Business becomes pleasure on terms like these. But think of highway travelling for pleasure pure and simple—on holiday, e.g., what more enjoyable week or fortnight could one imagine than to go spinning along, in congenial company, thirty, fifty, eighty miles a day, just when and where and how you will; spending a useful morning amid the old castle's ruins, or going over the little country church, with "its Norman arch, its brasses black and red"; dawdling a long, lazy afternoon up on the lonely moorland, where the whaups are crying, and where the smell of the peat reek floats down the breeze with the barking of the shepherd's dog; "doing" some interesting country town; going

over some famous historical scene; spending a night or two with old friends, a day or two on some familiar links, or on some favourite stream? Why, the prospect fairly thrills one to the marrow! Would that the Muse of the Road, gently considerate, should deign to tip this halting pen as with fire, so that, according to the needs of the occasion, the glory of the new life and the new travel on the old road should be all fittingly set forth.

"Five-and-thirty years ago the glory had not yet departed from the old coach roads; the great roadside inns were still brilliant with well-polished tankards, the glances of pretty barmaids, and the repartees of jocose ostlers; the mail still announced itself by the merry notes of the horn." Thus George Eliot's opening notes in her well-known swan song of the dying stage-coach, sung now almost thirty-five years ago. Again the Golden Age returns—that age that we had with us seventy years ago. The old order changeth, yielding place to new; and the new, as so often, is just the old—with a difference. The knight of the red face and round hat, in his coach peagreen or yellow, floated away out of our grandfather's sight into some island valley of Avilion, returns again to his familiar haunts along the King's highway. But in his hands this time it is a steering-wheel he holds, no longer ribbons; an oil-can, not a whip.

And what of that other—the true Knight of the Road, with masked face, darkly lurking in the lonely places? Will a new order of Dick Turpins arise to give an *aliquid amari* to the cloying sweets of highway travelling—a spice of danger to the glorious sport? Already we read of burglars on the other side of the Channel escaping with their booty on a motor-car. Is this the first stage in the development of the modern highway-man; the rider whose new Black Bess will be geared to not less than eighty miles an hour; the social reformer that will remember the poor, while he relieves the bloated rich of their ill-gotten gains; the gallant that will call beauty to foot a measure with him on the lonely heath, and then, swift as the wind, vanish down the glen? Who shall tell? Let no one prophesy unless he knows. Perhaps, as the old inn, and the old coach, and the old driver are to be so changed, so he, too, will wear another garb. Shall we find him at the receipt of custom; no longer now the ally of the landlord (as was so often suspected), but the landlord himself?

LORD SAVILE has just had delivered to him a new voiturette.

THE initial run of the Buffalo Automobile Club was held on the 8th ult. Eight vehicles participated, and the affair was an unqualified success.

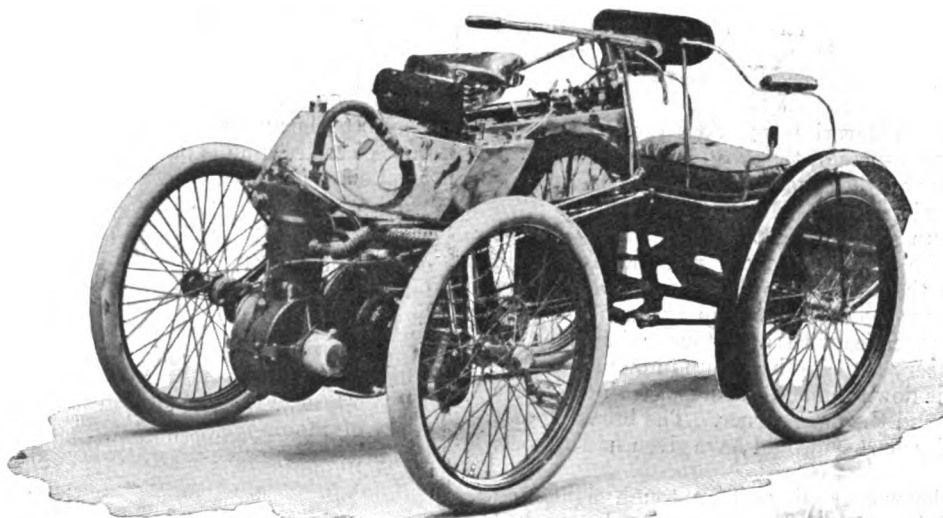
THE Speedwell Electrical, Motor Car, and Cycle Company, Reading, whose premises were recently burnt out, has taken more convenient premises at the junction of Minster and Broad Streets.

At Londonderry, on Saturday last, Mr. J. W. Stocks gave an exhibition of the hill-climbing powers of his Ariel motor-tricycle by making a trip up Ship Quay Street. The performance was witnessed by a large concourse of people. Subsequently he made a few speed trials at the Brandywell cycle track.

THE "IDOLE" MOTOR-QUADRICYCLE WITH WATER-COOLED MOTOR.



USERS of motor-quadricycles will be interested in the description of the machine which has lately been put on the market by M. J. Théodore, of 21, Rue Brunel, Paris, and of which an illustration is given herewith. The feature of the machine, which has been named "L'Idole," is the employment of a water-cooled engine in place of the usual air-cooled type. The motor employed is an "Aster" of 3 h.p., the ignition being electrical. A specially-shaped tank is carried behind the rear saddle; this tank is divided into two compartments, one holding $1\frac{1}{2}$ litre of lubricating oil and the other 13 litres of water, the circulation of the latter being on the thermo-siphon arrangement. A small radiating coil is fitted which enables a long distance to be run without it being necessary to renew the cooling water. The petrol tank is carried within the frame and is connected up to a Longue-mare carburettor. The motor is adapted to be started by means of a detachable handle, so that the operation of pedalling is rendered unnecessary except when ascending steep hills. The front seat can be readily detached, converting the vehicle into a single-seated quadricycle.



THE "IDOLE" MOTOR-QUADRICYCLE.

A BENZ car and an Ariel quadricycle are to be seen daily running about New-quay.

FRISWELL'S AUTOMOBILE PALACE, LTD., is the title of a new company to be formed with a capital of £40,000, divided into £20,000 6 per cent. preference shares and £20,000 ordinary shares. £10,000 will be reserved for working capital.

A FIVE miles motor race on the grass was included in the Chichester Club's evening cycle race-meeting on Thursday last week, with the result that Mr. J. D. Foster, one of the club's oldest racing members, came in first, Mr. T. S. Adcock, another veteran, being second. There were four entries, the winner having four hundred yards start, Adcock being on scratch. Time, 12min. 15 1-5 sec.

MR. WILLIAM K. VANDERBILT, jun., to whose 30 h.p. Daimler we made reference a fortnight ago, has been arrested for driving his car at a furious speed through Milton, a suburb of Boston, U.S.A., and was fined 15 dols. at the local police-court. It is stated that Mr. Vanderbilt made a flying trip from Newport to Boston, a distance of 75 miles. The trip was made in 2 h. 47 min., the speed averaging 30 miles an hour, except in and near Boston, where he slightly exceeded the legal limits.

We have received a copy of "Le Concours de Moteurs" (Paris: Vve. Ch. Dunod), which is a full account of the trials conducted by our French contemporary *La Locomotion Automobile* from October to January last, of engines and the powers developed by them, as well as the separate series of trials as to the actual power obtained off the road wheels. It is from the pen of M. Gaston Sancier, and is a most interesting work. Preceded by a preface by M. Pierre Giffard, the work includes chapters on motor and vehicle tests, followed by a detailed account of the results obtained from the various engines and cars subjected to trial. The details are set forth clearly, and are accompanied by illustrations, so that they have a permanent interest.

THE IRISH MOTOR TOUR.*

(From Our Own Correspondent.)

WE reached our headquarters in Kerry, as already described (Derrynane being the place, and one of the sweetest spots in Ireland by the same token). We confined ourselves to circular runs in the neighbourhood for a few days, as the strain of the four long journeys was enough to make us wish for a rest, or, at least, something as near to a rest as the enthusiastic motorist will allow. We put in from about 30 to 60 miles daily, the trips being amidst delightful scenery on the Atlantic seaboard.

Then, on the 24th ult., we struck camp and moved homewards. The greatest task of the tour had to be done this day, it being on the cards that we should climb Ballaghbeama Pass. There was no necessity to do this, but its being the severest defile in Ireland seemed to recommend the feat. Our cars were quite new, and the owners probably thought it interesting to test them at their maximum. Personally, if I had a car I would prefer trying it on the roof of a house or up a flight of steps. Ballaghbeama is vertical enough in all conscience. As a roadway it is practically disused, and grass and rough, loose stones cover most of that surface. Very narrow is it also, and most unpleasantly perched alongside a little precipice. From a scenic point of view there is nothing to equal it in the three kingdoms. The mountains through which it squeezes itself are nearly 3,000 ft. high, and the road comes pretty close to the top ere it ceases climbing.

Once moving on the enterprise we had to see it through. The narrowness and tortuousness of that road-bed left all hopes of steering backwards out of the question. The great wall of towering rock which bordered one side of that roadway gave little chance of fetching up against it if the worst happened, and we had to slow across the road to prevent running away. It was a grand struggle up that snaky slope, and about as finely balanced one as I would care to risk myself in again. The prospect of tumbling over a precipice with a motor-car immediately following is about as cheery as being boxed up in one which has started to run backwards down a mountain slope, with the other car blocking the way round the next corner. The breaking of a chain, or the failure of a burner would have given us Hobson's choice of these fates.

However, the Daimler won the day after a tough fight, and having seen Mr. Mccredy's car reach the summit safely, we had less misgivings about Dr. Colohan's vehicle, as it has proved itself a stronger hill-climber than any other Daimler in Ireland.

To return to our motors. We felt we had made an epoch in mountain motoring as we stood triumphant on the hill top. Whilst the engines got a cooling spell we had a better opportunity of examining the grand scenery which pressed close round us on every side. But it was not till we moved downhill and came to the tableland at the foot of the pass that we gained a true conception of the magnificence of our surroundings. The highest and grandest mountains of all Ireland congregate there, gaunt and stately. For miles and miles our road wound along, by their bases, through a lovely bogland valley. Genial sunshine and a blue sky prevailed to make the pictures perfect. Right into Killarney one view more beautiful than another followed, the sunset colourings over the lakes being specially impressive. It was the grandest view of the entire tour and dwarfs all the rest. We could only find its equal amongst the Alps.

From Killarney next morning we journeyed through county Cork, and never was a more painful change made. The roads became atrocious and the scenery poor. So bad was the surface that we had to keep on our low speeds, and even then we were thrown about so much that we fell into the dumps, and felt no interest in the scenery. Everything had been perfect on the previous day; now the world was quite a miserable place. The very cars sulked.

It was late in the evening when we reached the lovely Blackwater district, and even if the light had favoured we were too jaded to appreciate the place as we should. We put up for that night at Lismore, and next day made Waterford, where

we were met by that enthusiastic motorist Mr. Goff. A long journey had still to be done ere Gorey, in co. Wexford, was reached. Thence we left on Friday for Dublin and arrived that night, encountering a thunderstorm when near home. It was rather fortunate that we hurried on the latter portion of the journey, as the weather broke up immediately.

Our total distance comes to over 700 miles, and we have accomplished this in thirteen days of driving. The mishaps were nil, and the total delays amount to less than thirty minutes to adjust the governor spring once and light up burners, which blew out three times accidentally. Since the first day we have almost constantly been hill climbing. Many of the roads we have taken the cars over are utterly unsuited for such traffic by their narrowness and bad surface or gradient. Our average of nearly sixty miles a day has been accomplished without racing or undue hurrying. Indeed, fast pace was impossible on very many of the roads owing to the sharp curves or the severe up-hills. Thus it must be conceded that the cars have been put to a most drastic test. Both the vehicles were quite new, and one of them, Dr. Colohan's, was only ready for the road on the night previous to the trial.

Immense attention has been given to the tour in Ireland, and the satisfactory results have fairly astounded the onlookers. We will be much surprised if the pastime does not rapidly advance as a consequence in the Green Isle.

A CLASS for motor-car drivers has just been started in Charlottenburg by the Grosse Berlin Motorwagen Gesellschaft. Half of each lesson is devoted to technical matters and half to practical driving, the complete course comprising ten lessons.

THE English Motor Club, Limited, has been registered by Mr. G. H. Smith, 64, Holborn Viaduct, E.C., with 200 members, each liable for £1. Object, to promote the use of motor-vehicles for recreation and business purposes. The management is vested in a committee.

"MOTOR PROBLEMS" is the title of a useful little booklet which has just been issued by Mr. C. H. Guest, M.I.M.E., of Draycott, near Derby. It contains a number of useful hints to users of motor-cycles, and also gives particulars of the Guest exhaust valve, valve lifter, two-speed gear, etc.

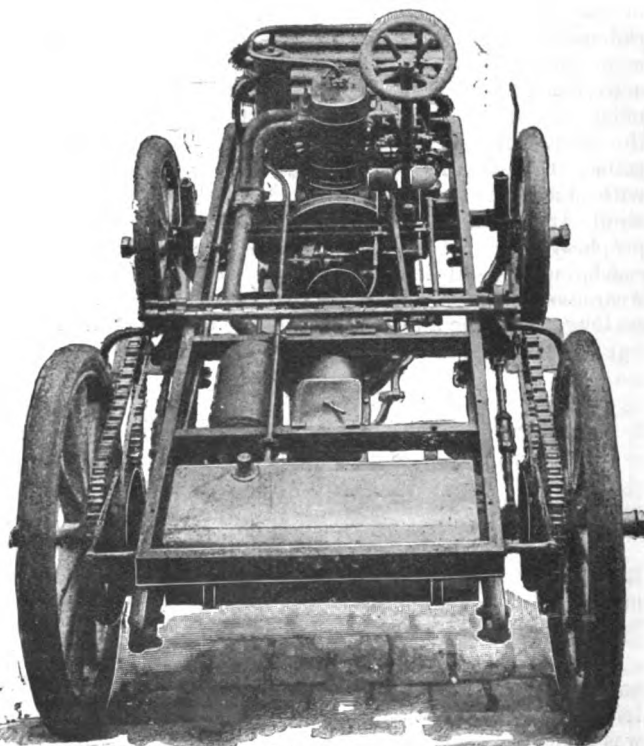


FIG. 2—REAR VIEW OF FRAME OF RAOVAL CAR. (See opposite page.)

* Concluded from page 360.

THE RAOUVAL MOTOR-CARRIAGE.

IN our last issue we published some particulars of the Raouval motor-carriage, and stated that the vehicle was fitted with a two-cylinder vertical motor of the Pygmée motor, capable of developing from 6 to 8 h.p. A general view of the engine, which works with either petroleum

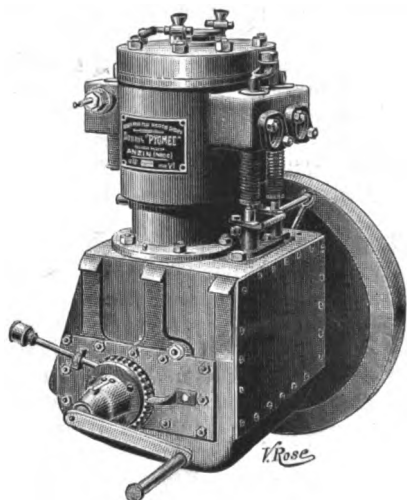


FIG. 1.—GENERAL VIEW OF MOTOR.

or petroleum-spirit, is given in Fig. 1, while a sectional view is reproduced in Fig. 2. The admission valves are located in the cylinder ends, C C' while passages b b' are formed on the right-hand side communicating with the vaporising chamber. On the left-hand side are passages u communicating with the exhaust valve E E' . The cranks are arranged at

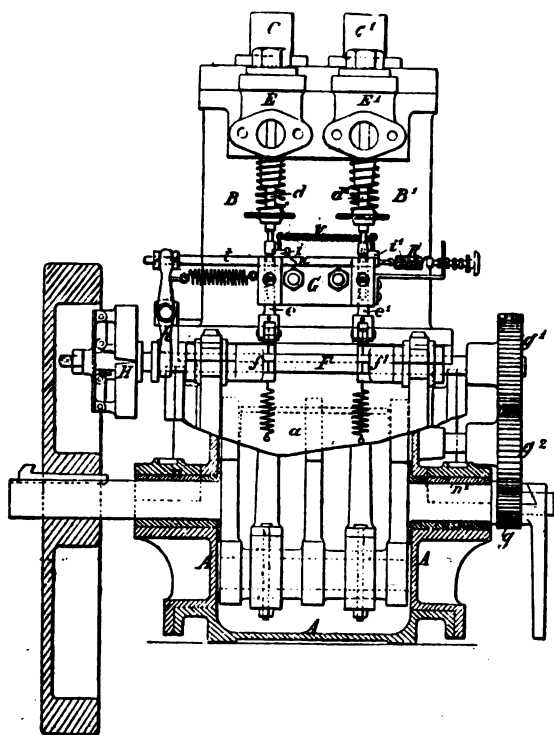


FIG. 2.—PART-SECTIONAL ELEVATION OF MOTOR.

an angle of 180 deg. to each other, an explosion taking place in one of the cylinders only at each revolution of the motor-shaft. Above the crank shaft and driven off it by the spur wheels g g^1 g^2 is the cam shaft F , which at one end is provided with a centrifugal governor H . In the middle of the shaft are two cams, f f' , in continuous contact with which are rollers fixed on the lower ends of the rods e e' . These rods, which pass

through a plate G , serving as a guide, have a slot formed on the face and extending their whole length, small screws passing through the plate G , and projecting into this slot preventing the rods from turning. Just above the plate G , the rods e e' meet and push up and down the exhaust valve spindles d d' . In continual contact with the sleeve of the governor is a pivoted arm h , which at its upper end is rigidly connected to a bar t , extending across the front of the cylinders, and guided by the plate G . On the top of the latter are pivoted two pawls made to work in unison by means of the spring R . Should the speed of the motor become excessive, the governor allows the arm, and consequently the bar t , to move towards the left. This movement brings a stop on the bar t in contact with the pawl i , the end of which is forced into a hole in the end of the rod as soon as the latter reaches the pawl, thus preventing the exhaust valve E from being opened. The two rods e e' do not touch the pawls at the same time, but alternately, so that only one exhaust valve is closed at a time. As soon, however, as the rod e' rises to the pawl i' , the latter slips under the action of the spring r into its hole, thus preventing the exhaust valve E' from opening. When the speed of the motor once more reaches the normal the governor permits the spring R to draw back to the right the bar t ; in doing this the

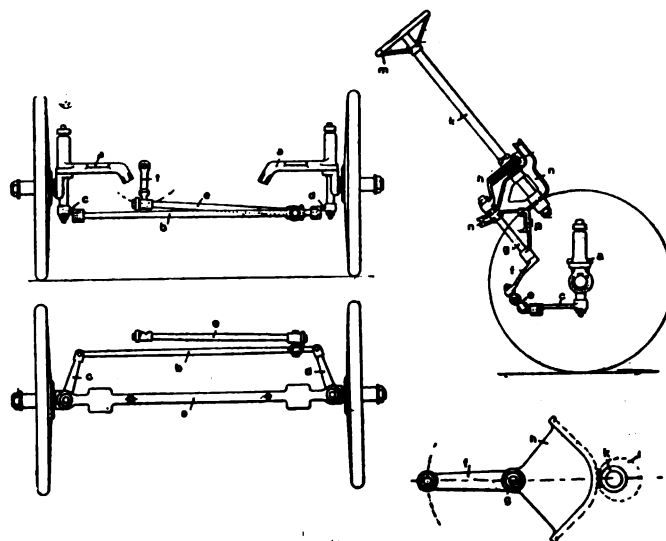


FIG. 3.—DIAGRAMS OF PROGRESSIVE STEERING DEVICE—RAOUVAL CAR.

stop k' pushes the pawl i' out of the hole in the end of the rod e' , the pawl i at the same time releasing the rod e . Tube or electric ignition is employed as desired; the carburettor adopted is of the well-known Longuemare type, while the cylinders are, of course, water jacketed. The crank and crank shaft work in a dust-proof oil-containing casing A , the ends of which form a bearing—of bronze metal—for the motor shaft. The casing is provided with detachable covers, to render the piston rods and cranks readily accessible. Fig. 3 shows the details of the progressive steering device referred to last week.

THE journey from Biarritz to Madrid has just been accomplished by Count de Cabrillas on a 12-h.p. Peugeot car. The trip occupied three days, and in Spain the route followed lay through a district not previously traversed by a motor-car.

LOOKING in at Messrs. Gamage's dépôt in Holborn, E.C., the other day, we noticed an announcement to the effect that they have a nine-seated Daimler wagonette, which can be hired by the day, week, or for tours by arrangement, and that lessons are also given in motor-driving.

THE Central German Automobile Club has just held a meeting, at which it was decided, in order to celebrate the founding of the club, that a summer festival will be held at Eisenach. A committee has been appointed to make the necessary arrangements for the festival.

THE PROGRESS OF THE AUTOMOBILE.

BY PROFESSOR R. H. THURSTON.

(Continued from page 369.)

THE automobile now finds its way into every part of the civilised, in fact into many portions of the uncivilised, world. Large numbers have been sent to South Africa for use in supply trains, and the transfer of horses to the seat of war in such immense numbers has caused their replacement in London streets by the "autovans," now almost as numerous as were, formerly, the omnibuses, and, it is reported, with a very appreciable economy. Profits on sales of horses and gains by use of the automobile are together adding greatly to the dividends of the companies. In America, electric cabs and other vehicles are coming into use extensively in our large cities, and the Baltimore and Ohio railroad passenger department is about establishing such a cab-service in Washington, with a fifty-cent. fare. A well-proportioned automobile will traverse any respectable road and go wherever the horse can fairly be expected to travel. It should ascend a 10 per cent. grade readily and ride over obstructions that would stall any horse-drawn wagon. Ice may stall it, but snow should obstruct its movements less than those of the horse and its carriage.

Washington insisted on the promotion of national roads and the encouragement of the production of horses for transportation. Hamilton recognised the influence of facilities for transportation in the promotion of the industrial advance of the country, and we all to-day see clearly, as never before, that every new method of improved transportation is a great gain. Motor wagons and carriages have probably now come to stay with us, and the displacement of the horse in commercial work generally, and possibly even in a considerable degree in pleasure travel, seems certain to occur soon. Self-propulsion is itself an enormous advantage and the improvement of the roads by the substitution of effective road-rolling, in the use of the vehicle, for the destructive action of the hoofs of horses is also a larger gain than is commonly realised; while release from the physical defects of the horse used as a motor is, sanitarily and psychologically, hardly less important.

Rated powers of motor-vehicles are often greatly over-stated, and the automobile rated at 2 or 4 or 10 h.p. is often found, under the truth-revealing test of the Prony brake, to be capable of working up to less than two-thirds, sometimes less than one-half, its stated power. On a good pavement, and with a light carriage, $1\frac{1}{2}$ or 2 h.p. proves quite sufficient for any safe speed over any usual city gradients, and a rated 4-h.p. motor may thus not fail in its work under any ordinary conditions, even though far below its rating in actually available power. A correct rating, however, as established by the brake, is essential to a real knowledge of the action of the machine and to its intelligent design and improvement. The correct rating is the power it is capable of exhibiting at any time, and for any length of time, under the brake when at its regular and normal speed, precisely as if in operation in its place in the automobile on the road.

The difference in power required on a level and ascending a hill, or on a smooth and on a rough road, is rarely appreciated by the automobilist-amateur; though familiar, through many trying experiences, to the old hand. Two horse-power, actual and deliverable against the brake, will, on a good road, drive an automobile weighing 750 to 800 lbs. 12 miles an hour easily, but on moderate up-grades the speed will fall to 8 miles or less. In some cases, on a smooth pavement, this expenditure of power may drive the carriage at the rate of 15 and 18 miles an hour on the level. With good speed-changing gear, the engines or motors may be made to deliver their full power at whatever speed of carriage the varying grades may cause the work to be done, and, if one choose, the power available at low speeds, rising a hill, may be made higher than that employed at high speeds on the level. Twelve or fifteen hundred pounds of carriage and passengers may be propelled, on a level, at 20 miles and upward by 4 or 5 h.p.; but a grade rising but 200 feet in the mile will pull down the speed to perhaps 15 miles an hour. Ten h.p. per

ton should give some such figures as the above, if the motor supplies the power for which it is rated, or say a $\frac{1}{2}$ h.p. for each hundred pounds of carriage and load. The actual power required on a very smooth level road, as an asphalted street or a good macadamised suburban road, would be properly not far from 1 h.p. to 500 pounds weight transported, including the automobile itself, for 10 miles an hour, $1\frac{1}{2}$ for 15 miles, 2 for 20 miles, 3 or $3\frac{1}{2}$ for 25, and 4 or 5 for 30 miles an hour. These figures are increased about 25 per cent. for each increase of elevation of one per cent. or of 50 feet to the mile. Four or five per cent. is not an uncommon elevation in even comparatively level countries, and grades of 10 per cent. and upward must be encountered occasionally in hilly districts. An actual 10-h.p. machine, of 1,000 pounds weight, with its load, which may speed up to 30 miles an hour under the most favourable circumstances, may fall to one-third of that speed on a less than 10 per cent. rising gradient.

The wheel resistance alone of a wagon or carriage on the city street may be taken as from 40 pounds per ton on asphalt, to 50 pounds on a smooth cobblestone, and 60 to 75 on macadam pavement, smooth and rough. These figures correspond to about three-quarters of a horse-power at the lower limit, and to one horse and one and a quarter at the higher resistance, at 7 miles an hour, or to from one to one and a-half or three-quarters at 10 miles an hour. One horse-power per ton at 10 miles an hour, for good construction of vehicle and roadbed, may be considered perhaps a fair average figure in city work, and a maximum speed, and three-quarters of a horse power, or a trifle less, at the usual speed of 7 miles, increasing to a full horse-power on rough streets or with very moderate rising gradients. The horse, however, if compelled to work at 7 miles an hour in city work, cannot usually be depended upon to do more than about 20 miles a day, and thus exerts about one rated horse-power for only three hours a day working time.

Automobiles would seem to be less affected, in speed and steadiness of action, by variations of conditions of roadbed than are horses; but precisely why this should be it is difficult to state with confidence. Possibly the inertia of the mass and the steadiness of the former, and the jerky and varying pull of the latter, may account for the difference. But automobile and horse-drawn vehicles are alike greatly affected by variation from a level track, and it is elsewhere shown how both power and pull, as well as speed, are affected, as measured in terms of energy, work, and pull. The automobile, as a rule, maintains a higher average rate of speed than the equine machine and thus utilises a considerably larger amount of power. Where the horse averages 7 or 8 miles, the automobile probably averages 8 or 9, or even 10. The resistance per ton at a given speed, with equally good construction and similar wheel-diameter, should be the same. The weights, however, are not strictly comparable; since the automobile carries its own power and is thus debited with weight in excess by that amount; the weight of the motor in the other case being separately carried on its own feet and, in all usual data, left out of account. Further, the great weight on the wheels of the automobile, where not fully compensated by increased breadth of tire, causes deeper wheel-track and higher resistance per ton than with the horse-drawn apparatus, but the competing automobile will do easily twice as much work per day, in commercial employment, as with the horse, and can, if desired, be kept in action night and day, except that time must be allowed, with electric vehicles, especially, for charging, or, better, exchanging batteries or storage tanks. When the finances of the case are considered, the best automobiles stand far in advance of the best of the older system.

Of the available fuels for the heat-motors, coal and coke are the cheapest, and will presumably be ultimately found the proper fuels for purely commercial use, and the laws against smoke will probably compel the choice between anthracite and coke. The crude oils and the tarry and other by-products of gas-making follow in availability and costs and have advantages in heat-production for the unit weight or volume and also in their convenience. The petroleum is of highest value, and the safest petroleum is most costly and is most troublesome in use in the internal-combustion engine. Heat-contents range from 10,000

to 15,000 *B. T. U.* in the coals, to 20,000 *B. T. U.* per pound, in the oils. Liquid fuel is much superior in stowage, both in condensation into minimum volume and weight and in convenience of handling. Unpleasantness in handling, however, noisome vapours, and their explosive character in the case of the lighter fluids, and, even the noisy combustion, are disadvantages of no small importance. Vaporisers and atomisers are often troublesome, and the heavy petroleum and tarry products do not always work steadily and with certainty.—*The Automobile Magazine.*

THE BRAVO CAR.

up at a rapid
as being M. H.
whose vehicles
that enter into
are so combined as
necessitating trouble-
parts, reservoirs, etc., are
riage-work, so that the
motor is vertical, with two
giving the shaft through the
All the parts in motion are
using. The connecting-rod bear-
e of cemented steel, refined and
the shafts, which are of phosphor-

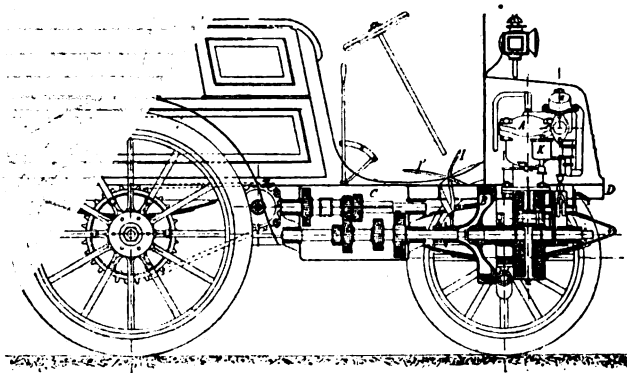


FIG. 1.—ELEVATION OF BRAVO CAR.

bronze, are also very wide and thus assure the motor an operation of long duration without any appreciable wear. Through an ingenious arrangement, a continuous circulation of oil is maintained in the crank casing, and this renders the consumption of the lubricant insignificant and necessitates no surveillance. The ignition is effected either through an electric spark or by an incandescent tube. With the sparking, an extremely simple device, in which but a single cam is employed, permits the speed of the motor to be varied between certain limits. With tube ignition a centrifugal governor acts upon the motor in such a way as to keep the exhaust valves open should the speed become too great. During this period the admission valve allows a small charge of fresh air to enter the cylinder, and the motion of the piston expels the products of combustion, the effect of which is to improve the work of the motor. The water circulation is maintained by a centrifugal pump set in motion by the fly-wheel of the motor. The tension of the pump's friction is regulated automatically through a spring.

M. Bravo is constructing motors of 5 h.p. and 8 h.p. Figs. 1 and 2 represent a six-seated wagonette provided with an 8 h.p. motor with electric ignition. The motor, which is arranged in front, is put in connection with the speed-changing gear through a leather-faced cone-clutch. As may be seen from the illustrations, the gearings are enclosed in a casing, *C*, which receives also a reduction gearing, *r*, that reduces the velocity in the ratio of about 1 to 3. As the angular velocity of the gear is thus relatively low with respect to that of the motor, the changes of speed are effected with great facility, without noise, and in avoiding the

frictions and shocks that are so prejudicial to the duration of the parts. The reverse motion is obtained through the shifting of two bevel gears, *p p'*, mounted upon the differential gear shaft, *M*. For the purpose of avoiding the thrusts due to the changes of level of the frame in violent joltings, the differential shaft is divided into four parts (1, 2, 3, 4), the extreme junctions of which are made by universal joints. The carriage-body is mounted upon the principal frame, *D*, while the motor and the mechanism are fixed upon the separate frame *D'*.

One interesting peculiarity of the Bravo motor-vehicles consists in the dismountable front wheel axle. The head of the tubular axle is formed of a vertical socket, which receives an axis, upon which, through a socket-clutch, is mounted the journal-support, which is held simply by a nut. The weight supported by each journal is distributed over a horizontal row of balls that roll between two tempered steel plates. A large circular nut, which closes the ball-case, permits of the regulation of the play in a perfect manner. A set screw prevents any loosening. In this steering pivot, the pieces having a motion are entirely immersed in the oil with which the box is filled at the time of the first mounting. This process of mounting renders the steering very easy, this being effected through an inclined hand-wheel with a transmission through bevel gearing and rigid levers with a universal joint.

The safety apparatus comprise a hand-brake mounted upon the differential gear and controlled by a pedal; and a hand-brake that acts upon the tires of the rear wheels. An electric interrupter

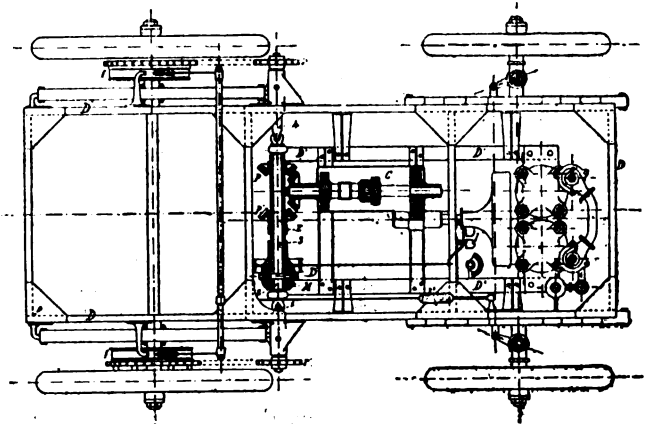


FIG. 2.—PLAN OF BRAVO CAR.

permits of the instantaneous stoppage of the motor by throwing it out of gear without the driver having to change his position. All the controlling parts are grouped in such a way as to render the driving of the vehicle very easy.

BRIDGEPORT, CONN., is considering an ordinance restricting the speed of motor-vehicles to seven miles an hour within a radius of one mile from the railroad station.

ACCORDING to the *Vélo*, the French Minister of Justice has decided that automobilists arrested for driving at an excessive speed shall in future be prosecuted in virtue of Article 475 and not Article 476, which means that they will be liable to a fine only and not imprisonment.

THE formation of the Compania de Transportes de Matagalpa is reported from Nicaragua to establish services of road trains in districts not provided with railways. The Government is reported to have given its support to the company's projects.

MESSRS. ERNEST HUTTON AND COMPANY, LTD., Ohm Electric Works, Northallerton, inform us that they have taken an order from Major Bower, Chief Constable of the North Riding of Yorkshire, for one of their new 4-h.p. voiturettes. The firm have also been appointed special agents to a well-known fire insurance company for the insurance of automobiles against fire, and they are now able to take these risks at 5s. per cent. for cars fitted with electrical ignition and 7s. 6d. per cent. for those fitted with tube ignition.

FURIOUS DRIVING CASES.



At the Chertsey Petty Sessions last week, Mr. Ernest Russell, of Brixton, was summoned for driving a light locomotive while drawing another at more than six miles an hour, at Weybridge, on July 1st; he was further summoned for not having the owner's name and address on the locomotive.—P.C. Bettison explained that he stopped the defendant for driving at a furious rate, but that subsequently Inspector Marks came up and told the defendant that he ought not to go more than six miles an hour when he had another vehicle attached to the motor-tricycle he was driving. There was another motor with the defendant, but the driver pushed on and escaped. There was a car attached to the tricycle, in which there were two ladies. The defendant was going at the rate of sixteen miles an hour.—The defendant said he had been many times through Chertsey and Weybridge, but had never been stopped before. He was also unaware that he ought to have his name and address on the locomotive.—The Chairman asked Inspector Marks if the other driver had been found.—The Inspector: No; the defendant withholds the name.—The Chairman told the defendant that it was a dangerous practice to drive a motor at such a rate, and he would be fined £5 for the first offence and £1 for the second.

On Saturday, Robert Wilson, cycle dealer, Bedford, was fined £10 and costs for furiously driving a motor-tricycle. It was stated that defendant was going between 25 and 30 miles an hour, and that from fright a horse bolted, the driver was thrown out, and a cart was overturned. The chairman of the Bedford Bench said they were determined to put a stop to the furious driving of motors.

At Gainsborough on Tuesday Mr. Herbert W. Bamber, manager of the Aegir Bicycle and Motor-Car Works, was fined 10s. and costs for driving a motor-car at a furious pace. It was stated that the car travelled at eighteen to twenty miles an hour.

DRIVING TO THE COMMON DANGER.



At Westminster Police Court last week, John Goody, servant to Mr. Edmunds, of Upper Tulse Hill, was, under the Police Act, summoned before Mr. Francis for unlawfully driving a motor-car at Pimlico to the common danger. Mr. Staples Firth defended. The police evidence was that the defendant, turning a corner at the rate of fourteen or fifteen miles an hour, proceeded on the wrong side of a refuge, and that to escape being knocked down seven or eight persons scattered in all directions. After a very long cross-examination as to facts which were in dispute, Mr. Firth contended that there was no actual evidence of common danger or injury. He quoted High Court cases to show that the danger must be actually existent, and argued that the mere supposititious ideas or mere opinions of policemen as to danger were insufficient. Mr. Francis: I should hold that the mere fact of going on the wrong side of the refuge was evidence of common danger. Mr. Firth said he should be very pleased to take a case on this point. He raised a further point decided by the High Court in "Stanley v. Farndale," that a policeman was not a passenger on a highway, and that to support a prosecution there must be the evidence of some bona fide aggrieved passenger. In the end Mr. Francis dismissed the summons on a technicality—one witness not being in accord with another as to the date of the alleged offence. His worship added that on the merits of the case he should have decided for the police, on the ground alone of going the wrong side of the refuge. He refused costs.

At the City Police Summons Court last week Mr. Gust. Mees, of Fulham Palace Road, answered a summons for driving a motor-car to the common danger in Newgate Street by St. Martin-le-Grand. Police-constable 262 said that the defendant came down Newgate Street towards the Post Office at a very sharp rate. He (witness) signalled and shouted to him to pull up. He very nearly knocked down two pedestrians, and but for the skilful driving of William Oman, a man in charge of a pony-cart, a serious accident would have ensued. Leopold Tolch, a friend of the defendant, said that as soon as the officer called to them to stop the defendant complied. There was no danger whatever. They were going at a speed of five miles an hour. Constable 262 behaved to them in anything but a civil and proper way. The Alderman, saying that the case was proved, inflicted a fine of 10s., and 4s. costs.

THE BRITISH MOTOR COMPANY.



At the confirmatory meeting of the British Motor Company, Ltd., held at the Hotel Cecil last week, Colonel Harris presided, and in his opening remarks mentioned that the meeting was held to confirm or reject the resolutions passed at the recent meeting of shareholders in respect of the reconstruction scheme which had been laid before them. He was pleased to be able to inform them that 75 per cent. of the shareholders in the original company had acquiesced in the new scheme, so that the reconstructed company, if the resolutions were confirmed, would enter upon a new life under good auspices. So far as the directors were concerned, every halfpenny of the capital raised under the reconstruction would be applied to the business of the company, for the furtherance of its interests. In answer to questions, the chairman said that every shareholder who had paid £3 for his original share would receive an additional share in the new company with 17s. 6d. paid; but this was really a gratuity, as it were, given to them by Mr. Lawson, who, of

course, was responsible for bringing out the original company. The board had nothing to do with this arrangement, as it was a matter which lay between Mr. Lawson and the shareholders. He moved the confirmation of the resolutions passed at the recent meeting. The motion having been seconded, was duly carried. Mr. Barker, of Chiswell House, and Mr. Osborne, secretary to the company, were appointed liquidators at a fee of one hundred guineas inclusive.

In closing the proceedings the chairman said he wished to thank the shareholders who had entrusted the board with their confidence. He thought he was safe in saying that few reconstruction schemes had been arrived at with such a large percentage of proxies, and this was a satisfactory proof to the board that the directors retained the confidence of the shareholders. His connection with the company ceased from that day, but he wished every success to the new company, and he sincerely believed that their most sanguine expectations would be realised. So far as he was able to judge, the negotiations with the Anglo-American Company would prove eminently satisfactory to this company; and the combination would enhance the value of the shares of this company to a very considerable extent.

A shareholder, in proposing a vote of thanks to the chairman, observed that Colonel Harris had proved himself to be not merely an ornamental chairman but a working chairman, and he deserved the best thanks of the meeting for the way in which he had pioneered the company. He moved that a vote of thanks be accorded to the chairman and the directors.

The motion was seconded and carried, and the chairman, in responding, remarked that he had not missed a single meeting of the board since the formation of the company, and he had all along—a large shareholder himself—regarded the interests of the general body of shareholders as identical with his own.

MOTOR-CARS IN COLLISION.



At Darlington County Court, last week, two actions were brought against Mr. W. Hall for damage caused by a motor-car. Thos. Beach, of the Fleece Hotel Stables, claimed £15 16s. 6d. for damage to a trap and horse, and hire of another horse while the injured animal was getting better, etc. A second action was brought in connection with the same collision by John Routh, who was driving the horse, for injuries to his little girl and himself, alleged to be due to the negligent driving of the motor-car by defendant. The circumstances were, as detailed by the plaintiff, that Routh was approaching Darlington at 10.30 on the evening of June 17th, and when in Freeman's Place he was run into by the car, which was travelling the same way and overtook him. It was alleged on the side of plaintiff that he was travelling on the left side of the road, and that he was about three feet from the channel, leaving plenty of room for defendant to pass. The trap was overturned and all its occupants thrown out, Routh, the driver, being knocked insensible for some time, and his little girl's arm injured. The horse also was knocked over and its knees, plaintiff's witnesses said, were cut, and the ankle swollen. Beach stated that defendant offered £10 afterwards to settle the damage to the horse and conveyance, but he refused it. Defendant, also, it was stated, said that Routh, who was unable to work for a week, should not suffer. Defendant and a number of witnesses for the defence asserted that the fault was due to Routh, the driver, pulling his horse to the right as defendant was passing on the motor. It was denied that defendant had offered £10 to settle the matter. His Honour, in giving judgment, said it was established that the whole of the road was open, and the motor-car had an opportunity of passing at a considerable distance off, even if the horse had swerved to the right. He thought defendant must have turned the wrong lever or lost his presence of mind and so have driven into the horse. He gave a verdict for Beach for the amount claimed. The other case, in which Routh claimed, was not heard, but ultimately Ald. Wilkes, who appeared for plaintiff, accepted £7 offered by Ald. Barron, who represented defendant, in settlement, costs to rule in the first case only.

On the evening of July 19th a motor-car driven by Mr. Henry Sharp, of 77, Masons Hill, Bromley, Kent, came into collision with another motor-car at Masons Hill. It appears that the other motor, whose occupants are unknown, ran into Mr. Sharp's vehicle. The impact caused Mr. Sharp to lose his hold upon the steering handle, and the machine ran on to the pavement and through the shopwindow of Mr. May's jewellery establishment at Masons Hill. A pane of plate glass about three feet square was broken, and a blind-rod caught Mr. Sharp on the bridge of the nose and broke it. The injured gentleman was taken to the Cottage Hospital, where his injuries were attended to by Dr. Chatterton, and he subsequently drove home in his own car. The unknown motorists made off as soon as the accident occurred, and nothing has since been heard of them. Such conduct can hardly be too severely condemned or punished if the culprits are discovered.

MR. ALBERT C. BOSTWICK, the well-known young American *chauffeur*, who came over to Europe with a Winton carriage at the time of the International Cup, has returned to New York with his carriage, and at the same time has taken back with him four French carriages and one tricycle, including the Panhard-Levassor car which he bought from M. de Knyff.

THE Motor-Car Journal.

VOL. II.]

LONDON, SATURDAY, AUGUST 11, 1900.

[No. 75.]

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COMMENTS.



ALREADY the committee of the Automobile Club is preparing the programme of its winter operations, and evidently it is intended to pursue a very active policy. During the last week in October the quarterly 100-miles trial will take place, and also a dinner on the 31st October at the Trocadero to those who took part in the 1,000 Miles trial. At that event the presentation of prizes will be an interesting item of the proceedings. Then in the first week of November the trial of electrical vehicles will take place, and on the 14th of that month the annual dinner will be held at the Hotel Metropole. A suggestion that there should be a tour to the sea coast on Saturday, 10th November, until Monday, 12th November, has been approved by the Club Committee, and the Touring Committee has decided to recommend that in connection with the anniversary of the passing of the Light Locomotives on Highways Act there should be a tour from London to Southsea on the dates named. It is recommended that the tour should be open to all vehicles, whether they be owned by members of the Automobile Club or not, provided that no advertisement be affixed to them. It is also suggested that in order to discourage high speeds on the run, the Club should offer diplomas in respect of vehicles which may complete the journey, the average speed not to exceed approximately twelve miles an hour, and no stops to be made other than those imposed by traffic requirements and the compulsory stop for luncheon. The speed of the vehicles ascending Hindhead Hill will be taken and recorded on the diplomas referred to.

Autumn Tour.

BEFORE entering on the winter programme, of which the first events are given above, an autumn tour is in contemplation. This will commence on October 5th, and will end on the following Wednesday evening. This year it is intended to go into Wales, and it is probable that Monmouth will be the central feature of the trip. On the Monday Lord and Lady Llangattock will, through their son, the Hon. Charles S. Rolls, invite participants in the tour to luncheon at their Monmouthshire residence, The Hendre.

Kindly Thought.

ON the suggestion of Captain the Hon. Cecil Duncombe the committee of the Automobile Club are inviting members of that body to subscribe to a fund to be apportioned (in the name of the Club) between the cab drivers, the omnibus drivers, and the police benevolent societies respectively. This has been decided upon in view of the trouble and sometimes expense to which omnibus and cab drivers are put by their horses during the period of their becoming accustomed to automobiles.

It is also intended to be a token of recognition of the services of the police during the meets and tours of the Club.

Hotels for Motorists.

WE are glad to see that the Automobile Club is taking into consideration the question of hotels. This is an important matter to automobilists, who have not always been well treated by many hotel proprietors. The committee of the Club has prepared a form which members will do well to bring before the notice of hotel-keepers. The Club will appoint special hotels for the use of its members, the proprietors agreeing to store vehicles, supply water for washing, store petrol, keep lubricating oil, fix a hose-pipe, and be reasonable in their terms for such service, and also in charges for meals and beds. One clause deals with the charge for the temporary storage of vehicles while meals are being taken—an important consideration to motorists on tour. Something practical should result from the suggestion.

The Shah in Paris.

THE Shah and his doings have been the principal subject of conversation in Paris ever since Mouzaffer-ed-Dine arrived in France, and not the least interesting feature of his visit is the part that automobilism has played. It would appear that for some time past the Persian ruler has desired to acquire a self-propelled vehicle, but did not possess great confidence in the safety of petrol, and feared the possibility of explosion with steam. But upon the report of certain members of his suite, the Shah last week sent for M. Serpollet, who duly appeared at the Palace des Souverains, in the Avenue du Bois de Boulogne. The car he drove was one of 8 h.p., and after demonstrating his entire control over the vehicle, M. Serpollet had the honour of driving the Shah for a short distance in the vicinity of the Palace. The trip proved so agreeable that the monarch repeated the experience, and the following morning saw him again the passenger of M. Serpollet. General Nazare-Agha, the Persian Minister at Paris, Hakim-el-Molk, the Minister of the Court, and Mohandis-el-Mamalet, the Minister of Public Works, were also taken a lengthy drive in the Bois, during the course of which the speed of the vehicle was demonstrated to their entire satisfaction. The upshot of these experiences has been the purchase by the Shah of two cars, the second carriage being a large omnibus, so before many weeks have passed the good people of Teheran will see their monarch speeding gaily along on a self-propelled vehicle. But with the personal acquisition of cars the history of automobilism in connection with the Shah's visit to Paris by no means ends. On the 2nd instant, when he went to Versailles, the great majority of the Press representatives travelled out there by motor-car, as also did M. Alfred Picard, Commissaire Général de l'Exposition, and M. Delaunay-Belleville. When visiting Vincennes, too, the automobile was employed by various high functionaries; indeed, it is now quite a common sight to see Ministers and Government officials making use of the motor-car when on official business.

A Motor-Car Service in Mid Wales.

MID WALES has now been provided with a public service car through the enterprise of Mr. Tom Norton, Llandrindod Wells. On Thursday last week a trial trip of a new Daimler wagonette to carry eleven was made from Swansea *via* Llandilo and over the Sugar Loaf to Llanwrtyd. Being some 2,000 ft. above sea level the gradients were a severe test, but the car never flinched, and covered some eighty miles of difficult roads in a satisfactory manner. Amongst the party besides the owner, Mr. Tom Norton, were Mr. J. Williams, director of the Swansea Motor Company, and Mr. W. M. Morris, Pontypridd, the district agent for the Daimler Company.

Development in Ceylon.

CONSIDERABLE interest is being taken in Ceylon in the scheme of the newly formed "Ceylon Rapid Transit Company." This is a syndicate of local residents interested in the development of mechanical locomotion on ordinary roads, and the suggestion is that the Government should abolish the unsatisfactory horse-drawn mail coaches and send postal matters by automobile. An endeavour will be made to get the Government to allow a trial between Negombo and Colombo. This route, it is believed, will fully answer the purposes of the experimental stage. The cars would be put on the road and would daily convey the mails to Negombo, returning the same night, and thus effectually justify the title of the Rapid Transit Company. It has been estimated that the cost of running these cars would range between 35 and 40 cents a mile. If the scheme is brought to fruition the undertaking will open up the prospect of the employment of capital on a large scale, and it is to be hoped that no difficulties will be thrown in the way of the promoters in arriving at a correct opinion of the possibilities of the venture after a full and thorough test. Cars are already on their way out which will be utilised in the interesting experiments shortly. These are being obtained from the Lancashire Steam Motor Company, whose headquarters are at Leyland. Other contracts have been placed, according to a Ceylon journal, with Messrs. Coulthard and Company, of Preston, Lancashire; Messrs. Simpson and Bodman, of Manchester, Bailey's Limited, London, and the Thornycroft Seam Wagon Co., Limited.

For Passengers and Mails.

THE cars it is proposed to adopt are built to carry eight first-class and ten second passengers, as well as mails and luggage at the back. The "cab" for the driver and the machinery is in front, entirely separate and distinct from the rest of the conveyance, whilst special means have been adopted to prevent heat or smell being obnoxious to those travelling. It is intended to run these mail coaches at a speed of about eight miles an hour, and the plans and drawings of the cars exhibited at Colombo have aroused considerable interest. The roads are good and present no great difficulties, and it is clear that, given facilities, a very much larger number of people would travel by coach than do at present. The company, of course, accept all risk on their account, and only ask that the expense they are being put to in providing these cars and the greater comfort and convenience for the travelling public which they provide, as well as the greater speed, should be acknowledged by a substantial subsidy from the Government. Sir West Ridgeway is distinctly a progressive Governor, and confidence is felt that his support to the scheme will be readily secured. We may add that the manager of the company is Mr. W. H. Beamish, who thus attains the distinction of being the first to utilise automobiles for public service in the tropics.

Royal Motor Artillery.

A SUGGESTION made in these columns at the time of the Tugela River reverse and the loss of guns by Colonel Long is revived by Mr. W. S. Shaw in the *Pall Mall Gazette*, who writes as follows:—"It is a lamentable fact that we follow where we ought to lead in military matters. The average price

paid for battery horses is, I believe, £50. This means, leaving aside officers' chargers and the horses of sergeant-majors, trumpeters, etc., that a battery of six guns costs nearly £2,000 for horseflesh. An armour-plated (sufficient to protect from rifle fire) high-speed motor-engine capable of drawing any field gun could be built for, probably, under £200, but, putting the cost at the same as the gun-team of six horses, we will say £300. Now, where are we? There may certainly be places where horses can go that motor-engines cannot, and for that reason we shall want horse artillery as well as motor artillery; but, in many places, motor artillery could "gallop" into action at thirty or even forty miles an hour, which would enable them to almost ignore rifle fire. 'A motor-engine wants an engineer,' says some one. Yes, and a horse wants fodder, also shoeing. To shoe a horse you want a farrier, and the farrier wants a forge. To say nothing of the veterinary surgeon."

A General on a Motor-Car.

WE are not without hope that something will be done in the matter, and that the constant reiteration of the advice to the military authorities to try experiments with motor traction may, at length, lead to some real advance. Major-General Maurice, whose warm espousal of military cycling is creditable to his enterprise, supervised the operations in connection with the experimental cyclist manoeuvres last week end from a De Dion quadricycle supplied by the De Dion-Bouton British and Colonial Syndicate, Ltd.—the first time a British general thus committed himself to such a vehicle when on service. Remembering the story of the oak and the acorn, we look forward to a real military motor field-day in the next century, but whether late or early in the era depends on the persistency of the advocates of motors for military purposes.

The Approval of "The Times."

COMMENTING on the manoeuvres, supervised by Major-General Maurice, *The Times* says:—"During the exercise the value of motors in operations over large areas was shown. When a fight commences the quadruped is undoubtedly the proper conveyance for the commanders, but otherwise the motor is preferable to either horse or cycle, because it enables those whom it conveys to arrive at their destinations as fresh as when they started. It must be owned that the spectacle of the general in a sort of bath-chair with a driver behind him, of the second staff officer in a sort of invalid's chair with a driver in front of him, and of the chief staff officer on the box seat of a wagonette, was not in itself imposing; yet, when, on return from Sunday afternoon's work with the troops, the bath-chair carried off the general to billets sixteen miles away and brought him back to headquarters in an extraordinarily short space of time, military dignity hung its head before real utilitarianism."

Mechanical Traction in War.

WHILE writing on this topic we would make reference to the work on "Mechanical Traction in War" which Messrs. Sampson Low, Marston and Co. have published. This has been translated by Mr. R. B. Marston from the German of Lieut.-Colonel Otfried Layriz, and deals both historically and technically with the subject. The first chapters are devoted to a summary of the well-known early history of mechanical traction, and these are followed by an explanation of the Daimler system and a review of some of the more interesting experiments that have been made with light automobiles. Thence to the end of the volume the automobile as traction engine forms the staple matter, although one chapter is devoted to the Serpollet steam car, which can be used as an automobile and also for traction. The references to the use of traction engines in the South African campaign are necessarily incomplete, but enough evidence has reached us to show how useful they have been. Mr. Marston has added a useful appendix, referring to the 1,000-Mile Trial, and the book fills a vacant niche in automobile

literature. At the present time, when reorganisation of some military departments and the general examination of our ideas on military matters is much talked of, no book could have been more opportune. We hope it will be read by every officer and its lessons recognised by every civilian.

**Motor-cars
for
Australia.**

IN our correspondence columns appears a letter from an Australian reader who is evidently anxious to assist in the development of the automobile movement in the colonies. We would suggest that manufacturers might send copies of their catalogues to the Rev. Garvin Tucker, who is well known to many members of the Queensland Government.

**The Joel Electrical
Voiturette.**

ON page 391 we are able to give an illustration of the Joel electrical voiturette which ran so successfully to Brighton a few days ago. As an account of the trip, together with some particulars of the vehicle, was given in our last issue, it need only be mentioned that it has been constructed under the patents owned by the National Motor-Carriage Syndicate, Limited. The voiturette is equipped with two 2 h.p. Joel electric motors, fixed on a detachable spring frame, driving the two back wheels of the carriage separately by chain gear. The current is supplied by thirty-two Rosenthal storage batteries, made up in two sets of sixteen cells, with an output of 140 ampere-hours. The total weight of the carriage is under 12 cwt.; of this 7½ cwt. is battery, motors 2 cwt., and the carriage itself only 2½ cwt. The wheels are shod with pneumatic tires, the back wheels are 2ft. 9in. diameter, and the front wheels 2ft. 6in. diameter. The controller is very simple in construction and action. The system of electrical changes is such that when the voiturette is ascending hills the motors work at their highest efficiency and at normal speed; they are geared down to run the car up hill at six miles an hour, whilst on the level the speed ranges from eight to twelve miles, or faster if desired. There are also available two slow speeds forward of three and four and a-half miles, and a slow speed backward of three miles per hour.

**A Motor Car
for 7s. 6d.**

IN obliging others Mr. Martin Rucker has again come to grief—or, rather, his car has gone the way of destruction. On Monday he was taking a run from Harrogate to Leeds, when he put the brakes hard on to accommodate the driver of two restive horses. The wheels skidded, and the vehicle rolled into the ditch. Then the petrol caught fire, and in a very few minutes a handsome Daimler, which cost over £600, was reduced to twisted ironwork and charcoal. It is stated that immediately the flames showed themselves, Mr. Rucker, who could foresee the end, asked for a bid for the machine as it stood from a party of trippers from Leeds. A general dealer offered 7s. 6d. The offer was accepted, and Mr. Rucker returned with three half-crowns instead of the powerful machine in which he had set out. The general dealer may be said to have got ample value for his money, for the engine could not be greatly impaired by the fire, and will no doubt eventually be incorporated in some other car.

A Blaze at Lincoln.

AT Lincoln, last week, a motor-car plying for hire in the streets took fire. The car was running at about eight or ten miles an hour, when flames suddenly burst out in front, the oil tank having become ignited. A lady sitting near the front of the car rushed to the back with the object of jumping out, but was prevented doing so by a gentleman passenger. The flames rose to a height of several feet, and played round the driver, who succeeded in pulling up the car. His eyebrows were singed. A bucket of water extinguished the blaze, and the mechanism of the car was not injured. The front seat, the

steering wheel, and other parts of the car were damaged, but no one was injured. Beyond furnishing the local papers with a paragraph no harm was done.

**Commercial
Travellers
and
Motor-Tricycles.**

A COMMERCIAL traveller, of Cardiff, going through South Wales every day, with a fair amount of luggage, writes that he is about to adopt a motor-tricycle for his business journeys. We commend him for his thought, and can assure him that the use of motor-tricycles by business men is becoming more and more common, the saving of time being recognised as a great advantage. Our correspondent adds that he would like a hood over his tricycle to protect himself during wet weather. Having been caught on Mitcham Common in Monday's gale, we can quite sympathise with his wish, but are afraid great gusts of wind would find pleasure in playing about that hood. Anyhow, he can but try.



AN ORIENT EXPRESS CAR NEAR ST. ALBANS.

**A Scottish
Trip.**

A MOTOR-CAR passed through Hawick the other day on its way from Jedburgh to Dumfries, via Langholm, Gretna, and Annan, a distance of eighty miles, the time taken to accomplish the journey being five and a quarter hours. The return journey was made two days later, when the car again passed through the town, its attractive appearance being commented on by several onlookers. Mr. Love, of Kirkcaldy, Scottish agent for the Motor Manufacturing Company, the driver of the car, was accompanied by Mr. Inglis, jun., Jedburgh. In adding a few technical points to his account of the foregoing event, a local reporter says:—"The motor power was engendered by petroleum, the engine being six-horse, and the car capable of carrying five persons."

**Reading
Automobile Club.**

THE Reading Automobile Club is getting along, as the following from the *Berkshire Chronicle* will inform our readers:—"At the invitation of Sir Charles and Mr. Arthur Russell, the first meet of the club took place at Swallowfield Park. The weather was perfect, and members left the club premises in Minster Street shortly after four o'clock, arriving at Swallowfield shortly before five. Many varieties of motor-cars were represented, the petrol car, the steam car, and motor quadricycles, tricycles, and bicycles. The members of the club were met at the Park gates by Sir Charles and Mr. Russell, both

of them being vice-presidents, and after a very welcome tea in one of the beautiful rooms of the hall, where Miss Russell most hospitably performed the arduous duties of hostess, photographs of the cars were taken in group. The hostess and visitors in the house were then driven round the Park in the various motor-cars, and further animation was given to the scene by the fact that a school treat was proceeding in the grounds at the same time, so that practically the whole of the village witnessed the meet, and most thoroughly appreciated the event. Notwithstanding the fact that a great many people and children were present, not a single mishap of any kind occurred. The members returned home about 7.30 p.m., being escorted part of the way by their hosts on their own car. The event proved a brilliant success, which was in great measure due to the welcome and the hospitality offered, and to the beautiful surroundings. Arrangements are being made for a motor gymkhana to be held in the autumn, which will still further popularise the use of motor-cars. The club is in a very active and flourishing condition, ten new members having been elected last week, five of them being medical men. Membership does not necessarily involve ownership, but those who are awaiting 'perfection' have the opportunity of occupying any vacant seats that may be available, and they can thus revolve the question in a practical manner in their own minds."

Touring through the Lake District.

THE celebrated novelist, Ian Maclaren (Rev. Dr. Watson), has ventured on another voyage of discovery, which will in all probability "be productive of much good," as the preachers say. The other morning, at the early hour of five, the Rev. Dr. Watson, accompanied by Professor Hele-Shaw, of Liverpool University College, set out from the house of the former, Croxteth Road, Liverpool, on a motor-car belonging to the professor. They were accompanied by an engineer, and their ultimate destination is Scotland. They were in high spirits, and were in hopes of breakfasting at Preston, whence they make for Windermere, and in easy stages go to Stirling. This is the novelist's first experience of motor-car riding, but under the skilful guidance of Professor Hele-Shaw there is no doubt the trip will be a delightful and enjoyable one.

Necessity of Knowledge.

AND this leads us to another point. In order to thoroughly enjoy motoring the novice must be accompanied by a practical person. Otherwise the delights of the journey may fade as the chances of progress diminish. There are people who have an idea that the propulsion of a motor-car is like working a musical-box or winding a keyless watch. At present the management of a motor-car has not been reduced to kodak-like simplicity, and Ian Maclaren shows much worldly wisdom in the choice of his associates on this—his first—motor-car trip.

Motoring and Sport.

THE connection between sport and automobilism is becoming closer every season. Mr. Mackay, who has taken Dunachton from The Mackintosh of Mackintosh, has also taken Ben Alder, one of the most ancient deer forests in Scotland, which was ratified as such by an Act of the Scottish Parliament in 1685. Mr. Mackay is going to use a motor-car as communication between the two places, which are twenty-five miles apart. In such circumstances the automobile ought to demonstrate its value with ease.

Invading America.

MR. W. K. VANDERBILT, JR.'S, 30 h.p. Daimler racing-car, the first of its kind ever taken to America will have some worthy rivals before long. The purchase by Mr. Albert C. Bostwick of René de Knyff's Panhard racer, which carried the celebrated Frenchman

year, was recorded in these columns some time ago. Now we are able to announce, states the *Horseless Age*, that four other machines will appear in America this autumn. Mr. David Wolfe Bishop, Jr., will take with him from Europe a 12 h.p. Panhard; Mr. Clarence G. Dinsmore a Mors vehicle, of power not stated; and Mr. J. Howard Johnson two Mors machines, one of them being of 40 h.p., and built to carry eight people.

Railway Companies and Motor-Vehicles.

AT length it would seem that the railway companies are inclined to recognise the advantages of the motor-vehicle in conveying passengers and luggage, and generally acting as feeders to their regular lines. At least one is conducting an experiment, and should that succeed the others may be trusted to follow suit. The Midland Railway Company is testing a steam lorry from Mann's Patent Steam Cart and Wagon Company, Limited, of Leeds, in connection with their town cartage at Masborough, and doubtless the managers of other lines will await the result with interest.

Seeing Berlin.

A MOTOR-CAR drive was recently organised by the proprietors of one of the leading hotels in Berlin for the benefit of its many foreign visitors. Arrangements were made with the Berlin Motor-Wagen Gesellschaft to supply a number of vehicles with drivers. No less than thirteen cars were altogether required, these consisting of both petrol and electrically-driven vehicles, ranging in size from a victoria up to a large motor-omnibus. Upwards of seventy persons joined the party, who visited the leading places of interest in the German capital and the Mausoleum in Charlottenburg. The drive occupied three hours and a half, and according to all accounts was much enjoyed.

Why Not in London?

NOW that such experiments have been made in Paris and Berlin the hope may be again expressed that some of the enterprising London hotel managers will recognise the profitable character of the idea, and put it into practice. Motor-vehicles could certainly be reliably employed to enable visitors to see the sights of London in the minimum of time, and, we might add, at a reasonable expense.

A Pleasant Week's Tour.

MR. STOCKDALE, of Lancaster, had an enjoyable run a few days ago on his Marshall car, carrying four passengers. Starting from Lancaster on the 26th ult., he travelled that day to Appleby, a distance of 74 miles; on the second day he went to Moffat (66 miles), and then got to Edinburgh, 52 miles further. He stayed in the Scottish capital on Sunday and Monday, and on the following Tuesday travelled to Alnwick (88 miles). On the Wednesday he went to Ripon (100 miles), and on the following day returned home. This is a capital week's itinerary for other automobilists in that district.

Photographic Competition.

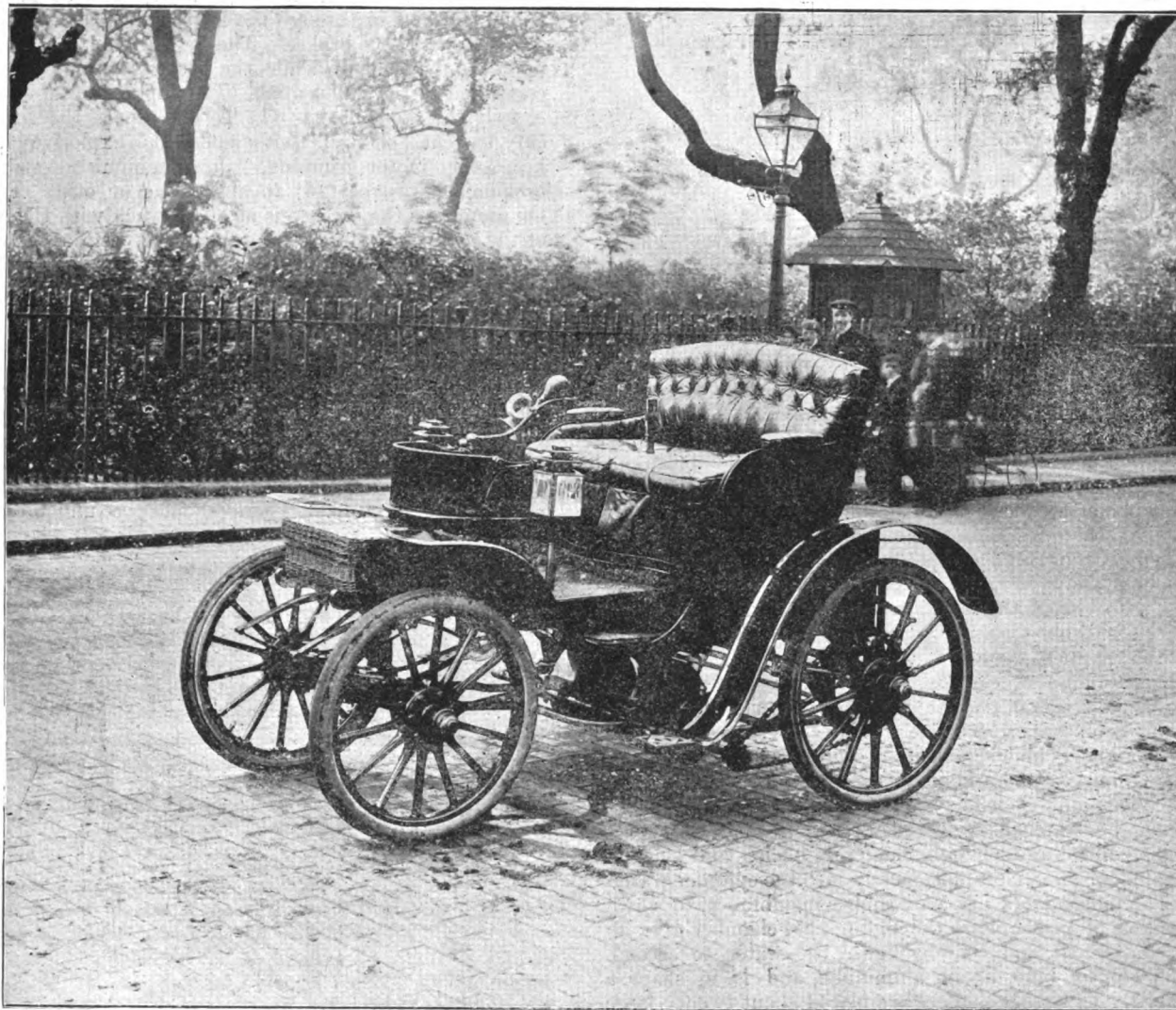
IT will be remembered that Mr. Edmunds offered prizes for the best sets of photographs in connection with the 1,000 Mile Trial. In response to his offer half-a-dozen sets were submitted, and the awards have just been made. The first prize of £5 has been won by Mr. E. M. Iliffe, of Coventry, the second of £2 by Mr. Argent Archer, of Kensington, and the third of £1 by Dr. Cecil Sharpe, of Darley Dale, Derbyshire. In arriving at this decision the committee considered not only the technical excellence of the photographs, but also the general interest of the subjects selected.

AUTOMOBILE TOURING IN THURINGIA.



THE Thuringian city of Eisenach, the home of the Mittel-deutscher (Central German) Automobile Club, has the good fortune to have a rarely beautiful and picturesque environment, offering many delightful tours. The club's first excursion of the season was to the famous old castle of the Wartburg, near at hand. The Wartburg was never a ruin, having by good fortune escaped the devastations of the thirty-years' war, and other periods of strife that destroyed the greater number of the evidences of ancient days in the land. It is the best preserved and the most beautiful old castle in Germany—a perfect example of feudal architecture, rich in history, legend, and tradition, the

are the sides that the attempt to ascend it by automobile looks to the stranger an impossible undertaking. But the tortuous road rises by easy grades, and the excursionists found it a really light task. On arriving the party was hospitably taken in charge by the captain of the Castle, Major von Cranach, a descendant of the world-famous painter of that name and an enthusiastic automobilist. Familiar as the Wartburg may be to a visitor, the enchanting prospects which it commands, beheld from a foreground so romantically picturesque, never pall upon one, and the automobile visitors from the neighbouring city enjoyed the occasion most thoroughly. But what would Luther and the Minnesingers have said to the procession of automobiles invading the historic precincts? Would it not have seemed like a segment of the Apocalypse, more wonderful and dreadful than the seven-



THE JOEL ELECTRICAL VOITURETTE. (See page 389.)

centre for the assembling of the Minnesingers in their contests of song, and consequently the scene of Wagner's "Tannhäuser," and also the residence of Martin Luther during an important period of his life. It was here that Luther worked on his translation of the Bible that created the German language as a literary tongue as well as revolutionised the religious world. The place where Luther flung the devil out of his inkstand against the wall while engaged in this sacred duty is still shown in the "Lutherzimmer," or Luther-chamber, but the huge blot of ink made by his Satanic Majesty on coming in violent contact with the wall has to be renewed occasionally to make good the depredations of tourists. The summit of the hill occupied by the castle is nearly 700 feet above the level of the valley, and so precipitous

headed beasts and other monsters of the apostle's vision?—*The Automobile Magazine.*

THE next 100-mile trial of motor-vehicles, under the auspices of the Automobile Club, will be held on Thursday, November 1st. September 3rd is the last date for entries.

THE City Council of Urbana, O., is discussing an ordinance limiting the speed of motor-vehicles in that town to four miles an hour, and requiring that all such vehicles shall be equipped with a bell or gong, and the same shall be sounded when within fifty feet of a crossing, and kept sounding until after the crossing is passed. The ordinance also requires lamps to be placed on the front end of the machine.

PARIS EXHIBITION NOTES.

(FROM OUR OWN CORRESPONDENT.)

(Continued from page 359.)

I STRONGLY recommend every visitor to the automobile section at Champ de Mars to carefully inspect the exhibits of the Société Industrielle des Téléphones, which are to be found just behind the stand of the Compagnie Internationale de Transports Automobiles. Although but a recent recruit to the ranks of French motor constructors, this company is famed all the world over for the excellency and diversity of its electrical productions and it is evident from the articles exhibited

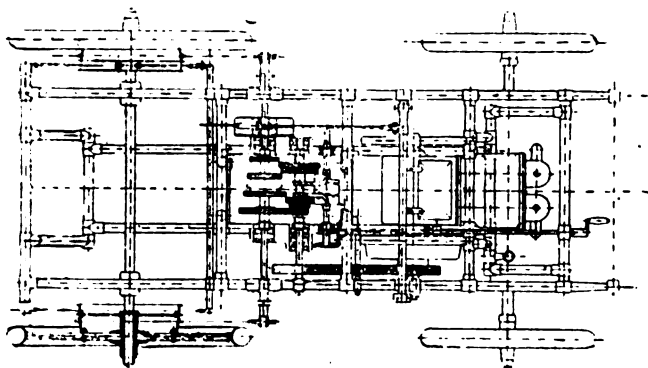


FIG. 1.—PLAN OF AUDIBERT-LAVIROTTE CAR.

that the new class of work will be fully up to the standard of that constructed for the older branches of the company's business. And then, too, in addition to the beauty of workmanship, the motors shown are of special interest by reason of their being the outcome of the fertile brain of M. Ader, whose many wonderful inventions in connection with the telephone, etc., are so widely known and so extensively employed. At the present moment the motor is constructed in two types, viz., 6 and 3 h.p., the sole difference in design being that the former is water-cooled, whereas the latter is air-cooled. Working upon the "Otto" cycle, the motor has two cylinders set at an angle of 90 degs. The piston-rods are attached to the same point of a short shaft, which carries a couple of flywheels, the whole encased in an aluminium gear box. The explosions are produced by the ordinary system of electric ignition. The system of water-cooling adopted presents some novel features. The water which is contained in the cylinder jackets is, under the action of the heat, changed into steam, and as such passes into a condenser, which is a copper tank cooled by flanges fixed to the motor shaft. In the form of water it falls then into a small reservoir, then passes into another similar receptacle, and finally mounts again by means of pulsometers into the cylinder water-jackets. The pulsometers are indiarubber membranes, to which the differences of pressure in the motor base chamber give an oscillating movement, and thereby cause the water to ascend. The carburettor is built up of aluminium, and is in shape a parallelopiped. In this box there are placed about twenty large rectangular meshes, of which the lower part is bathed in petrol, and which are separated by intervals of some millimètres. The petrol mounts by capillarity in these meshes and impregnates their surface, which is then scoured by the inrush of air. An inspection of the frame of the car at once reveals that it is built up of two parts, the one rectangular, the other triangular. The front axle forms the base of the triangle of which the apex rests on the near side of the rectangular portion of the frame. This latter is sustained by the back axles. Under normal conditions the planes of these two parts blend, but they can incline, the one upon the other, so giving to the car great suppleness, and assuring easy travelling over the most irregular of roads. The motor itself is carried in the fore-part of the frame, while the carburettor, petrol tank, accumulators, and induction coils are all stowed away beneath the driver's seat. An induction coil for each cylinder is used. The motor drives a shaft which carries at its extremity a kind of friction clutch and also a

small pulley, the latter being fitted on its rim with a series of springs, by the intermediary of which the propulsive effort is transmitted to the wheels. With such an arrangement any sudden shock which the car may receive while travelling is only communicated to the cylinders after the springs have deadened the greater part of the blow. It is on this kind of little pulley that the flanges for cooling the condenser are fitted. The friction clutch is provided with a graduated leather face, so arranged that when at all damaged the material can be pressed backwards and the clutch continued to be used for a long time without further repairs. The female end of the cone commands the shaft carrying the speed change gear. There are three forward speeds and a separate reverse motion. The transmission of the propulsive effort is finally completed by means of a differential and ordinary driving chains. The pipe connecting the motor to the exhaust box passes through another and larger tube, so heating the air which is drawn in through the latter to the carburettor. The car is fitted with two brakes. The first, which is a hand-brake, acts upon the rear wheels, while the second, operated by a pedal, is connected to the differential. The application of either produces exactly the same effects: (1) To disconnect the friction clutch; (2) to cut off all but sufficient explosive mixture to keep the motor running, thus minimising vibration and economising petrol; (3) to apply one or other of the brakes. On mounting the car one is at once struck with the easy running of the motor, a result attributable to the perfect balancing of the engine and the combination of the two cylinders with the double flywheel. The exhaust, too, is remarkable for its exceptional freedom from smell, for the carburettor employed furnishes a very homogeneous explosive mixture. The car itself will be found to be of light yet strong construction, and its double frame gives remarkable suppleness. The driver has a great variety of means for the regulation of the force of the motor and the pace of the car, such as the change of speeds, the partial disconnection of the motor by the medium of the friction clutch, the advance of the ignition, the cutting off of the explosive mixture, and the regulation of that mixture. There should be undoubtedly a great

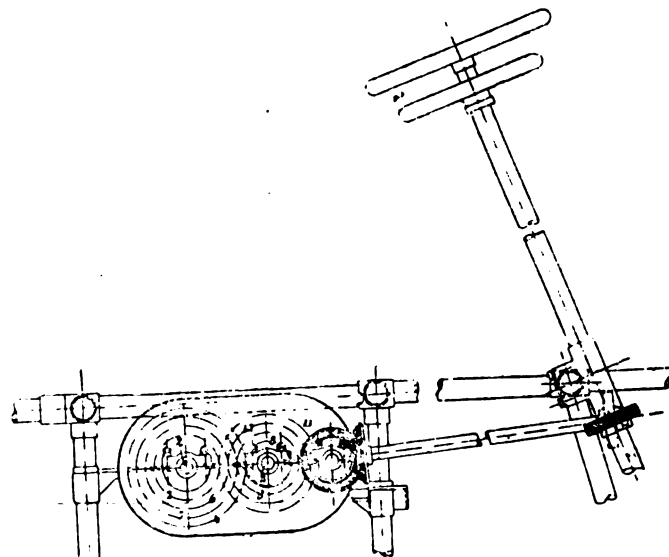


FIG. 2.—DIAGRAM OF STEERING WHEEL AND VARIABLE SPEED CONTROL GEAR—AUDIBERT-LAVIROTTE CAR.

future for this car. Indeed, I understand that already the Société des Téléphones are doing excellent business and booking many orders.

A small voiturette on exhibition is that constructed by M. Léon Buat of Senlis (Oise). This is a four-seated car fitted with a 3½ h.p. water-cooled De Dion motor. Three speeds of 8, 18, and 30 kilomètres per hour are used, and the driving is by means of a friction clutch. The frame is built up of cold drawn steel tubes, and the front part is mounted on a pivot. The consumption of petrol over ordinary routes is 10 litres to the 100 kilomètres. No chains are employed, the transmission being

direct by means of a series of cogwheels. Wheel steering is employed, and the usual hand and pedal brakes are fitted. The price of this little vehicle is £160.

Another provincial firm is MM. Audibert and Lavirotte, of Lyons, who exhibit one of their large cars, a plan of which is given in Fig. 1. The motor built by this firm is horizontal, two cylinders being employed for engines developing up to 16 h.p. and four cylinders for the larger types. Either electric or tube ignition can be fitted, and as the admission of gas to the cylinder can be accurately regulated the makers claim a minimum of vibration for their engine when running light. Inclined wheel steering is employed, and just below this wheel is found a second wheel by means of which the speed changes are effected (see Fig. 2). As this wheel can be manipulated either way the change from the highest to the lowest speed, for example, can be effected without passing the intermediate speeds. The frame is double and built of steel tubes. The carburettor is of a special patented pattern, and the water circulation is effected by means of a thermo-syphon, thus dispensing with a pump. The brake pulley on the differential shaft is hollowed out and carries a quantity of water, which, circulated continually by centrifugal force, ensures the efficient cooling of the brake. The other brakes used are the usual ones acting on the sprocket wheels.

Ranged just beside the charming pavilion which serves as the rendezvous for all motor men wishing to meet in the class 30, is the stand of MM. Renault Frères, upon which are to be seen two remarkably pretty little voiturettes. First of all there is a dainty coupé, driven from the interior, and then a smart two-seated car with a "spider" seat behind for a servant. Efficient as it undoubtedly is, and smart as it certainly looks, I do not like the manner of fixing the water coolers upon the motor casing, and the reason is obvious. Should anything go wrong and it is found necessary to examine the motor, the casing cannot be removed without disconnecting the radiator, and this is always a loss of time, besides being a troublesome job with pipes unpleasantly hot. MM. Renault also expose the first and second medals for the voiturette classes in the Paris-Trouville, Paris-Ostend, and Paris-Rambouillet races, and they will doubtless soon add the trophy so honourably won in the Paris-Toulouse-Paris of a fortnight ago.

Upon the other side of the pavilion there is to be seen the single car exhibited by M. Henriad. This is a 25 h.p. vehicle of this year's type, and, according to its label, the car accomplished no fewer than 3,800 kilomètres during the month of June last. The route followed for this extensive run was from Paris by way of Belfort, Berne, Genève, Bierme, Bâle, Strasburg, etc., returning to the capital after an absence of some days. The car is said to run up to 80 kilomètres per hour, and to work equally well on alcohol, petrol, or acetylene. The motor is carried in front under a long Mors-like bonnet; inclined wheel steering and Michelin tires are fitted.

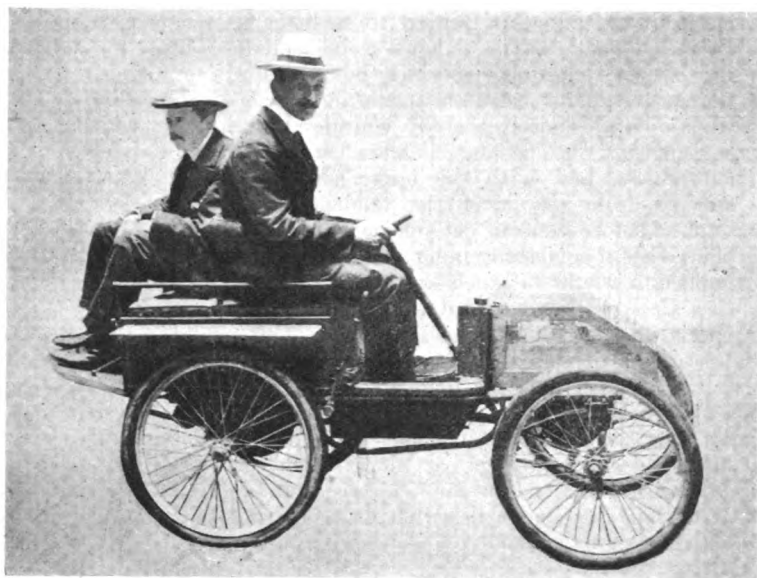
Another conspicuous exhibit is that of Messrs. Albert Darracq and Co., of Suresnes (Seine), who are the constructors of the new Léon Bollée voiturette, in addition to the justly celebrated Perfecta motor-cycles. The former class of automobile is represented on M. Darracq's stand by three complete vehicles and a "chassis," or motor and frame, the latter exhibit enabling the seeker after knowledge to obtain an excellent insight into the principle of the Bollée system. For my own part I am no admirer of this voiturette, for I consider it to be as complicated in construction as it is unattractive in appearance. A couple of nicely-finished quadricycles, both carrying De Dion motors, are further shown, and the remaining space is occupied by two racing tricycles. Of these, the one is fitted with a 5 h.p. Soncin engine, and the other with a Buchet motor developing 3½ h.p. The lines of these two machines give one a capital idea as to the trend of constructors' opinion on the requirements of racing cycles; and the lowness of the frame, the width between the rear wheels, and the length of the wheel base will at once be remarked. M. Darracq has had a very extended experience with cycles constructed specially for speed purposes, and the successes achieved by his machine in all the big races of the year speak volumes for the excellency of the design employed and the soundness of the materials and workmanship.

La Compagnie Internationale de Transports Automobiles is the society which constructs electric vehicles in France under the patents of Monsieur Jenatzy, and its exhibit consists of three electromobiles. There is first of all a large electric delivery van of the type employed by the "Louvre" and similar establishments, and which are to be seen daily upon the streets of Paris. Then there is a very stylish phaeton with all seats facing forward, the body of which comes from M. Boulogne's workshops. The third car is of Mulbacher build, and is a really handsome "victoria." This year "La Jamais Contente," which attracted so much attention to this company's stand in 1899, is conspicuous by her absence. This is to be regretted, for there are so many thousands of strangers now in Paris who take an interest in automobilism that the fastest car in the world would have proved an enormous attraction.

(To be continued.)

THE "PALACE" DOG-CART.

THE accompanying illustration shows the little dog-cart which we recently inspected at Messrs. Friswell's dépôt on Holborn Viaduct, E.C., and to which we briefly referred in our issue of the 28th ult. The little car, which is arranged to seat two persons sitting *dos-à-dos*, is propelled by a 2¼ h.p. air-



cooled Aster motor, located under a bonnet in the fore part of a tubular frame. Two speeds are available, a single belt conveying the power to a short countershaft behind the rear axle, to which in turn it is transmitted by spur wheels. The steering is controlled by an inclined hand wheel, while the cycle-type wheels are shod with pneumatic tires. The miniature vehicle is said to run extremely well.

THE Rex Patents Limited, of Clapham, S.W., have recently put on the market a new set of eye protectors for automobilists. They are fitted with flexible curled sides, fine gauze shields, and solid nickel frames. The lenses are referred to as being scientifically toned so as to prevent chill to the eyes in cold weather, and to form a cooling for them in hot weather.

CADETS from the U.S. North Western Military Academy started on July 19th from Highland Park on a trip to Washington with the automobile rapid-fire gun, built by the Duryea Company about a year ago, and illustrated in our issue of October 6th last. The party intended to go by way of Toledo, Cleveland, Buffalo, and New York, and to camp out at night along the route. The nominal object of the trip was to carry a message from General Wheeler to General Miles.

CORRESPONDENCE.

IRISH ROADS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Reading in your issue of the 4th inst. the interesting account of the Irish tour in which I took part, it struck me that your readers might be led to suppose that the roads traversed were uniformly bad. Such was not the case. Of the 700 miles covered I would class about 20 miles in the Co. Cork as absolutely vile. Probably we encountered 20 miles of bad road elsewhere, and of the rest the greater portion was good and some excellent, and as good as any road I have come across in England. In Ireland we have "samples" of all sorts of roads, and in some cases the dividing line can be told with absolute precision by the jolt with which the traveller crosses from one county into another. Perfect touring, either for motor-car or cycle, can be enjoyed in this country; but it would be essential that a proper route should be sketched out, for if one were to tour through the country at random one might have a very bad time of it indeed as regards roads.

Dublin,
August 5th, 1900.

Yours truly,
R. J. MECREDY.

QUESTIONS RE MOTOR-CYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I beg to ask if you or any of your readers could give me a little advice in regard to a little matter concerning a Beeston "quad." The exhaust valve spindle is lifted for starting by the brake lever, which by means of an inclined fork raises the exhaust valve off its seating and allows the compression to pass into silencer, thereby considerably easing the work of starting by the pedals. I find that it does not lift the valve sufficiently, and with the brake and this valve lifter being worked from one lever the tendency is for the brake to be applied before you can get sufficient lift to ease the starting. I think that if something independent of the brake lever could be applied it would be much simpler. I have heard that something has already been applied to this purpose by the makers of a special brake—Bowden's, I believe—and would be glad of further particulars.

I notice in a recent issue a case at Chertsey Petty Sessions, which interests me. Is it right that, if you have a tricycle drawing a trailer, you must have your name and address displayed and not go at more than six miles per hour? The case reads so to me. I have the same arrangement as above, but have never heard of the stipulations mentioned in the Chertsey case.

Yours truly,
T. SMITH, JUN.

Stockport, August 4th, 1900.

CHARGING ACCUMULATORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Being a long way from any source of electricity I have been trying to charge a pair of Benz accumulators from three primary chromic and sulphuric acid cells. The makers told me the three cells connected in series would charge a pair of 2-volt accumulators, also connected in series, in about five hours. The pair of accumulators when new showed fully 5 volts on the meter, and they now show a shade over 4 volts. The three primaries, when freshly made up, showed about 5½ volts, but after being connected with the accumulators for about three hours their combined E.M.F. had dropped to 3 volts, and the accumulators showed exactly the same E.M.F. as before, viz., a shade over 4 volts. I then re-charged the primaries with fresh chromic and sulphuric acids, after which they again showed 5½ volts. I again connected them with the accumulators, and after about three hours found exactly the same condition of things as before, viz., the E.M.F. of the primaries had dropped to three volts, and the E.M.F. of the accumulators was still a shade over 4 volts, nor did the accumulators show the slightest sign of bubbling.

Will some practical electrician among your readers be good

enough to answer this letter, saying why the E.M.F. of the accumulators would not increase to the original voltage; also if it is safe to go on using the pair of accumulators in their present condition; if so, when must I stop using them, i.e., at what voltage? Any hints as to the charging and care of accumulators would, I am sure, be as useful to a large section of your readers as they would be to me.

Yours truly,

FRANCIS S. TIDCOMBE.

Bognor, Sussex, August 6th, 1900.

PNEUMATIC TIRES AND PUNCTURES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to W. Vanderbyl's letter published in your last issue, he would most probably find the use of leather belting placed between the inner tube and outer cover of a pneumatic satisfactory as regards the prevention of punctures; but I should imagine the expense of having such tires constructed would be prohibitive, especially for cars of any appreciable weight, such as a Mors. The difference in weight between such a tire and an ordinary pneumatic would obviously be considerable, and a very perceptible detraction from the speed of the car would result.

I should recommend Mr. Vanderbyl to go in for Collier twin tires, which, briefly, consist of a thick solid rubber strip—secured next to the tread of the outer cover—on the inside of the canvas. Between this and the rim the air tube is situated, so that the whole tire is a combination of the solid and pneumatic varieties. They are made in all sizes, and are specially designed to prevent puncture, and spreading on the ground when in motion.

Yours truly,

W. G. BELL.

7, Loudoun Road, St. John's Wood, N.W.

August 7th, 1900.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to Mr. Vanderbyl's letter in your issue of last week as to the employment of leather belting between the air chamber and outer cover of pneumatic tires, in this connection it may be of interest to record that a piece of good, stout, leather, 9in. or 10in. long, placed in this position, in order to protect a weak part of a ninety millimetre tire, was found, after thirty miles of travelling, to have quite perished, in consequence of the heat when running—the leather breaking up into small pieces as it was taken out.

G. H. A.

Beaulieu, August 7th, 1900.

MOTOR-CARS FOR AUSTRALIA.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am deeply interested in motor-cars, and desire any information as to price and capacity.

Tambourine Mountain is about 2,000 feet above sea level. I use a four-wheel dog-cart; two horses draw it up the mountain. There is a grand opening in this colony for a good car. One of our Brisbane merchants would give up his horses at once if a suitable motor-wagon were available for delivery. What is wanted is a very light machine, strong enough to carry one man and light samples for the back country.

What I want is a very light but strong carriage to seat four persons, with power enough to get up the mountain with ease, with powerful brake.

Yours truly,

REV. GARVIN TUCKER.

Yunlong, Tambourine Mountain, Brisbane,
Queensland, June 24th, 1900.

THE grand London pageant in aid of the War Funds will take place on the 20th prox. Mr. J. Mason, the Green Room, Hotel Cecil, Strand, W.C., is acting as honorary secretary.

A MACHINE AND ITS LESSON.

IN a recent issue of *La Locomotion Automobile* Gaston Sencier draws a moral from the design of the racing machine built by the Nesseldorfer Wagenbau-Fabriks-Gesellschaft, which was illustrated in the *Motor-Car Journal* for June 16 last. The builders of this machine, in describing it, laid stress on the fact that they had discarded all endeavour to imitate the form of a carriage, and, frankly recognising the essentially mechanical character of their production, had worked with the single object of adapting it as perfectly as possible to the end in view. "They are perhaps," says the writer above mentioned, "the first in our industry to claim the merit of understanding that an automobile is not a carriage, that there is a total dissimilarity between the two, and that the former has no more excuse for imitating a horse vehicle than there is for a locomotive being built to resemble a horse or a railway car like the old diligences of a bygone age.

"I know very well," M. Sencier continues, "that in saying so I run foul of preconceived ideas. But let those who profess these retrograde views give me one serious argument in their behalf, and I will listen to them. They have no argument at all, but the single one of public prejudice and accepted custom. It follows that the Austrian builders argue like men of good sense. They put before themselves a programme. We desire, say they, a vehicle carrying so many men, able to cover so many kilomètres without replenishment of petrol and water, and able to attain without danger a mean speed of so many kilomètres an hour. That is the whole matter. It is a mechanical problem to be solved. They have attacked it, and now present a first approximate solution. It is for that I congratulate them. The automobile industry has up to the present followed the common law of all new industries; it has been the slave of many prejudices and no less errors. It is by no means singular in this. Look at the old prints of the first railway trains built in England and France. The cars are almost copies of diligences, and the spirit of imitation extends even to the placing of a conductor on a special seat in each car. To-day the railway car is approaching its final form as seen in the modern express trains. *Au diable la diligence!* The cars are no longer made to satisfy the demands of a pretended æstheticism in imitating a bygone style. They have, therefore, found their true excellence of form. As to the locomotives, no one attempts to make them pretty, but solely to design all their parts for the work that they have to do. In spite of that, even they have gained a beauty which they never had before. It is the beauty of the machine built for speed, of the flyers of the Northern and the Eastern Railways, the thoroughbreds of the rail. I hope that some time even our automobiles will reach this point, and the first essential to this end is to make *tabula rasa* of our prejudices, and to understand finally that an automobile is a machine."

Before dealing out condemnation on the courageous author of the above words, it is fair to remember that he is writing of

racing machines only—machines whose sole purpose is "to go at such a speed for such a distance with so many passengers." It is not in the least likely that M. Sencier would elect the Austrian machine referred to for a provincial tour with his family, or would recommend it to others for that use. Nor is it probable that he or any other *chauffeur* would select the obtrusively mechanical mount in preference to a light voiturette for a spin about the parks and under the suspicious eye of the gendarmerie. But the author's real contention is sound. A vehicle, for whatever purpose, should be designed with reference to that purpose and to nothing else. In proportion to its fitness for its purpose does it satisfy the canons of true good taste. In proportion as it forsakes the intent of its use in pursuit of preconceived notions of what it ought to look like, of untutored ideas of prettiness or "shape," just so surely will the advance of enlightenment leave it a laughing-stock. The horse vehicle, in its many forms, is perfectly adapted to its use, and no one would wish to change it. Comfort, safety, and speed are alike required of the modern railway coach, and each is provided for in full measure. And what man, in whose breast the "Song of Steam" ever awoke an

echo, has looked up at the huge iron steeds that hurry the Empire State Express and the Atlantic City Flyer over the rails, at speeds unmatched in railway engineering, without a quicker pulse-beat for the tremendous harnessed force which speaks in every line?

The automobile is peculiar in that it must be locomotive and car in one, and neither function should be slighted or concealed to the enhancement of the other. In this respect it most nearly resembles the tramway car; but the tram-car's retention of the horse car's exterior has been much closer than is possible in the case of the automobile. The point to be aimed at is, not to strike a balance between two conflicting features, but to unite and harmonise them. The tramway car found its body ready to its hand, needing only to be en-

larged and strengthened. The motive power was put below the floor, on the truck; the trolley arm was mounted on the roof, and behind each dashboard—now become a wind-shield and hand rail support—was mounted a controller. The combination fulfilled its purpose perfectly, and no one calls it incongruous.

To attain the same result, the builders of motor-carriages will have to forget the horse carriages altogether, and consider simply the problem of carrying the desired number of passengers with speed, comfort, and safety, and with the minimum of effort in controlling and caring for the vehicle. The motor should be placed where it will be most accessible and will shake the carriage least, which is probably in front. The tanks, passengers, and transmission gear will then give the necessary traction. The wheels should be small or large, according to the nature of the road. The body should be as low as possible, to permit of high speed and sharp turns without upsetting. It should be no disgrace to show the cooling tubes if thereby they can be made more efficient. Machinery should be covered from dust so far as possible, but the suggestion of its presence is not a blemish, and should not be so regarded.—*The Horseless Age.*

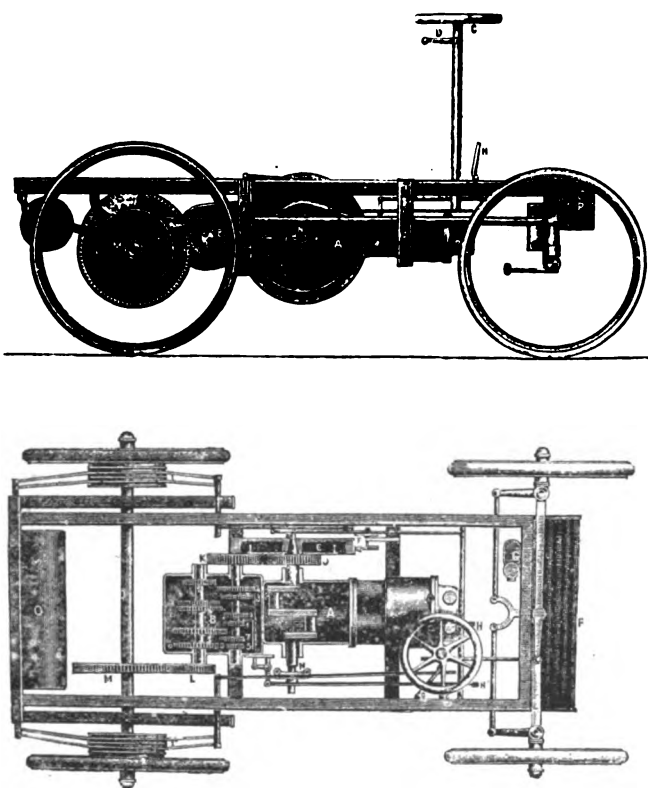


FIG. 1.—THE BROUHOT MOTOR-PHAETON. (For description see next page.)

THE BROUHOT MOTOR-CAR.



SINCE we described the Brouhot motor-car in our issue of December 29th last, a number of changes have been made in the transmission gear, etc., and in view of the success of the modified form of vehicle at the Touring Competition in May in connection with the Paris Exhibition, a brief description of the same at the present time may not be without interest. The illustration given on the preceding page shows a four-seated phaeton. The petroleum-spirit motor employed is of the horizontal two-cylinder type, working on the Otto cycle. As will be seen from Figs. 2 and 3, the motor is suspended from and under the centre of the frame of the vehicle, the explosion chambers being at the forward end. The admission and exhaust valves are stated to be so arranged that they may be removed, for cleaning and other purposes, by loosening a single nut. Electric ignition is employed, and the cylinders are, of course, water-jacketed. The water circulation is maintained by a centrifugal pump, the fitting of a radiating coil in the fore part of the frame permitting, it is claimed, of a run of 300 kilometres to be made without it being necessary to renew the water. The motor is provided with



FIGS. 2 AND 3.—ELEVATION AND PLAN OF BROUHOT FRAME.

a centrifugal governor, which acts on the exhaust valves when the speed becomes excessive. An accelerator operated by hand is also available. The carburettor employed is of the constant level type.

A feature of the driving mechanism is that no belting or pitch chains are employed, the power being conveyed from the motor shaft to the rear road wheels entirely through spur gearing. Four speeds forward and a reverse motion are available. On the motor shaft is a hidden pinion *J*, running loose thereon. This gears with a phosphor bronze spur *K* on the end of a countershaft which carries the variable speed and reverse gear motion. This consists of a train of pinions 1, 2, 3, 5, 7, any one of which can be made to mesh with corresponding wheels on a short parallel shaft. On the outer end of the latter is a small spur wheel which transmits the power directly to a large gear wheel *M* on the rear axle. The pinion *J*, which runs loose on the engine shaft, is made solid with one-half of a special progressive friction clutch, which can be thrown in or out of engagement by either a foot pedal or hand

lever. The crank shaft and variable-speed gear work in oil containing cases.

A somewhat novel feature is introduced in connection with the rear road wheels, which are mounted loosely on the axle, no differential gear being employed. At each end of the axle circular discs are mounted, each provided with a double-pawl arrangement, the ends of the pawls being located in a notch in the boss of the discs. The wheels themselves are fitted with a ring, which forms the band brake drum, having internal teeth, this ring fitting close up against the discs in such a way that the pawl may fall in the space between two of the teeth of the ring, or may run clear of the same, according to the position of the end of the pawl in its notch in the disc. By this means, in passing round a curve, the outer wheel, having to cover a greater distance than the inside one, the toothed ring becomes released from the pawl and runs free, the inside wheel only being driven. As soon as the vehicle is again on the straight the pawl once more falls between the teeth in the toothed ring, the two wheels then being rigidly connected up to the axle and receiving impulse from the motor. The makers state that they have given this device an exhaustive trial before adopting it in their vehicles, and claim that it allows of curves being taken at a greater speed than is prudent with vehicles depending on the ordinary differential and chain gear.

Steering is controlled by a vertical hand-wheel. The frame is a combination of steel tubing and wood; the wheels are of the artillery type and are fitted with solid rubber or pneumatic tires as desired. Two brakes are provided, one actuated by a hand lever *I*, and the other by a foot pedal *H*, the application of the latter also disengaging the clutch. All the driving mechanism is suspended below the frame, thus throwing the centre of gravity low down and reducing the possibility of the car turning over, at the same time permitting different types of bodies to be fitted to the frame. Universal joints are introduced between the gear wheel and the rear axle, to allow for any inequalities in the road traversed, the two spur wheels *L M* being kept in gear by means of arms connecting the axle with the frame. Messrs. Brouhot and Co. are making engines of 5, 6, and 8 h.p., the car illustrated being fitted with one of the largest size motors.

THE North-Western Motor Vehicle Company, of Minneapolis, U.S.A., has been incorporated with a capital of £20,000.

COUNT CHARLES SEILERN has been elected a member of the A.C.G.B.I., the membership of which is now 696.

THE New England Auto-King Vehicle Company, of Portland, Me., U.S.A., has been incorporated for the purpose of manufacturing motor vehicles. The capital is £240,000.

THE toll on motor-cars passing over Maidenhead Bridge is to be considered by the Maidenhead Town Council on the expiration of the present lease of the tolls, which will shortly take place.

THE annual autumnal meetings of the Institute of British Carriage Manufacturers will be held in Dover, on September 18th, 19th, and 20th. Arrangements are being made for a party of members to go to the Paris Exhibition after the Dover meeting.

THE Providence *Journal* is making a trial of a steam vehicle built by the New England Motor Vehicle Company, of Waltham, Mass. It is of a light-wagon design, with canopy top and open sides. A sort of fence of wire netting is stretched around the stanchions, to retain the bundles of papers. The vehicle weighs 800 pounds, and will carry a load of 500 pounds besides the operator.

A TEST of a new non-slipping tire was recently made at Bridgeport by the Locomobile Company of America, in which the efficacy of the tire is said to have been demonstrated in a striking manner. An inclined plane, about 35 degrees in slope and 25 feet long, was covered with cakes of ice. A Locomobile, its rear wheels shod with non-slipping tires, and carrying two men, was driven under its own steam to the top of the slope, where it was held by the brake while photographs were taken. The new tire carries small steel spurs, not large enough to interfere with the use of the tire in the ordinary snow, etc., of winter streets, but yet sufficient to pierce the ice and be held.

RECORD-BREAKING IN AMERICA.

THE best thing in the way of an automobile story which has yet come to light in Boston is that afforded by Mr. William K. Vanderbilt, jun.'s flying trip from Newport to Boston and return on Friday, July 20th. It really astonished the natives, and, best of all, states the *Horseless Age*, it was true. His wonderful Daimler carriage, regarded as a marvel from the newspaper accounts of it, was even more wonderful to those who caught a glimpse of it. They could get no more than a glimpse, for it was disappearing like a flash in the distance before any of them could get a second look. Incidentally, Mr. Vanderbilt established a new record over the road between Newport and Boston. General Manager Dwight Neftel, of the Electric Vehicle Company, and George McQuesten, an East Boston lumber dealer, made the trip in one of the company's new runabouts, equipped with a long-distance battery, on a single charge, on Monday, July 2nd, in five hours and eighteen minutes; but that run, though pretty good for an electric carriage, was nothing to the Vanderbilt achievement. Mr. Vanderbilt left his stable at Newport at 6.30 a.m., and arrived in Boston shortly before nine o'clock, making the run of 72 miles in two hours and eighteen minutes, at a rate of speed averaging 31.3 miles an hour, or a mile in less than two minutes.

In Fall River there are three miles of very sandy road, over which the machine could not make its usual speed, but the delay in this place was compensated for in the run into Boston. On Blue Hill Avenue the speed register attached to the machine showed 65 miles an hour. As there is not much road about Boston adapted to such high speed, the run into the city proper was probably at a speed below 20 miles an hour.

Mr. Vanderbilt's run to Boston was merely a pleasure trip, and he stopped there not more than an hour. While in the city he remained at the headquarters of the New England Electric Vehicle Company on Tremont Street, and as soon as the petrol tanks were refilled and the tires inflated, he started on the return trip, with the expectation of reaching Newport in time for luncheon, if he did not conclude to continue over the road to New York. With Mr. Vanderbilt was his *mécanicien*, whom he brought with the machine from France. When mounted upon the machine prepared for a run, the two men looked as if they expected to meet a rain or dust storm, but in reality they were taking only the usual precautions adopted for fast automobile driving. Both men wore visored caps, something after the style of a yachting cap; heavy coats buttoned up to the throat, gauntlet gloves, and goggles over the eyes. From the sloping dasher a white rubber boot was buttoned up under the arms of the men. This boot, with the dasher, serves to cut through the air and throw it above the heads of the passengers. After running slowly down the incline, from the automobile company's station to Tremont Street, the machine was headed south and was off in a flash, disappearing almost before one could realise that it had started.

This machine of Mr. Vanderbilt's is, perhaps, the most interesting racing carriage in America. There is said to be only one other that equals it in speed in the world, and that is owned by a French count. Mr. Vanderbilt bought his in France at an original cost, it is said, of between 5,000 dols. and 6,000 dols.; and, up to date, the total cost is probably not far from 10,000 dols., for the owner has no regard for expense, and if he wants to stop quickly he does not hesitate to strip off a pair of tires.

Furthermore, if the police of Newport enforce the speed law, Mr. Vanderbilt will probably have an additional expense of 10 dols. to 20 dols. a day for fines, and he has told the police that they have the privilege of arresting him as often as they wish. The carriage has engines of between 30 and 35 h.p. The wheels have French inner-tube tires, 3in. in diameter on front and 5in. on the rear wheels. Extra tires are always carried on the box behind. When running at top speed the machine can be stopped within 100 yards without injury. It has five different brakes, and by reversing the engine the wheels can be locked. When this is done, however, it is necessary to have a new set of tires all

ready to put on. The fly-wheel of the engine acts as a fan, and draws air from the front of the carriage through ducts. This air passing through at great speed cools the water radiator. When the machine was imported it was painted white. Now Mr. Vanderbilt has had it painted crimson and black.

SOME NEW MOTOR-BICYCLES.

A MOTOR-BICYCLE of Bohemian construction is shown in Fig. 1. It is known as the "Republic," and is made by Messrs. Laurin and Klement, of Jungbunzlau. As will be seen, the frame is of special construction. The motor is mounted within, and in the fore part of the frame immediately over the carburettor (3). The petrol tank is built in the rear half of the frame (2). The power of the engine is transmitted to the drum (5) attached to the rear wheel by a leather strap; so that the strap shall not interfere with the pedals an idle pulley is mounted on the main down tube of the frame. The engine is

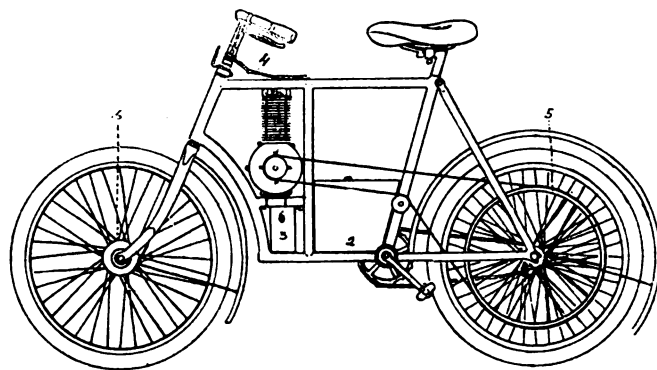


FIG. 1.—THE "REPUBLIC" MOTOR-BICYCLE.

air-cooled, and is fitted with electrical ignition; it is made in two sizes, either 1½ h.p. or 1¾ h.p., being fitted as desired. A powerful hand brake on the front hub is provided, while the rims are fitted with 2in. pneumatic tires. The machine can, it is stated, attain a speed of 35 miles per hour on level roads.

Still another motor-bicycle has been put on the French market. This is the "Centenari," of which an illustration is given in Fig. 2. As will be seen, the motor is attached to the head of the machine, as in the case of the Werner, but the power is transmitted to the rear wheel. This is effected by belt and

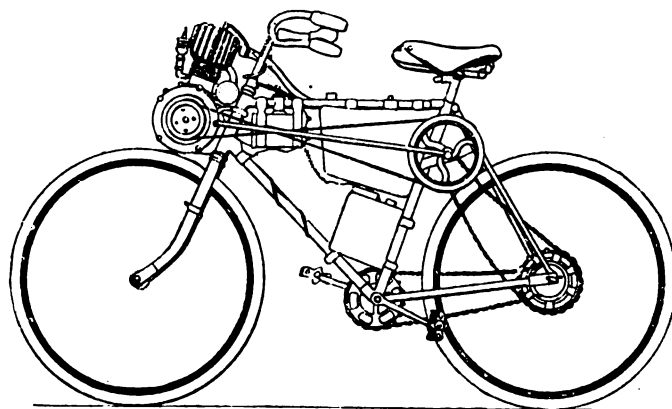


FIG. 2.—THE "CENTENARI" MOTOR-BICYCLE.

chain gearing. The back-frame is of special construction, to allow of a pulley and chain wheel being mounted just below the saddle. A small belt connects the motor with the pulley, a chain transmitting the power from the latter to the rear axle. The motor, which weighs 8 kilog., or about 17½ lb., is said to develop 1½ h.p. when running at 1,600 revolutions per minute. The rider has, it is stated, only one tap or handle to manipulate—that controlling the variable electrical ignition. The machine can, it is stated, attain a speed of 60 kilomètres per hour on the level, and mount gradients of 12 per cent.

MOTOR-CAR TRIP.

FROM EASTBOURNE TO PEVENSEY.

CHARTER one of the Pioneer motor-cars and go on Pevensey Castle. Keep your eyes and your ears open, and when you get back write a column or so on what you have seen." So spake my Editor on Friday afternoon. Before he had time to countermand the order I was through the office door and on the car "Duchess," which starts its journeys from just outside the office; and in a couple of minutes I was well out of sight, careering down Seaside Road.

The Eastbournian who has not had a trip on one of these motor-cars has lived in vain. The man who has been will go again. To describe the delightful sensation of rushing through the air almost noiselessly is impossible. The nearest approach to it is the feeling one has on a railway engine or up in a balloon. I have tried all three. I have travelled over sixty miles an hour on an express engine in the night, and I have been a mile high in the air. Both experiences were fascinating, but my preference lies with the motor-car. Perhaps I am a bit of a coward at heart, and prefer the safer mode of travelling. So be it. As against that charge, however, let me set forth one or two points. I have descended pit shafts over two or three hundred yards deep; I have gone out in the lifeboat in a gale; and I have ventured into matrimony!

But there, let me describe my run. Well, it seemed to me that we were in Pevensey in no time. Yet we had driven along pleasant lanes and amid a pleasant landscape, with the sea close at hand upon our right, and Hastings' high hill frowning upon us from across the bay. The car seemed a living thing, for as it sped along it quivered like a thoroughbred, and sent forth a humming sound like the buzz of a swarm of bees—not at all an unpleasant music. And of the smell that some people complain of in connection with the motor-car, I did not detect a trace.

Presently we reached the pretty village, lying in the shadow of its two massive churches and of the mouldering walls and round towers of the ancient fortress. Here Julius Cæsar landed fifty-five years before the Christian Era, and here another invader, William of Normandy, first set his mailed foot on British soil in 1066, and burned his boats. Owls and bats are now the only living denizens of the castle whose floors once rang with the martial clang of the tread of armed warriors. On the journey back I chatted with the driver as to why the Eastbourne Corporation prevented the motor-cars going along the front. He could only think it was done in the interest of certain interested parties, who shall be nameless.—From *Eastbourne Society*.

THE Committee on Chemical Hazards of the New England Insurance Exchange in America has adopted a permit for the storage of petrol motor-cars. The permit, which has still to be submitted to a general meeting, will, if approved, carry with it a small additional insurance charge.

MESSRS. CRAMPTON AND CO., electrical engineers, of Great Yarmouth, Cambridge, and Bury St. Edmunds, have opened offices at 77A, Queen Victoria Street, London, E.C., which will be used chiefly as the estimating department for complete electric lighting plants and power installations.

THE Metropolitan Motor Manufacturing Company, Limited, has been registered, with a capital of £10,000, to acquire certain inventions from Messrs. A. E. Creese, F. Jackson, and T. Underwood, and to carry on the business of electrical and general engineers, motor-car manufacturers, etc.

MR. A. MARMADUKE HART, of Woolwich, is preparing to place on the market a new sparking plug, the feature of which is that the parts are so made that any of them can be readily renewed, even on the road, the joints being made without the use of solder or cement.

SUIT has been brought by the Electric Vehicle Company and Mr. George B. Selden against the Winton Motor Carriage Company, of Cleveland, O., for alleged infringement of the now famous Selden patent. The case will be tried in the United States Circuit Court of the Southern District of New York, probably some time during the autumn.

THE "STELLA" VOITURETTE.

ONE of the latest voiturettes to appeal for public favour is the "Stella," of which an illustration is given herewith. The body is entirely independent of the frame, which is of tubular construction, it being suspended fore and aft on C springs. It can be adapted for two or three persons as desired, the choice of the motor being also permitted to the purchaser between a 2½ h.p. air-cooled Aster, a 3 h.p. water-cooled Aster, or a 3 h.p. water-cooled De Dion. The engine is geared to the rear axle through a special two-speed gear and clutch, illustrated in Fig. 1 and described below.

The new gear, which has been devised by M. H. Gerard, is a progressive apparatus of simple construction, in which are grouped several ratios of speed, each of which is obtained through an epicycloidal train, of which the gearings are always in engagement. It comprises two trains, each of which consists of: (1) A central pinion, *P P'*, keyed upon the driving shaft; (2) three spur-wheels, *S S' S''*; and (3) an internal gear, *B B'*, the periphery of which is provided with a groove for the reception

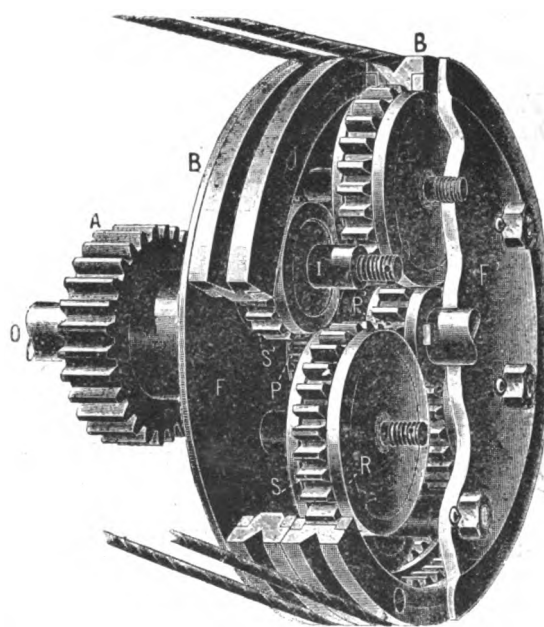


FIG. 1.—SECTIONAL VIEW OF VARIABLE-SPEED GEAR "STELLA" VOITURETTE.

and guiding of the brake straps. The axles, *I*, of the spur-wheels are secured to the external plates, *F F'*, one of which, *F*, carries at the extremity of a socket a pinion, *A*, that meshes with the toothed wheel of the differential and transmits motion to the driving wheels. The gear wheels of each train are supported and held at an immutable distance by revolving discs, *R*, fixed laterally. When the motor is in operation, the tightening of one of the brakes renders one of the internal gears immovable, and the central pinion keyed upon the driving shaft revolves the spur-wheels, which, taking a purchase upon the stationary internal gear, carry along the axles, external plates and pinion *A* at a differential speed that depends upon the ratio of the gearings. The other train will remain idle; and one speed will be obtained. When the second train is rendered immovable, the first will be freed; and, as the ratio of the gearings is different, we shall have a second speed. When the two brakes are free, the pinion *A*, the plates *F F'*, and the axles will remain stationary as a consequence of the resistance of the carriage, and the spur-wheels will revolve, along with the internal gear, in a direction reverse to that of the running of the motor. The driving mechanism will thus be thrown out of gear. With this apparatus the makers claim it to be possible to throw the mechanism into gear progressively and with the greatest ease, without any fear of stopping the motor (even on a

declivity); to change from one speed to another, and to throw the mechanism out of gear without the least shock and as gently as may be desired, since the braking of the speeds is dependent upon the will of the driver. There is no danger of a breakage of the cogs, since the gearings are always in engagement. Moreover, the discs that support the gearings prevent the cogs from meshing too deeply and becoming wedged, and constitute rollers that have the same effect as a ball-bearing mounting, in rendering the revolution of the wheels easy, and in suppressing noise and wear.

Steering is controlled by an inclined hand-wheel, on which is mounted a small electric current interrupter; the handles or taps for varying the carburation and ignition are mounted on the steering column. An arrangement is also provided which enables the engine to be started from the driver's seat. The car, which is provided with cycle-type wheels and pneumatic tires, weighs a little over 3 cwt., and can, it is stated, attain a speed of 35 kilometres per hour on the level, and mount any ordinary hill at a speed ranging from 8 to 16 kilometres. It is made by La Société de Constructions Mécaniques "Stella," of Levallois-Perret, France.

TUBE VERSUS ELECTRIC IGNITION.

THE incandescent tube occupies an earlier place in the evolution of the gas engine than the electric spark. It is so ideally simple, as regards both construction and care, and so uniformly reliable under any ordinary conditions, that the preference given it has been obvious and natural. Being surrounded by flame, it does not, like the electric sparker, need to be protected from the heat within the cylinder. It can be fouled only by an inordinate excess of oil. Its timing is practically invariable. It has no hidden or mysterious weaknesses, and if made of platinum or nickel alloy it is almost indestructible.

The user of electric ignition, on the other hand, must be something both of an electrician and of a mechanic to care for it intelligently. Battery exhaustion, corroded wires, short circuits anywhere from battery to contact points, "grounds" and fouled or worn contacts, are a few of the infirmities common to the class; and each type has its own pet ailments besides. The "jump spark" igniter will get out of order most often from the difficulty of confining the high potential secondary current. The "wipe" sparker is not readily fouled, but its timing is apt to be affected by wear, and the tips need frequent renewal. The "lift" sparker, if the contact is broken by the piston or by the rise of a cam, is sluggish, and at moderate speeds requires a heavy current. It has the fatal defect of giving its poorest spark when a strong one is most needed, namely, when starting the engine; and it should never be used where portability and battery economy are important. The quick-acting lift sparker, with contact broken by the snap cam or trigger release, is the most complex type of sparker. It gives a uniformly good spark at all speeds, however; it is very economical of current, and if it gets out of order it is usually outside the cylinder and not inside. It does not lose its correct timing by wear, as the piston lifted and wipe sparkers nearly always must, and, when once adjusted, it may be left indefinitely.

Nevertheless, even the most perfect electric igniter has many more ways of getting out of order than an incandescent tube; and if the only drawbacks to the latter were the cost of keeping it hot by an external flame and the perhaps rather imaginary danger from fire, it is doubtful if such persistent attempts would be made by the builders of motor-carriages to improve the electric igniter, to the neglect of the tube. But the real obstacle to the employment of the latter on vehicle-motors is that the high-speed gas engine demands a considerable lead in its ignition, and by preference one that is automatically variable for different speeds; and this the incandescent tube cannot give. Less than could be wished is known concerning what actually takes place in the tube at each point of the cycle; but it is now believed that the fresh mixture reaches the heated portion of the tube and is ignited considerably before the end of compression stroke. The flame is then prevented from striking back into the cylinder by the continued inflow of fresh mixture, and the flame only reaches the mouth of the tube when the inflow becomes slower than the rate of flame propagation—i.e., when the compression stroke is near its end. It is known that the external flame can, without pre-ignition, be applied to the tube at a point which calculation shows must comparatively soon be reached by fresh mixture; and this fact is taken advantage of to relieve the compression somewhat when starting the engine.

This action within the tube has the effect of causing inflammation of the mixture to begin shortly before the crank reaches the centre, with almost any moderate speed of rotation. Unfortunately, the inflammation tends to lag as the speed increases; and at high speeds it is nearly impossible with tubes of the usual proportions to get it started soon enough to insure complete combustion before the mixture has expanded too far. Naturally, these phenomena are most marked with long tubes, and by making the tubes sufficiently

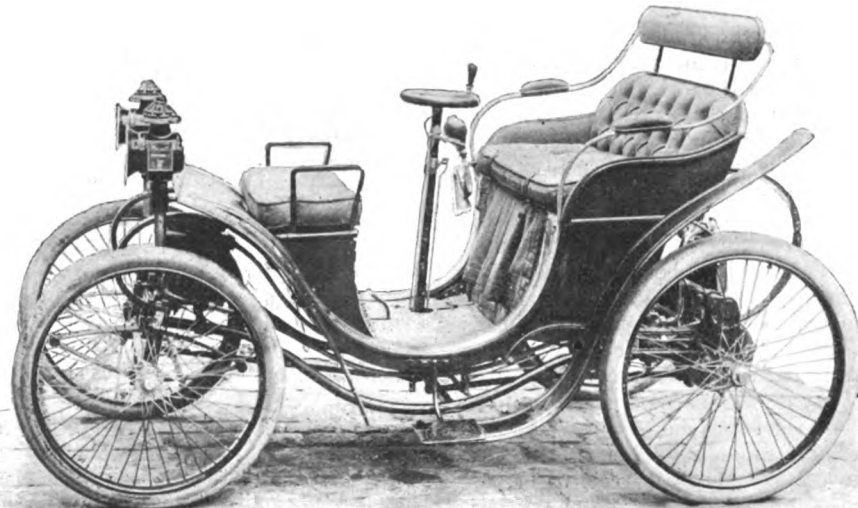


FIG. 2.—THE "STELLA" VOITURETTE. (See opposite page.)

short the velocity of inflow may be reduced to any desired extent, and inflammation begun at a point correspondingly early. This is the method adopted by a prominent firm of launch builders which employs tube ignition and high speed, but in practice it is extremely unsatisfactory. In proportion as the tube is shortened, the time when inflammation begins becomes less and less self-regulating, and at length depends solely on the degree of compression and the richness of the mixture. Consequently, anything which affects the compression, such as a dry piston, clogged inlet pipe, change in spring on inlet valve, or even a change in speed when the piston is drawing air rapidly through a constricted opening, or any change in the mixture, such as half a dozen things may cause, will result in an ignition either too early or too late, or in no ignition at all. Moreover, the operation of starting becomes a very delicate one. This defect of kicking back could be corrected by a timing valve to open and close the mouth of the tube, and in England these are much used on stationary engines. They have found little favour in America, however, and for vehicle service, at least, it is doubtful if any form could be devised whose advantages would overcome the defects of its added complexity.

It is often thought that the incandescent tube gives a more certain ignition than the spark, and it is unquestionably easy to find cases in which the inflammation propagates more rapidly from

the tube than from the spark. This is probably attributable to the relatively large igniting surface presented by the former, as compared with the minute dimensions of the spark; but the energy of the spark has much more to do with the rapidity of combustion than is sometimes supposed. It is well known that a poor mixture requires a strong spark, but it is not so commonly understood that a spark which is quite sufficient at slow speed will fail to burn the charge fast enough when the engine's speed is considerably increased. Within limits this can be compensated for by increasing the lead; but the lead, while necessary, should, for the best efficiency, be no greater than needful; and it may be set down as a rule that all high-speed engines should have a strong spark.

We see, therefore, that, despite its simplicity and dependability, there are other reasons for the incandescent tube's disbarment from vehicles than the fear of our *chauffeurs* lest they be "blown up" in the midst of their sport. For the reasons given, only the most efficient types of sparkers can be justified in its place; but the logic of the situation points to the development of the electric igniter, in spite of the problem it presents, rather than to the retention of the simpler but less adapted incandescent tube.—By Herbert L. Towle, in the *Horseless Age*.

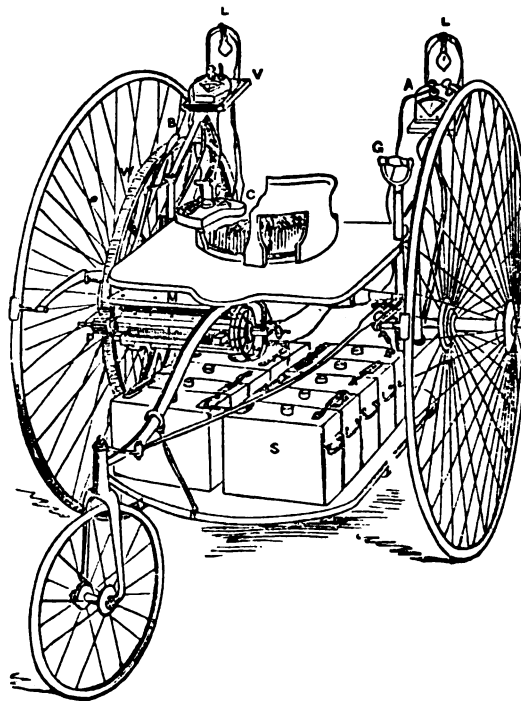
AN EARLY ELECTRICAL VEHICLE.

ELECTRICITY has come so much to the front in recent times that there are but few who stop to think of the great changes it has wrought during the past twenty years. Turning over some old papers the other day we came across the accompanying illustration of an electric tricycle said to be the first ever propelled and lighted by means of accumulators. The following account of the vehicle is taken from the *Graphic* of December 23rd, 1882:—"The latest development in the use of accumulators is the electric tricycle of Professors Ayrton and Perry. No work is done by the rider; the little black boxes, *S*, carried on the base board, contain the stored electric energy pretty much in the same way as a horse's body contains its breakfast of oats and hay—with this difference, that in the accumulator it is the receptacle alone which has weight, so that neither on receiving its feed in the morning nor in discharging its power during the day does the accumulator gain or lose in weight. The rider sits on the seat (shown in section in the illustration) with the steering handle *G* in his right hand, and with his left on the electric supply tap *C*. If he wishes to go faster or uphill he turns on the tap a little, lets the electricity run out of the boxes faster, and thus causes the motor *M* to work more powerfully; while, on the contrary, if he is going along the level, or down hill, he can shut off the supply tap more or less. Indeed, in some cases, we understand that the inventors have arranged that, in going down hill, the electro-motor which generally uses up electric power is converted temporarily into a generator and furnishes electric power, thus charging up the accumulators and acting as a brake. The economy arising from this double function of the motor is analogous with what would occur if, when an ordinary carriage went down hill, putting on the brake not only hooked the nosebag on to the horse, but generated the oats necessary to fill it up for each feed.

"The motor seen under the seat in our illustration, although small enough to be used in a tricycle, is exactly of the same size as that used to drive a twelve-foot metal lathe, and hence an idea can be formed of the power it can exert. The present electric tricycle is a converted one, that is, the ordinary foot treadles and chain gearing have been replaced by the electric arrangements; but we understand that the inventors, encouraged by the success of this first machine, have designed a strong light tricycle, especially adapted for being worked with their patent electric motor, fed by accumulators. With the present converted tricycle, when weighted with a rider of average weight, and with sufficient accumulators to propel it for two hours, the measured mile can be run in eight and three-quarter minutes, corresponding with a speed of nearly seven miles an hour. The actual horse-power which is being expended at any moment is seen from the readings on the ammeter *A* and voltmeter *V*.

"Another peculiarity of the electric tricycle is that when going at the highest speed, although the consumption of the power is greater than when going slowly on the same road, the waste of electricity is much less, that is, the faster it goes the more efficient is the whole arrangement. On the other hand, when the electric supply tap is turned off, and the tricycle is at rest, the waste in the accumulators is very small, the tricycle stands for days ready for immediate use, and there is no waste analogous with that of an unused horse eating his head off.

"But although an electric tricycle ceases using up its last meal of electricity directly it stops, and requires no feeding while motionless, still it must be fed periodically if used regularly. Until the time when the tricyclist can dismount at his inn with the certainty that in the morning he will find his accumulator



fully charged up with the electric machine of the inn, also used for lighting and agricultural purposes, electric tricycle tours must be limited. But when that time (not probably so very far in the future) arrives, the tricyclist will find the charge in his bill for the electric feed one of the smallest of the items entered."

A BUTTON which may be worn on their coats by members only (and not by their servants) has been adopted by the Automobile Club. The regulations as to wearing the button are the same as those which apply to the wearing of the Club badge. The button is black with a small monogram of the club in gold.

THE Rev. Dr. Minot J. Savage, in company with Mr. Roland R. Conklin and family, of New York, have just returned from an automobile tour through Normandy, Brittany, and Touraine. Mr. Conklin brought his automobile with him from America, where it was built. The car, which is especially adapted for long touring trips, holds six persons, as well as baggage. Mr. Conklin and family will remain in France until the middle of September, and are contemplating a tour in the Pyrenees before their departure.

THE British Consul at Munich, Bavaria, in his recently-issued report remarks that, "Until May last only twenty-five duly licensed automobiles, whose drivers had given satisfactory proof of their skill to the police authorities, were allowed to circulate in Munich, but the restriction as to the number has now been withdrawn. A maximum of 12 kilometres per hour (about 7½ miles) is proposed to be adopted in the town, but certain streets are prohibited, and when passing through archways, automobiles must travel at a foot's pace. Visitors should buy a plan of the town with the prohibited streets marked in red."

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

An American Automobilist.

It will doubtless be remembered that in May last a certain Mr. Albert C. Bostwick purchased M. René de Knyff's "Tour de France" car, the price paid being quoted as £2,400. Later on in the year, or, to be exact, during the first week of June, Mr. Bostwick covered himself with glory in the Bordeaux-Perigueux-Bordeaux, when he steered the Panhard into third place, the men in front of him being M. Levegh on his this year's Mors, and M. Giraud on the new Panhard. After a few months' experience of French automobilism, Mr. Bostwick has now returned to New York, taking with him not only his own Winton car, which he brought to Europe, but also the "Tour de France" winner and three other Panhard vehicles, as well as a motor-tricycle.

A Costly Car.

APROPOS of high prices paid for racing cars, I learned the other day that Lord Carnarvon had purchased M. Charron's winner of the Gordon-Bennett cup and the same car that M. Voigt drove into second place of the Paris-Toulouse course. The price paid, I am told, was 75,000 francs, or £3,000.

The Voiturette Competition.

It is on Monday next, the 13th instant, that the Voiturette competition organised by the Automobile Club of France, under the direction of the Exhibition authorities, will commence at Vincennes, and during five days the gallant little vehicles will be put through their paces. As in previous contests of this class, the jury will base their report and adjudge the awards upon the following points:—1, The consumption of fuel or of energy; 2, the working of the motor; 3, the facility of steering; 4, the brakes; 5, the comfort of the vehicle. A couple of categories are provided for by the governing regulations, the one reserved for vehicles not exceeding 250 kilogrammes in weight unloaded and provided with two seats side by side, the other for two-seated cars weighing unloaded 400 kilogrammes or less. The latter class is required to be fitted with a reverse gear. Two routes have been selected by the organisers, and the competitors will be required to cover each itinerary two or three times and in the order directed by the jury. Each route is of about 160 kilomètres in length, and the cars will make some 63 kilomètres in the morning and complete the journey during the afternoon. The speed will not be permitted to exceed 30 kilomètres per hour, but over certain portions of the route the vehicles will be timed. However interesting these competitions may be to those interested in the automobile industry, the general public takes but little interest in them, and nothing but a race attracts a crowd of anything like respectable dimensions.

Certificates of Capacity in Paris.

ONE effect of the activity displayed by the Parisian police ever since April last is the enormous increase of applications for driving licences, as shown by the official figures recently published by *Le Vélo*. Formerly two-thirds of the men who motored simply chanced matters and went to no trouble whatever to obtain the legal authorisation, but all this is changed, and automobilists are now applying in their hundreds for permission to conduct their oily steeds. And, after all, what is it? A certain amount of trouble in gathering together the various papers and a tiresome wait of some weeks until it graciously pleases the examiner to call upon one to demonstrate his skill, or lack of it. That is all. But, apart from these drawbacks, the affair is a mere trifle and the examination only a short run with an agreeable companion. Personally, I am entirely in favour of the examination system, and the sooner that it is adopted in England the better will it be for all connected with

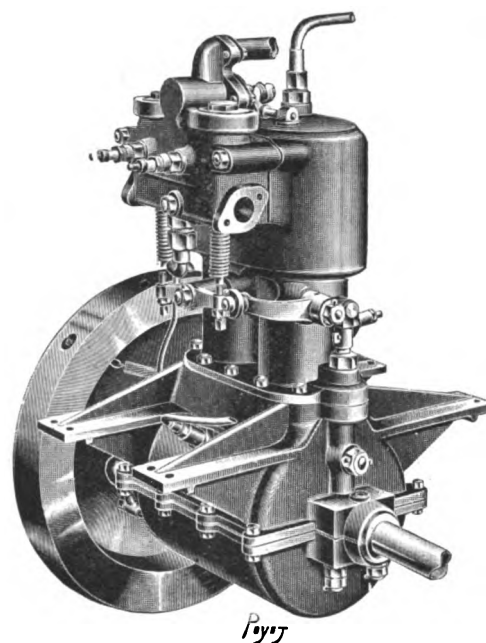
the industry and the sport. Its enforcement in England should certainly do something to prevent the occurrence of those accidents arising from the impetuosity of the embryo *chauffeur*, whose delight at driving a car for the first time outruns his skill and discretion. How often does one see that Mr. So-and-So, having just bought a car, was making in it his first run when the accident occurred? Why, frequently; and all this might be avoided by the enforcement of an examination. Here in France the demands this year as compared with the like period in 1899 are as follows:—

	1899.	1900.
April	114	318
May	206	780
June	135	312
	455	1,410

or an increase of nearly 1,000 *chauffeurs* duly licensed to promenade *en automobile*.

THE "CYCLOPE" VERTICAL PETROLEUM-SPIRIT MOTOR.

IN our issue of July 21st last we published an illustrated description of the Augé petrol car, which is fitted with a two-cylinder horizontal motor of 5 h.p. This engine, which comprises several special features, is now being made in the vertical form, as shown in the accompanying illustration. The



cylinders are, of course, water-jacketed, while electrical ignition is adopted. The normal speed of the motor is 600 revolutions per minute, but by means of the variable ignition this can be regulated as desired between 300 and 1,200 revolutions. Messrs. Daniel Augé and Co., of Levallois-Perret (Seine), France, are the makers.

MR. T. BURT, of Commercial Road, Totton, whose dépôt is on the main road from London to Bournemouth, is now carrying a stock of motor-car spirit.

THE Touring Club of Belgium is organising a touring congress, to be held at the Belgian Pavilion of the Paris Exhibition on the 13th inst. One of the objects of the congress will be to overcome the difficulties which official formalities now put in the way of automobilists in foreign countries.

AN electric omnibus, the necessary current for which is taken from an overhead conductor on the same lines as that adopted for electric tramways, was put in operation at the Vincennes annex of the Paris Exhibition last week. The system is due to Messrs. Lombard and Gerin.

MOTOR CARS IN AUSTRALIA.

(From Our Own Correspondent.)

MELBOURNE, JULY 3RD.

MATTERS are now beginning to liven up a bit in the way of motor-vehicles, there being quite a number running, including a French voiturette and a locomobile. The latter, however, received a scorching the other day from the burner flooding, causing the gasoline tank to go. As this is the third motor car fire we have had it is hardly to be wondered that the public are a little doubtful as to their safety. From the little I saw of this car I am of the opinion that it is too much of a toy for the roads in this colony, which from their unmade condition require strongly-built cars in order to give satisfaction. Gasoline at from 2s. 9d. to 5s. 6d per gallon is rather too much to preserve economy, more especially as it is only to be procured in the capitals. This, no doubt, accounts for so few of the motor-tricycles being used, although there are a dozen or more in Melbourne.

The Thomson car has now been registered as "The Thomson Motor Car, Limited," and I hear that two light cars to seat two or three are being built. These cars are to have double compound engines, developing up to 10 h.p., and will use kerosene oil fuel. Bulk receivers are now being erected in Melbourne for the importation of kerosene in tank steamers, which must have a cheapening effect on the oil market, and add to the value of a motor-car using liquid fuel.

A Sydney house has imported a voiturette, which they are listing at £262 10s. (250 guineas). As I understand there is no duty on these in New South Wales, it seems that too much profit is trying to be made. This is rather a pity, for it gives the general public the impression that motor-cars are an expensive luxury and creates a depressing effect on likely supporters.

FAILING TO STOP.

AT Ke-steven Petty Sessions, held at Lincoln last week, Reginald G. Williams, of Lincoln, employed by Mr. K. M. Wright, was summoned for not pulling up a motor-car of which he was the driver, when requested to do so. The case was proved by Superintendent Clarke, who said that he put up his hand, but the defendant did not pull up, and the result was that his horse would have bolted had not Superintendent Dain held its head. Defendant contended that he did not see the uplifted hand until he was forty yards away. The magistrates described the case as a serious one, and fined the defendant £2.

FURIOUS DRIVING CASES.

BEFORE the Kidderminster Borough Bench, last week, Rupert Turner, motor-car driver to Mr. Howard Jobson, of Summer Hill, was charged with having driven furiously down Bewdley Hill on July 25th. Mr. Spencer Thursfield defended. P.C. Wilson said the car was driven at a rate, in his opinion, of eighteen or twenty miles an hour. Witness shouted, and after some little time defendant stopped, but went on again. He subsequently saw defendant, who admitted that probably he was going beyond the regular pace. Mr. Thursfield said Mr. Jobson's instructions were to drive slowly, and on that particular day, as the governess and children were in the car, Mr. Jobson told Turner to be careful. Mr. Jobson was sorry that the proper pace should be exceeded. He asked the Bench if they could take the course of allowing the case to be withdrawn on payment of costs. The Mayor said there was no desire to check the development of the motor-car industry, and they were ready to assent to the course suggested, but drivers of motor-cars must be careful in the town. He suggested that in addition to the payment of costs a contribution should be made to the poor box. Mr. Thursfield paid the costs, 9s., incurred, and gave half a guinea for the police poor box.

At the Bournemouth Police-court, last week, William Henry Butler, a motor-car driver, was summoned for driving a motor-car at speed greater than was reasonable and proper in Old Christchurch Road on 21st July, having regard to the traffic on the said highway. Defendant, who was represented by Mr. E. H. Bone, pleaded not guilty. Police-constable Baugh said that at twenty past two o'clock on the day in question he was standing near the cabstand opposite Firs Glen, when he saw two motor-cars coming down Old Christchurch Road from the direction of Holy Trinity Church. The front car was driven by a man named McArdle, and defendant was in charge of the other. They ran at the rather brisk pace of eight to ten miles an hour until they arrived opposite the cab stand, when suddenly Butler pulled out behind McArdle's car and dashed by at the rate of twelve to fifteen miles an hour, and before he had gone far he obtained a lead of

two or three hundred yards. When spoken to on a later day defendant said he did not know that he was going particularly fast, and explained that his car was geared higher than the other. Having regard to the traffic in the road at the time and the fact that defendant was very much to the right of the road, witness considered the pace dangerous. Sergeant Thomas said he noticed defendant laugh at McArdle as he "swung" by him. He considered the pace dangerous. He put the pace at twelve to fifteen miles an hour. Cross-examined: Defendant's car belonged to the Canford Cliffs Company. He did not think any driver employed by that company had ever before been prosecuted. William John Masters, a cabman, gave corroborative evidence. Mr. Bone: Motor-cars do drive quickly, don't they? Witness: Quicker than we are allowed to drive. Mr. Bone: And that is the grievance? Witness: It does not grieve me. Mr. Bone urged that defendant did not cause the least interference with the traffic on the highway. The car could not travel at a greater speed than twelve miles an hour, and defendant in the alleged offence was passing a car the utmost speed of which was ten miles. The statute allowed these motor cars to run at a maximum speed of twelve miles an hour. He urged that the evidence showed that the witnesses had an aversion to motor cars generally. Defendant, who said he was formerly employed by the Electrical Cab Company, London, gave evidence on his own behalf, and said he passed McArdle's car in the ordinary way, and could not possibly have gone at a greater speed than nine miles an hour at the spot in question on account of the rise of the road. The road was clear when he passed McArdle. Going at the rate of twelve miles an hour he could stop the car within a space of nine feet, the length of the vehicle. He denied any intention of racing with McArdle. Frank Holloway, secretary of the Canford Cliffs Motor Omnibus Company, said when defendant's car was in perfect condition it could not possibly run more than twelve miles an hour. Superintendent Foster objected to this evidence, and the Mayor agreed that what the Bench had to decide was whether the car was driven at a speed which was unsafe. The Bench convicted, but taking into consideration that defendant had never before been summoned, he was only fined 5s., and 14s. 6d. costs. The Mayor said there was no doubt that motor-cars were driven at too great a rate through the town. It had been spoken of in the Council, and by different people. He hoped the drivers would drive more steadily in the future, or there would certainly be a bad accident.

Charles Laner, who had driven a motor-car from Hull, bringing a friend with him, was summoned to the Bridlington Petty Sessions on Saturday for furious driving on Sunday evening, the 29th ult. It was proved by P.C.'s Robson and Lownsbrough, as well as by several residents, that on the evening in question, when the streets were crowded, the defendant went round a large lamp two or three times at a rate of ten or twelve miles an hour. John Coward, a cabman, saw the strange pirouetting of "the man with the motor-car." Mr. T. Hart, of Hull, said that the defendant ran the machine round the lamp to get an ignition. He was pedalling, as one of the working parts was broken, and consequently he could not get up a speed of more than four or five miles an hour. Colonel Hudson, the presiding magistrate, said there was no need for the defendant to ride round the lamp-post, causing people to run to get out of the way, and he would be fined £1 and costs.

SIR HENRY ROBINSON, Chairman of the Irish Local Government Board, has entered the ranks of automobilists.

THE Montreal Automobile Company, of Montréal, Canada, with a capital of £50,000, has applied for a charter of incorporation.

A LEGAL work, "The Law and Practice relating to Letters Patent for Inventions," by Mr. Roger W. Wallace, Q.C., and Mr. J. B. Williamson, was published last week.

WORTHING has licensed a number of motor-cars for sixpenny trips into the country, and many visitors are availing themselves of the vehicles.

INCLUDED among the papers to be read at the International Congress on Hygiene and Demography, at present being held in Paris, is one by Dr. Briand on "Hygiene and the Automobilist."

IN answer to "T. S." and other enquirers the address of the maker of the Centaure bicycle, illustrated in our last issue, is M. Flinois, 205, Rue de Flandre, Paris.

La Locomotion Automobile announces that the Darracq Company, of Suresnes, Paris, have just completed the construction of a 50 h.p. racing car.

A NEW cycle track is to be opened at Navan, Ireland, on the 15th inst., when a race meeting will be held. Included in the programme is a five-mile motor-cycle race—the first to be held in Ireland. The new track is a cinder-surfaced one.

APPLICATION is to be made for a charter for the Canadian Motor-Vehicle and Battery Company, with a capital of £40,000. Hamilton, Ont., will be the headquarters of the company, which proposes to manufacture motors and storage batteries, and build electric and petrol automobiles.

THE Motor-Car Journal.

Vol. II.]

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COMMENTS.



IT was only early in June last that H.R.H. the Prince of Wales received delivery of his 6 h.p. Daimler phaeton. Since then he has had several trips on his car, and is apparently more than ever impressed with the advantages of automobiles, not only from the point of view of sport, but also as regards their advantages on the practical side, for we learn that the Daimler Motor Company are at present engaged on the construction of two additional cars to the order of the Royal *chauffeur*. One of the vehicles will take the form of a 12 h.p. wagonette with seating accommodation for eight persons, while the other will be a fourteen-seated car of special

design, the front seat—for three persons—being located directly over the engine. The latter vehicle, the body of which will be of wagonette form, is intended for the use of gun loaders and servants, and is to be used in connection with the Royal shooting parties.

A Whitsun Tour in Ireland.

THE interesting description of the recent motor-car tour through Ireland has caused in the mind of many motorists a keen desire to visit the sister isle, and several friends have spoken to us on the subject, urging the importance of endeavouring to arrange a trip next Whitsuntide, to last for say a fortnight. Such a trip, we are convinced, would be most popular, and of its success there could be no doubt, but we are afraid the organisation of such an excursion would be outside the province of the proprietors of this journal. Personally, the writer, while confessedly knowing nothing of the roads, and little of the geography of Ireland, would be delighted to assist any organisers in such a scheme; but he is of opinion that these matters of organisation are best left in the capable hands of the Automobile Club. As a matter of fact, the subject of an Irish tour has often been discussed in the smoke room of the club by members, and favourable opinions have been expressed of the beauties of such a tour. That it would be successful there is not the slightest doubt, and that it would prove the most popular and pleasant of all the enjoyable trips organised by the Club we most certainly believe.

The Behaviour of Motorists.

OFTEN have automobilists been urged to be considerate with regard to nervous horses and equally nervous drivers, and in ninety-eight cases out of a hundred courtesy and thoughtfulness are the rule. Unfortunately, there are some motorists who are as heedless of the rights of the road as are some drivers and riders of horses, and the result is to bring discredit upon all interested in the new pastime. Such action is rarely to be

laid to the charge of automobilists, and that is well. For whenever devotees of the motor-car are guilty of anything savouring of incivility it is blazoned abroad, and even made the subject of discussion by local authorities.

Morpeth and Motors.

SUCH a case has just happened at Morpeth, where the Highway Committee of the local Rural District Council have secured the unanimous adoption of a resolution to urge the County Council to "protect the public against the increasing motor-car traffic." It appears there have lately been two regrettable accidents in that locality, and in each case the motorist concerned went on his way never heeding the dangerous condition of those he had overtaken. The chairman of the district council urged that motor-cars should be conspicuously numbered, so that the identification of the delinquents could be made possible. There is no doubt that great harm is being done by thoughtless drivers, and the sooner they carry out the Automobile Club's injunction to reasonableness and gentlemanly behaviour the better for the future of the industry.

Touring in the West.

TOURING by motor-car is well to the fore this year, and it is certainly astonishing in what out-of-the-way places automobiles are seen. In the West Country—on the moors—several have been met during the last fortnight. The horses we find, as a rule, are somewhat troublesome, and the narrow lanes render the question of "hacking" a matter of courtesy on one side or the other. The West countryman, as a rule, however, does not lose his temper, but rather seems to enjoy the antics of his horses. Possibly he knows them. We may mention that many of the main roads of Cornwall are in very fine condition just now, although they will be found rather hilly. The lanes and cross-country roads are usually loose, and frequently very steep and narrow. Devon roads and lanes are well known. They are narrow, with steep inclines, winding declines, and tortuous to a degree in their windings.

Collision at Torquay.

THE Singers of Paignton are well known to the motor world, and, as a rule, the family largely use one or other of their several cars in their journeyings about the neighbourhood. On Monday last one of their cars was driven to Torquay, where some purchases were made. The car contained Mrs. Paris Singer, her mother, and another lady, while it was driven by one of the family's drivers. On returning along the Paignton road a heavy brewer's dray ran into the car and ripped out a number of the spokes of one of the wheels, so that it was impossible to proceed. The ladies were only slightly shaken, and were able to proceed home by train.

That 7s. 6d. Motor-Car.

THE story of Mr. Martin Rucker having sold his burnt motor-car for three half-crowns proves to be one of the many comicalities emanating at the cyclists' camp at Harrogate. It is quite true that Mr. Rucker did hold a mock auction over the remains of his car, and although a magnificent offer of 7s. 6d. was made, the reserve price was not reached, and the car has, we learn, since been sent to Coventry to see if a repair can be effected.

A Tricycle Somersault.

QUITE a crop of motor accidents are reported from Ireland; but fortunately none of them have ended with serious consequences, to the riders at least. The Hon. Leopold Canning, who claims to have the fastest motor trike in Ireland, had a nasty upset on the road near Coleraine, his tricycle turning right over and pinning him underneath. He had to be rescued from his position by some wayfarer, and luckily was found to be uninjured beyond a few bruises and a severe shaking. It is surmised that he took a corner at too big a pace, and, expert motorist as he is, was unable to save himself.

Novice Accidents.

THE other accidents are in the novice class, and we think may be attributed to the dangerous custom of attempting to motor without sufficient practical knowledge. A clergyman in one case undertook to drive his De Dion voiturette after a few hours' coaching. He was spinning along at a rapid pace when a cyclist suddenly cut across the road. It was the first emergency in which the reverend gentleman had been involved, and consequently he had not that instantaneousness of action which is essential to the motorist. The car crashed into the cyclist broadside, and then the whole mix up went into the ditch. Marvellous to relate, the passengers were not seriously hurt; but the motor-car had its axles broken, whilst the bicycle was completely wrecked. Mr. T. Ireland, of Belfast, had another nasty experience near Bangor. A shying horse caused him to swerve his car so indiscreetly that it turned right over, shedding the occupants precipitately. Once again good fortune prevented any serious bodily mishap.

The Old Order Changeth.

It is indeed pleasant to hear that folks this year, instead of, as hitherto, scampering off to the Continent intend spending their holidays within our own country, for it is only just recently that the beauties of Great Britain are beginning to be appreciated. In the past the tourist has had good reason and cause to put up with the inconveniences of a journey across the Channel rather than the inferior accommodation grudgingly found and bestowed in this country. Now much has been changed. Branch lines of railways and palatial hotels have been opened up not only all round the coast but in many inland places. The best and most modern Continental hotels have not only been copied in this country but improved upon, and the management of many of these modern caravansaries has been placed in the hands of men with names which attract the traveller. In touring we have usually found it best to stay at the latest and most up-to-date hotels. The old-fashioned hotels, as a rule, we have found often rely upon a past reputation, when the proprietor could charge according to what he considered the length of a customer's purse. They had, perhaps, their advantages, for some people like to be known by their name, and object to be just a number, and nothing more, in an hotel. But, still, entering one of these old-fashioned hotels, a guest is naturally a trifle upset by observing the following notice conspicuously displayed in the hall (copied verbatim):—

"Visitors to the Hotel are expected to conform to such regulations as the manager may find it necessary from time to time to make for the general comfort of those staying in the House."

'Any person who interferes with the comforts of other guests, or with the proper management of the Hotel, may be required to leave.'

'Visitors moving at night about the Hotel are reminded that others, possibly invalids, may have already retired, and that every care should be taken not to disturb them.'

'Visitors are requested not to smoke in any part of the Hotel other than the billiard and smoking rooms. The attendants are instructed to see that this regulation is observed.'

Such a notice chills a traveller, especially when he may have just left a modern up-to-date hotel, where the best portion of the ground floor was devoted to the lounge, where electric light was available in all the rooms, and where, in the hotel such a notice is displayed, he finds lamps in the public rooms and candles in the bedrooms, where the smoking-room is capable of holding half-a-dozen smokers, who, by the way, if they sat long would stand a good chance of being "kippered."

An Enthusiastic Chauffeur.

THE well-known Mr. Staplee Firth appears to be just as much at home—to quote an oft-used idiom—with petrol as with steam cars, for the other Sunday he successfully drove a Daimler phaeton with a large party aboard a distance of close upon 60 miles. In the morning he went out with the *mécanicien*, and after a few hints drove the car from Upper Tulse Hill round Dulwich and Herne Hill, altogether about ten miles, by way of experience. After lunch, with five aboard, Mr. Firth drove the car, via Mitcham and Sutton, to Kingston, where two additional passengers were picked up. The journey was afterwards continued via Esher and the Claygate Woods to Leatherhead, where tea was partaken of. Fortunately the weather held out for the greater part of the day, but about two miles from home a very severe storm was encountered. This notwithstanding, Mr. Firth landed his party safely about 9 p.m., and he is to be congratulated on the result of his first attempt at driving a Daimler car.

A Good Run on a Werner Motor-Bicycle.

A GOOD run on a Werner motor-bicycle was made on Monday last by Mr. T. Frederick Hunt, when he journeyed from Ealing to Edgehill in Warwickshire. Leaving Ealing at 8.55 a.m., a route via Amersham, Aylesbury, Buckingham, and Banbury was followed, the destination being reached at 3.20 p.m. Deducting stoppages the net running time for the 77 miles came out at 4 hours 44 min. As Mr. Hunt only purchased the machine from the Motor Manufacturing Company, Limited, about a month ago, it is evident, in view of the successful run, that the bicycle and its rider already fully understand each other.

The 16 h.p. Napier Car.

MR. EDGE'S 16 h.p. Napier car is getting about. The other week it was in France participating in the Paris-Toulouse race, while on Monday evening last it was started on a journey to the north of England. Mr. Edge had as passengers Mr. G. H. Smith and another gentleman, and leaving town about 8 p.m. Dunstable was made for, the only stop on the journey being when darkness came on to light up the lamps. An early start was made on Tuesday morning, and Birmingham safely reached shortly after 9 a.m., the trip having been made without it being necessary for the driver or any of the passengers to dismount. We have not heard so far of the car's behaviour since Tuesday, but as it was then going strong we have no doubt its arrival in the North has created considerable interest.

Motor-Cars at Bournemouth.

FROM personal observation we find that no less than fifteen motor-cars are at present being used in the public service at Bournemouth, and are meeting with their due reward in the shape of the patronage of visitors. For some reason or other the motor-vehicles have not yet won the goodwill of all the local residents, as the police have evidently received instructions

to pay them special attention for a time. These instructions or suggestions are the outcome of a letter which the Mayor said had been received on the subject of the speed of motor-cars through Bournemouth; and, in asking Superintendent Foster to let police officers give the matter attention for a while, his Worship said that if any of the drivers of motor-cars were brought there again on a charge of furious driving they would be severely dealt with. Asked what the limit of speed was, the Mayor replied that he did not think there was any, but added that the drivers must have due regard to the traffic of the street or road along which they happened to be passing, and must regulate their speed with due regard to the safety of the public.

Motor-cars in the Eastern Counties.

To say that motor-cars are not on the increase in popularity in the eastern counties would not be in accordance with the truth. Mr. Frank Morriss, of King's Lynn, is running cars at several seaside resorts on the east coast, beside which, we noticed that two of his cars were in evidence at the Otter Hunt of the Norfolk Otter Hounds at Holme on the 1st inst.; and again the same week, at the Annual Puppy Show of the Norfolk Hounds at Barwick, near Fakenham, two cars might have been observed in the accumulation of landaus, traps, etc. Much interest and appreciation was displayed by the gentry present at the utility of the motor-vehicles, and the easy manner in which they were manipulated amongst the congregation of conveyances in the courtyard. Especial interest seems to have been evinced in the cars by the Master of the Hounds, Mr. Seymour, who as a result of his appreciation, expressed his intention of shortly joining the ranks of motorists.

Public Services in Scotland.

MR. SIMPSON, a retired farmer, who was for many years resident in the Skene and Echt district, has made arrangements to give improved facilities of communication between that district and Aberdeen, by starting a motor-car service. A preliminary run took place on Saturday last, when the car went on a trial trip from Aberdeen. The vehicle, built by Stirlings Motor-carriages, Limited, Hamilton, is designed to carry ten passengers, including the driver. The party on Saturday consisted of friends of Mr. Simpson and a representative of Messrs. Stirling. The car started from the city at 10.45 a.m. and reached the scene of the cattle show at Cluny at 12.15. In the afternoon the party proceeded over the hills to Torphins, which was reached after a run of an hour and fifteen minutes, though some of the gradients were as steep as 1 in 18. After being entertained at lunch by Mr. Simpson the party journeyed to Banchory, and the run from that town into the city occupied exactly an hour and a quarter at an easy coaching pace. The motor went very smoothly over the fifty or sixty miles to which the trip extended, and not a single hitch or stoppage was experienced along the entire route.

Opposition at Cardiff.

THE question of licensing motor-cars for public service at Cardiff, recently referred to in these columns, came up again at the meeting of the town council last week, when, on the motion that the matter should be referred back to the Cabs Committee, Mr. T. Andrews said that the chief factor that influenced the committee in deciding to refuse the licences was that before long the corporation would be running electric cars on the route right to the borough boundaries, and they did not care to allow the multiplication of competing services. Mr. Fox said that the motor-cars would be run for the benefit of a large number of people who opposed the extension of the borough boundaries, besides which they would be, if they granted the licences, creating another factor of opposition in case of further extensions and operations proposed by the corporation. Mr. A. M. Ingledew urged that the principle of the necessity of a service on the route was admitted by the existence of an inferior service, and also by the fact

that the corporation proposed to extend the tramways in the Whitechurch direction. If they persisted in refusing to grant the licences they might find the company applying for a mandamus. He was convinced that there was a necessity for a proper, regular, and clean service on the route. Mr. R. Hughes appealed to the council to grant the licences in the interests of the people of the districts affected, but after further discussion the council rejected the amendment. There seems to be some inconsistency about the position, for, at the recent meeting of the Cabs Committee, the refusal to grant the licences was based on the grounds that the road was not in a fit state for such traffic; while now the reason advanced is that ere long the corporation will be running its own electric tramway along the projected route, and are not anxious for competition on the part of motor-cars.

A Lady Automobilist.

IN our issue of July 28th last we published an illustration of Mr. F. H. Butler's 6 h.p. Panhard car, with Miss Vera Butler at the helm. Since then Miss Butler has earned the distinction of being the first English lady to drive a motor-car from London to Paris and back. Mr. and Miss Butler went over to France to see the finish of the Paris-Toulouse race, the return to England taking place last week. The journey between Paris and Havre, 140 miles, was accomplished easily in



TWO JUVENILE AUTOMOBILISTS—THE TWO SONS OF DR. FARROW, OF CLECKHEATON, ON A MARSHALL CAR.

the day, and also the journey between Southampton and London in the same time. The certificate for driving an automobile, which is compulsory in France, was obtained at Havre, after passing the necessary examination before the Comptroller des Mines.

The Roads in Surrey.

SURREY is such a popular county with automobilists that it is satisfactory to find that in its surveyor they have an official who is fully alive to the maintenance of the roads in good condition. From his annual report for the year ending with March last we learn that those roads which lie in the north-eastern part of the county are in a less satisfactory condition than formerly, but this, the surveyor states, is owing to the increase of traffic and the consequent necessity of substituting a tougher material for the flints hitherto used. He considers that "while the surface of a flint road, if properly looked after, continues to improve for some time after metalling, the surface of a granite road becomes uneven, and deteriorates steadily from the day the steam roller leaves it. Unfortunately it was impossible to keep the roads near London repaired with flints, as the material

broke up under continuous and heavy traffic, and the tougher metal, notwithstanding its attendant disadvantages, must be used." He hopes, however, to be able to improve somewhat the surface of those roads in future by using granite of a smaller gauge, which, although not suitable at first in the conversion of a flint road, may be used for recoating when the large granite has formed a crust of sufficient thickness. Another point touched upon in the report is the prejudicial effect of heavy watering upon roads. He has called the attention of district surveyors to the fact that sprinkling a macadamised road slightly with water lays the dust as effectually as flooding, and does not damage the road nor make the surface dangerously slippery.

An Unprovoked Assault.

THAT the punishment hardly fits the crime will, we feel sure, be the comment of all automobilists who read the assault case reported on another page. Mr. R. Tweedy Smith had put his car up at a stable at Putney, and on returning for it he was attacked by two drunken stablemen, and subjected to various fistic indignities, with a running commentary of highly-coloured language on the iniquities of motor-cars and their owners, and the advice to "get a respectable horse and cart." Mr. Smith got off with a black eye, a cut cheek, and many bruises. The two men were brought up at the South-Western police-court, and although the magistrate described the case as an "absolutely unprovoked assault," they were let off with a fine of twenty shillings and two shillings costs each. As one of the dailies remarked, this is cheap enough to make the baiting of automobilists a popular amusement.

An Endurance Test in America.

A £200 cup has been offered for an automobile contest to be held in connection with the tests of the Automobile Club of America in November next. The contest is one of endurance, the cup going to the car which makes the fewest stops in a run of 600 miles. There is no time limit, and the competing machines may run at any speed desired. The course will be from New York to Hudson and return, a distance of 200 miles, and will be covered three times. Only machines of American manufacture will be eligible for the contest. The donor of the cup does not desire to have his name published. If the winner of the contest so desires, £200 in money will be substituted for the cup. The tests, of which this contest will be one of the principal events, are, says the *Horseless Age*, to be held in the open air; if permission can be obtained from the city authorities, on one of the avenues or drives in the upper part of the city, possibly Riverside Drive, at Grant's Tomb. The trials embrace contests displaying the control of the driver over his machine. For this purpose lay figures of horses and men are to be set up in the street, and the machines manœuvred up and down among them, the skill of the driver in avoiding the various obstructions being shown. Backing the vehicles up and down steep grades, and stopping them suddenly when going at full speed, are other tests developing the mobility and control of the machines. The trials will be held either the week previous to or immediately following the eight-day exhibition, to be held in Madison Square Garden, New York, commencing on November 30th.

A West London Prosecution.

AUTOMOBILISTS will notice with regret the result of the furious driving case brought before Mr. Lane, Q.C., at the West London Police Court last week, especially having regard to the fact that the attempted prosecution of the Hon. C. S. Rolls and Mr. E. Hutton, J.P., were unsuccessful in this court, as was the recent prosecution against Captain Langrishe. It seems to us from the evidence in this case that there ought not to have been a conviction. The police-constable swore that the rate was seventeen miles per hour, while the driver of the car, who was certainly more capable of judging the speed of his

vehicle than the policeman, put it down as seven miles. Why the police-constable's mere guess-work as to speed should be taken for gospel we cannot understand; it looks as if this supposititious statement as to speed was accepted without being carefully challenged. For our own part we should be delighted to come across a policeman who can ride a bicycle at a speed anywhere near seventeen miles per hour on the highway.

The British Association.

FOR the second time, after a lapse of twenty-seven years, the British Association will meet in Bradford in the beginning of September. In connection with the meeting there are two papers to be read in section G. (Mechanical Science) of interest to automobilists. One is by Mr. J. G. W. Aldridge, entitled "The Automobile for Electric Street Trac-tion." It is hoped that the cinematograph will be used—for the first time, it is believed, at a British Association meeting—to illustrate this paper. The second is by Professor Hele-Shaw, of Liverpool, on "Resistance on Roads." In this paper the Professor proposes to collect together all the known data on frictional resistance on common roads, and will, it is believed, strongly advocate the appointment of a committee of the Association to carry on some further experiments on rolling friction on common roads.

Trips at Eastbourne.

ELSEWHERE along the south coast something in this direction is being done, and notably at Eastbourne the provision of trips by motor-car to places of interest is being done with enterprise and spirit by Messrs. Jury and Son, whose fleet of char-a-bancs is in frequent and daily request, taking large parties to popular resorts in the vicinity. During the day there are four trips to Meads at a return fare of 6d.; four to Pevensey Bay, return fare 2s.; one to Meads and Upperton, fare 1s.; five to Pevensey Castle, return fare 1s. 6d.; one to Polegate and Stones Cross, fare 2s.; one to Hurstmonceux Castle, fare 2s. 6d.; and on three days a week a car runs to Hailsham at a fare of 2s. 6d. Short trips around Eastbourne are arranged every evening, and even this does not exhaust the efforts of Messrs. Jury and Son to popularise the motor-car, for they let cars out on hire for the day at £2 10s.; for one hour, 8s.; for two hours, 15s.; for three hours, 21s.; and 5s. per hour afterwards.

Motor-Cars and Market Gardens.

THE idea of utilising a motor haulage in connection with the market gardens near the metropolis has been freely vented in the general and automobile press of late, and it is satisfactory to see so horticultural a journal as the *Gardeners' Magazine* giving the notion its approval. It recognises that motor vehicles would obviate some of the difficulties that market gardeners have now to encounter in getting their produce to market, and considers that it would certainly pay some enterprising carrier in Kent to make the venture. He would be certain of the traffic, and might safely rely upon his vehicle if obtained from one of the standard English makers of such vehicles for heavy traffic.

The Popularisation of the Motor-Car.

DURING the recent hot weather when horses had to take to sun-bonnets, and many fell to the pavement faint or dead, the idea of the adoption of motor-vehicles for City traffic received a great impetus. No less so did the heavy rains of the past few days influence public opinion, for the way in which horses slipped and fell was most distressing. Possibly these facts have something to do with the more general appearance of motor-vehicles in the streets. One can hardly ever go out without seeing a motor-vehicle, and such London thoroughfares as Holborn, Shaftesbury Avenue, etc., are veritable automobile promenades. These are signs that show the future popularity of motor as compared with horse traction.

The English Motor Club.

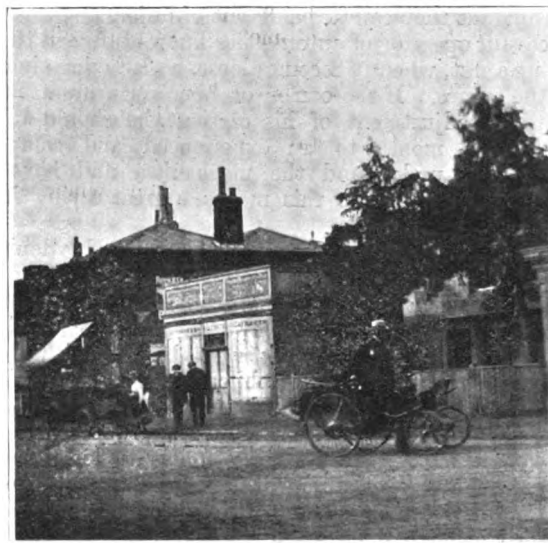
ALTHOUGH but relatively a few took part in the run of the members of the English Motor Club on Saturday last, it was none the less an enjoyable outing. There was no organised procession, the members making each their own way to the White Lion Hotel, Cobham, where, according to the programme, tea was to be served at 4.30 p.m. Mr. G. H. Smith on a De Dion trike was the first to arrive, followed quickly by Mr. C. Jarrott and Mrs. Edge on a De Dion voiturette. The next to run into the hotel yard was Mr. Roger Fuller on his De Dion voiturette, and almost on his heels appeared

From Cobham to Frensham.

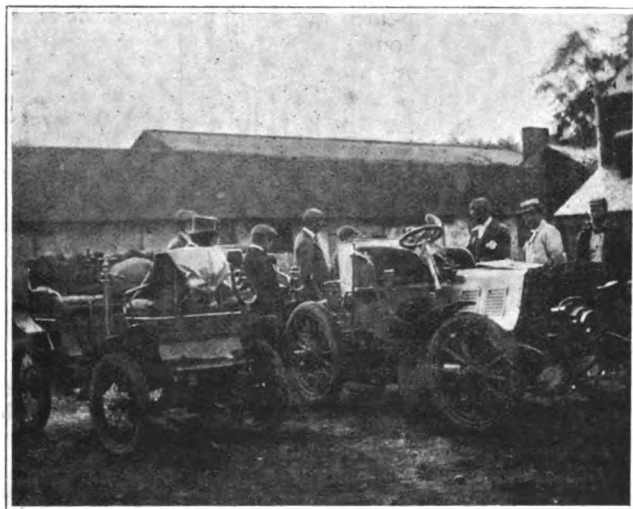
It was not till about 6.30 p.m. that a restart was made, when the number continuing the run to Frensham was somewhat curtailed. Those who set out for the latter place included Messrs. Edge and Napier on the 16 h.p. Napier; Mr. Jarrott and Mrs. Edge on the De Dion voiturette, Mr. Baily on his trike, two gentlemen on the quad, and Mr. Fuller on his De Dion voiturette. The latter gentleman, however, only went part of the way, having, like ourselves and several others, to return home the same evening. Mr. Jarrott has since informed us that Frensham was duly reached, the little party staying



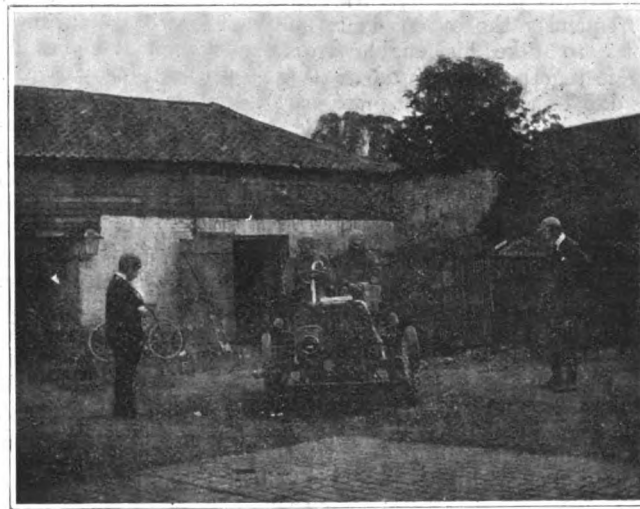
MESSRS. ADAMS AND BILLINGS ARRIVE ON THE CANELLO-DURKOPP CAR.



DR. HARDWICKE, OF MOLESEY, ARRIVES ON HIS BENZ CAR.



IN THE YARD AT THE WHITE LION HOTEL, COBHAM.



MESSRS. EDGE AND NAPIER DEPART FOR FRENSHAM ON THE 16 H.P. NAPIER.

THE ENGLISH MOTOR CLUB'S RUN—SNAPSHOTS AT COBHAM.

the 16 h.p. Napier with Messrs. Edge, Napier, and Dangerfield aboard. Two gentlemen on a quadricycle, and Mr. F. W. Baily on a tricycle, next arrived, and after a short interval Messrs. Adams and Billings turned up on one of the new 8 h.p. Canello-Durkopp cars, which came in for a close inspection. Dr. Hardwicke and Mr. Fletcher (both of Molesey), the former on his Benz and the latter on a Mors car, also ran over to Cobham, just to pass the time of day, as it were. After a pleasant ramble through the grounds of the old hostelry the little party of thirteen sat down to tea, and although the number is supposed to be an unlucky one a very pleasant hour was spent.

there until Sunday afternoon, when the cars' noses were once more turned townwards, the White Lion at Cobham being again the stopping place for tea. Elsewhere in this issue we reproduce a few snapshots taken at Cobham.

MESSRS. A. DAVIS AND CO., cycle makers and engineers, whose premises adjoin Tooting Junction Station, inform us they undertake repairs of all kinds. They also keep a supply of motor-car spirit in stock.

PRACTICAL HINTS ON MOTORING.*

MY experience up to date with automobiling is that the greatest trouble confronting the makers and sellers of automobiles is to convince people that the motor-vehicle of to-day is a carriage with an engine or motor in it, and that it is a piece of machinery that needs oiling and attention. An engineer oils his engine every morning and noon and frequently between times, knowing full well that without lubrication the engine will not run correctly. When we get operators of automobiles to thoroughly understand that a motor-car is an engine or motor placed in a carriage, and that it must be lubricated and attended to as such, then we will hear few complaints about the thing, as they call it, being out of order.

A successful operator of automobiles knows full well that by tightening up a nut, when it becomes loose, he is saving time and trouble in the future. If the owner or operator cannot master the lubricator or adjustment of his carriage he should take it regularly twice a month to an experienced and competent person, who does understand the mechanism and have this attended to by him. To do this means a great saving in the expense of repairs.

Many people say to me, why must I do this, why don't you build a machine which does not require any attention? I tell them frankly that such a thing is impossible. You eat, but you soon get hungry again, because the laws of nature demand that the subsistence on which we exist shall be replenished very often; it is just so with the automobile, it must be lubricated and attended to every day, and when run all day should be lubricated twice a day. I have found on long runs of 75 or 100 miles that it pays to stop every 20 or 25 miles to look over the motive power and see that all is working correctly. Sometimes a nut would work loose or some part of the machine was not oiling properly. These defects when looked after always saved me from breakdowns and serious and unpleasant delays.

In repairing automobiles of all makes, styles, and sizes a thoroughly practical knowledge of steam and petrol engines is absolutely necessary, without which you will find that you have a much greater problem on your hands than you bargained for. Very frequently the owner of an automobile will get a good machinist to take his engine apart, and when it comes to putting it together again and starting it up, it refuses to go. This is due to the fact that some part is not put back exactly in the right position. This trouble occurs more in hydro-carbon or petrol engines than in steam engines, but very frequently we find it in steam engines, too. The proper method is to get your car overhauled by persons who have made a special study of automobile mechanisms, and who have had experience in that line.

In hydro-carbon engines, the most serious troubles are due to the sparking points becoming coated or corroded so that the engine will miss explosions. These should be dressed slightly about once a month or at least every six weeks, taking care that oil does not get on the wires so as to form a short circuit outside of the cylinder and thereby prevent the charge from igniting. Considerable trouble has been encountered from piston packing rings being cut aslant. As soon as the rings are worn just a little the compression is allowed to escape around the pin and through the slot and the engine in consequence loses a great deal of its power. I consider a better plan for petrol engine packing rings is to make the ends overlap one another. In a half-inch wide ring have the ends dressed to $\frac{1}{4}$ inch right and left and overlap, then as the rings wear you do not lose compression as in other forms.

In transmitting power from the engine to the running gear of the carriage I fully believe that the use of a friction clutch is advisable, although some are using a positive or gear clutch, in which gears are made to shift from one wheel to another, frequently, however, breaking off the teeth and doing a great deal of damage to the working mechanism. By using a friction clutch, the breaking of gear teeth is avoided and a more even transmission is secured. The clutches need setting up frequently to prevent slipping of parts and consequent grinding.

* By W. F. R., in the *Chicago Automobile Review*.

That which appears most strange is that one operator may take a certain carriage and run it for hundreds of miles without the slightest mishap and another operator takes the same car and runs it only a few miles and smashes something on it. As an illustration I may take as a case in point the following: A certain carriage was run one week by a customer and pronounced worthless because something broke on it nearly every day. The same carriage was given to another customer, who has operated it two months without the slightest mishap to the carriage. Why is this? Is it the machine or is it the operator? An operator should become as familiar with his machine as possible, so that he may know by the sound whether everything is working right or not. He should always remember that he is operating a machine, which, when properly cared for, will afford him more pleasure than anything I know of, but in order to secure the satisfaction of successful running, the little wants of the mechanism must be attended to and everything maintained in first-class condition.

THE LEPAPE PETROL CAR.

M. H. LEPAPE, of Puteaux (Seine), France, whose connection with automobiles extends over the last ten years, has kindly sent us the accompanying illustration, together with some particulars of his latest type of car. In doing so he remarks that his main object has been to simplify and to diminish as much as possible the number of organs which

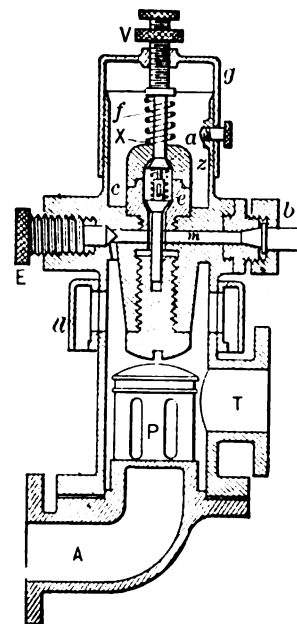


FIG. 1.—SECTION OF LEPAPE CARBURETTOR.

go to form a modern motor-car, and adds that the vehicle which we are about to describe is the result of protracted experiments both with the various parts and with complete vehicles. As will be seen from the illustration, the lines of the car are quite new. The frame is built up of steel tubing joined together by forged lugs. The axles, which run on ball bearings, are connected to the frame by special springs, which are claimed to prevent the transmission of jolts, due to uneven roads, to the motor and transmission gear. As will be observed, the body is entirely independent of the frame, on which it is suspended fore and aft by C-springs. It is described as being exceedingly comfortable and free from vibration.

The engine is located under a bonnet in the fore part of the frame. It is of the vertical single-cylinder type, and at 750 revolutions per minute is said to develop 5 h.p., the diameter of the cylinder being 100 mm. and the stroke 120 mm. Electrical ignition is adopted, the feature of the motor lying in the fact that it is air-cooled, and this without the use of radial fins to the cylinder walls. Unfortunately M. Lepape has not thought well to send us full particulars of the special means he adopts to cool the

cylinder, but from another source we learn that the cylinder and combustion chamber are cast in one piece, and are of such a thickness that the heat generated cannot, it is claimed, heat the great mass of metal to above a temperature of 200 deg. C. The hot air in the bonnet is also dissipated by means of a small fan driven off the motor shaft. The valves may be quickly taken out by the removal of a single plug; the exhaust valve is made of ferro-nickel. The sparking plug is of large size; it also can quickly be withdrawn and all its parts are detachable, none of the joints being made by cement or solder. Special attention has been paid to the lubrication of the working parts of the engine, the flow of oil increasing with the speed and only taking place when the engine is running. The carburettor adopted is of the type which has already been described in these columns (see Vol. I., p. 570). Fig. 1 gives a sectional view of the device, which is claimed to be unaffected by vibration or by any difference of level of the petrol in the storage tank.

The power of the motor is transmitted by belts to the intermediary shaft, and by one set only of sprocket wheels and chain from the latter to the rear axle. No differential gear of the usual type is employed, M. Lepape having adopted a special device by means of which, while not overcoming side-skidding, he claims to obviate all chance of a right-about-turn skid. Three speeds forward and a reverse motion are provided, the belts working on fast and loose pulleys, the belt-shipping forks being controlled by a system of cams. The forks are mounted on bars terminating in a roller, the bars being made to bear by a spring on circular cams of a special form. The four bars run in slides, which divert them on to their respective cams, the latter being mounted on the end of a vertical shaft, on the upper end of which is the controlling hand wheel. The device is so arranged that none of the belts can be put on the fast pulleys except the others are on the loose ones. The three speeds forward—8, 16, and 30 kilometres per hour—and reverse motion are all obtained by the rotation of the hand-wheel through one revolution, that is to say, it is only necessary to move the wheel through a quarter of a revolution to change from one speed to the other. A bronze gearcase protects the cams from water and dirt. Inside the variable-gear control standard is mounted the steering column, on the upper end of which is a horizontal hand-wheel. The steering is of the irreversible type. On the outside of this standard are mounted three taps or handles, one connected with the variable ignition, one regulating the quantity of air allowed to pass into the carburettor, and one controlling the volume of carburetted air allowed to pass to the explosion chamber of the motor.

The wheels are of the cycle type, shod with pneumatic tires. A hand-lever operates shoe brakes on the latter, while a band brake operated by a foot pedal is also provided. This pedal is so arranged that on being pressed by the foot the belts are first shipped on to the loose pulleys, continued pressure applying the brakes. The car has accommodation for two or three persons, a folding seat being provided at the front.

THE LATE M. E. LENOIR.

THE death is announced of M. Etienne Lenoir, the pioneer of automobilism, who passed away last week in his seventy-eighth year. As far back as 1860 M. Lenoir took out his patent for a gas engine, and two years later his first car was built, and for some time was to be seen in the neighbourhood of Paris. He, however, left the automobile at this stage, and confined his attention to automobile boats. Since then very little was heard of M. Lenoir until quite recently, when, at the instance of the Automobile Club de France, a commission was appointed to discover the real inventor of the petrol automobile. As the result of diligent inquiries, the palm went to M. Lenoir, and in recognition of his services the A.C.F. presented him with a gold medal.

THE Motor Manufacturing Company, Limited, write us with reference to the question as to whether an advertiser who states he can supply 4 h.p. De Dion voiturettes has not made an error. They consider that no error has been made, as they are manufacturing a 4½ h.p. De Dion water-cooled motor.

A PARAGRAPH has lately gone the rounds of the Press to the effect that the Potteries Electric Tramways Company is about to introduce automobile cars to connect as near as possible their different terminuses. We are in a position to state that no decision has as yet been arrived at in the matter.

The men employed at the Ivel Motor-car Works, Biggleswade, Beds., were given a dinner last Saturday by Mr. Bateman Brown, of Huntingdon, who some few months back had an Ivel car made to special requirements. The car has turned out so satisfactory that Mr. Brown entertained the men at

the Ivel Hotel, taking the chair himself. Mr. Bateman Brown, who is seventy-nine years of age, is quite a motor enthusiast.

THE Sports Motor-Car Company, of South Kensington, S.W., have sent us a copy of the new price list they have just issued. In addition to particulars and clear illustrations of the Mayfair voiturette recently illustrated in these columns a number of pages are devoted to a new series of 6 and 8 h.p. cars—dogcarts, brakes, wagonettes, phaetons, etc.—which are being introduced into this country under the name "Sports."

COUNT CHARLES SEILERN, who was recently elected a member of the Automobile Club, has just received delivery of a 12 h.p. Panhard car. The vehicle, which takes the form of a four-seated wagonette, has an attractive appearance, it being painted a French grey. The motor is provided with double ignition—both tube and electric. The car was safely brought to town from Folkestone on Tuesday, and has since been taken down to Crawley.

THE Speedwell Motor Company, of Reading, inform us that they are now fixed up in their more central premises at 134, Broad Street, Reading, and are recovering from the effects of their late disastrous fire, mention of which was made in these columns a few weeks back.

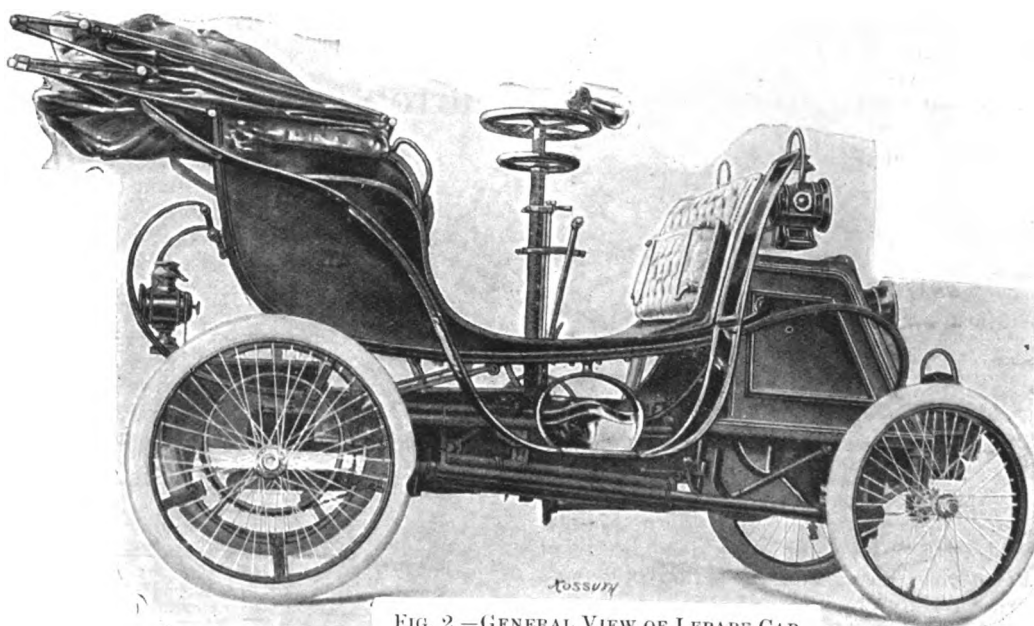


FIG. 2.—GENERAL VIEW OF LEPAPE CAR.

MOTOR-WAGONS FOR MUNICIPAL PURPOSES.

IN a recent issue the *Municipal Journal* criticised at length the results of the trial with a steam-motor dust van by the Chiswick District Council. In the article in question attention was drawn to the excessive cost of collection by means of this vehicle, as compared with horse-drawn vans and carts. Mr. Reuben J. Cook, a member of the Chiswick District Council, now writes to our contemporary with reference to the criticisms, as follows:

"I have read with interest the article on motor-vans for dust collection, and think that, as a member of the Chiswick



FIG. 1. GENERAL VIEW OF AMÉDÉE BOLLÉE AMBULANCE CAR.

Council, the following remarks upon this subject may be of interest to your readers:—Owing to certain reports, the Council resolved to obtain a return in full of the work done by steam dust carts and by horse-vans during a fixed period of twelve months, and this return was duly presented.

"From a perusal of this, it is seen that the respective costs per ton of refuse collected are: By steam carts, 5.62 shillings; by horse vans, 3.96 shillings; and by horse carts, 4.18 shillings. This result, apparently, discounts the steam vehicles, but it is necessary to point out that our parish is of considerable length, and that the steam vehicles have been regularly employed in those parts of our district most remote from the tip. The time available for actual refuse collection has thus been considerably reduced on account of the length of time occupied in going to, and returning from, the tip. It is somewhat noteworthy that the cost of actually collecting each ton is exactly the same as that in the districts close to, or even adjoining, the tip, showing clearly that there must be a considerable gain to the parish when the vehicles provided for this work can make a journey to and from the tip and collect refuse at no greater cost. This point was fully recognised at a recent discussion, and it was further resolved that, in order to a better estimate of cost, the steam carts should during a period of six months serve the areas nearer the tip, the horse-vans taking the more remote portions of the district. At the expiration of this period, it will be interesting to note the cost-figures obtained.

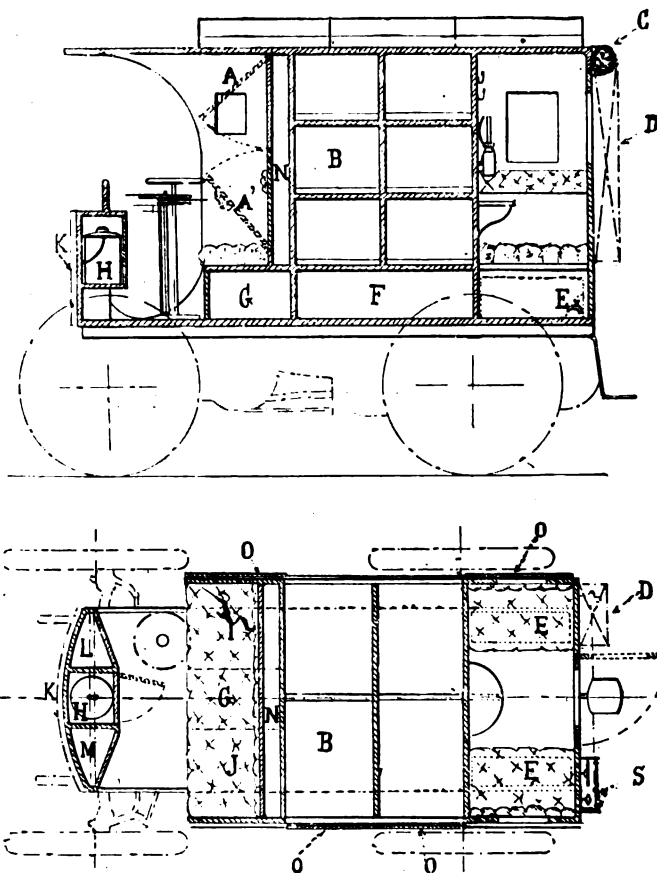
"In the matter of repairs, it is equally misleading to have any opinion, favourable or otherwise, to the steam vehicles, for the reason that the price quoted by the builders in their tender was £350, whereas actual experience has shown that their price is just double this amount. Taking, however, the initial cost at

£350 each, and £95 odd for repairs, this is not at all excessive, for it must be stated in fairness to the builders that their guarantee was for a load of three tons, whereas it is an open secret that on many occasions these vehicles have been employed in removing slush from the high road. This is extremely heavy stuff, and the carts have in this way often carried a load of six tons at a time without any difficulty.

"Again, the site and surroundings of the tip must be understood in order to arrive at a true opinion on the value of these steam cars. There is an area of some three or four acres, and as the refuse is deposited, a rough timber road is laid thereon, and it has been no unusual thing to see the steam waggons buried up to their axles, though they are able always to easily free themselves. In my opinion, if only for this purpose, the steam vehicles have served their object admirably, as, had it been attempted to fill this tip from horse-drawn vans or carts, a spare horse and man would have necessarily been in attendance constantly, and, allowing the cost of this item at 7s. daily, would have resulted in a marked saving being shown in favour of the steam cars. In conclusion, I would point out that the steam vehicles have proved a very great acquisition to the parish, as, until they were obtained, the contractors were absolutely masters of the situation. Further, the steam cars were of great service in settling the maximum load that should be drawn by horses, and the information thus gained was utilised in the design of the two-horse vans."

MOTOR-CARS IN THE FRENCH ARMY.

ON many occasions reference has been made in these columns to the great service which motor-cars and wagons are likely to render in future military operations. It has been our object to, as far as possible, put on record everything that is being done abroad in this



FIGS. 2. AND 3.—SECTIONAL ELEVATION AND PLAN OF AMÉDÉE BOLLÉE AMBULANCE CAR.

direction, with the view of drawing the attention of our own military authorities to the possibilities of motor-vehicles. On

the present occasion we propose to deal with some of the automobiles displayed by the French Government in the Palais des Armées at the Paris Exhibition. The ten cars exhibited form quite an interesting collection, including as they do a Scotte steam tractor, a De Dion steam tractor, a Panhard omnibus, a Decauville voiturette for the use of the état-majors, a postal and telegraphic car by the Mors Company, a fast Mors car for the use of état-majors, a travelling office car for the use of the General Commandant by the Peugeot Company, a postal car by the Georges Richard Company, an ambulance van by the De Dietrich Company, and a telegraph service wagon by the Koch Company.



FIG. 4. THE GEORGES-RICHARD MILITARY POSTAL VAN.

Of the three last-named vehicles we are herewith enabled by the courtesy of our French contemporary *Le Chauffeur* to give illustrations. As the motor and mechanical portions of all these vehicles are of the standard type and have already been described in these columns it is unnecessary to refer to them on the present occasion. Fig. 1 gives a view of the ambulance van; this is on the well-known Amédée Bollée system, the frame having been built by Messrs. De Dietrich and Co., of Luneville, and the carriage work by Messrs. Kellner and Fils, of Paris. Figs. 2 and 3 give sectional views of the car, which has been adapted to receive the standard fittings of the

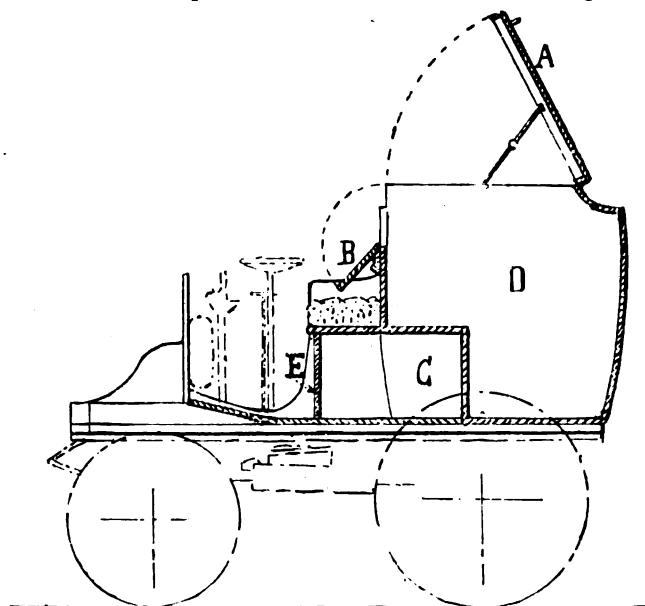


FIG. 5. SECTIONAL ELEVATION OF GEORGES-RICHARD MILITARY POSTAL VAN.

Service de Santé. In front is a seat with accommodation for the driver and two other persons. This seat forms a tank, divided into three compartments, *I*, *G*, *J*. The compartment at the right, *I*, contains the water for cooling the engine, that in the middle is reserved for lubricating and lamp oil, while *J* is the petrol compartment. Formed in the dash-board are three other small compartments; those at the sides, *L*, *M*, are reserved for

the driver's tools, while in the central one is located a small stove. Below these compartments space is left to store a lifting-jack. The partition *AA'*, which forms the back to the driver's seat, is movable, and gives access to a compartment *N*, in which is stored an operating table and several collapsible buckets. Behind the compartment *N* is built a framework adapted to receive twelve paniers, six on each side, each containing the regulation equipment of surgical appliances, etc. Sliding doors on each side give ready access to these compartments. Additional storage capacity is provided in the compartment *F*, which is divided into two portions. At the rear seating accommodation for two surgeons is provided. The entrance is at the back of the car. The compartment is provided with a folding table, a lamp, and four hooks for supporting clothing, swords, etc. The seats in this compartment also form water tanks, *E*, each having a capacity of 25 litres. To the outside of the rear of the van is attached a sterilising apparatus *D*, while there is also carried at the back a special collapsible tent. An iron ladder gives access to the roof of the van, on which further stores in the way of litters, etc., can be carried. The car, which is mounted on solid tired wheels, is fitted with a 9 h.p. motor; four speeds, 4, 8, 12, and 16 kilomètres per hour are available. The body is painted the regulation grey colour; the car, without stores and supplies, weighs, it is stated, 1 ton 5½ cwt.

Figs. 4 and 5 show the military postal van built by the Georges Richard Company. The mechanism of this vehicle is



FIG. 6. THE KOCH TELEGRAPH SERVICE WAGON.

similar to the Richard cars which took part in the recent 1,000-Mile Trial in this country. The engine is of 7 h.p. and four speeds—7, 14, 21, and 28 kilomètres per hour—are available. The body, which is painted the regulation green colour, takes the form of a large chest, to receive letters and parcels, and access is afforded to the chest by the lid *A* and by the small door, *B*. A compartment *C* is formed in the body by means of which the driver has access to the transmission gear. The volume of the chest is 980 litres—much greater than is possible with the horse-drawn postal vans.

In Fig. 6 we see the telegraph service wagon built by the Koch Company, and Messrs. Sautter, Harlé, and Co., of Paris. It is equipped with an 8 h.p. heavy-oil motor, and has two speeds—5 and 16 kilomètres per hour. The car is an exact reproduction of the horse-drawn vehicle used for the same purpose except at the front, where the motor is located. A special steering gear was necessary in order to control the car from the perched-up seat, which is a relic of the horse-drawn wagon. Empty the motor-vehicle weighs 1 ton 9½ cwt. The body is painted grey, while the wooden wheels are shod with iron tires.

The Mors travelling telegraphic office referred to above is fitted with an 8 h.p. motor, and has four speeds, ranging from 8 to 32 kilomètres per hour. The front seat has accommodation for two persons; inside is carried all the necessary apparatus for carrying on telegraphic communication, while at the rear is a compartment for two additional persons.

PARIS EXHIBITION NOTES.



(FROM OUR OWN CORRESPONDENT.)

(Continued from page 393.)

AMONG the provincial constructors of automobiles who are exhibiting one of the best known is M. Ripert, of Marseilles. This maker shows a single car, a four-seated phaeton, provided with a two-cylinder horizontal motor, developing 12 h.p. This engine is placed in the fore part of the vehicle, and is readily accessible in case of need. Tube has been given the preference over electric ignition, but from their position I should not be surprised to learn that the burners occasionally give trouble. The circulation of the cooling water is effected by a friction pump. A single leather belt serves to transmit the propulsive effort, while cog gearing is used for the different speeds. There are four of these latter, varying from four to thirty-five miles per hour, and they are actuated by means of a lever which is placed upon an upright in front of the driver, which also serves as a support for the inclined wheel steering. This upright also carries an accelerator which operates upon the centrifugal governor.

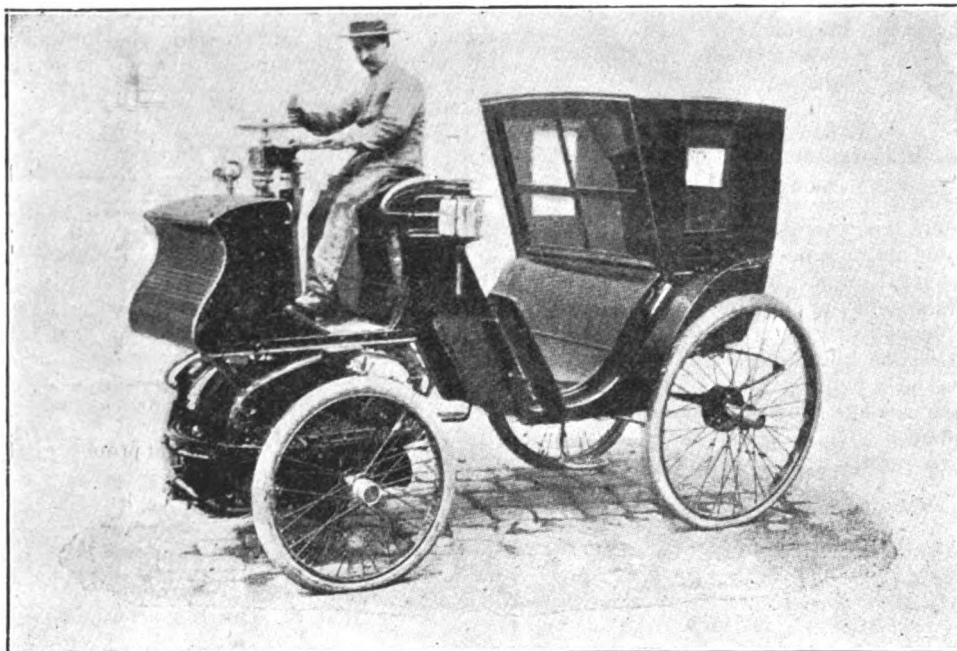
A lever at the right of the conductor actuates the forward and reverse gear. A couple of pedals serve to partially or wholly disconnect the motor by releasing the tension of the driving belt, and to brake the car. A hand brake acting upon a band attached to the sprocket wheels is also fitted, and a ratchet and cogwheel upon the cross shaft are used to prevent the danger of the car running back. A large awning carried by a single support provides protection for the passengers from the sun. M. Ripert also constructs vehicles of 7 and of 9 h.p.

The productions of MM. Bouquet, Garcin, and Schivre have long been considered by competent judges as the best electrical cars constructed in France, and this year they have come prominently before the notice of the public by reason of the wonderful record made on May 12th last. Upon that day a B.G.S. vehicle, as they are commonly called, was driven 262 kilometres, or some 164 miles, without recharging, so beating by 110 kilometres the previous best performance on record. Naturally the ordinary B.G.S. car is not capable of doing a like feat, for the record holder is a specially constructed vehicle and carries 1,260 kilos of batteries, its total weight being 2,300 kilos. But then the ordinary electromobile is never called upon to attempt voyages of this kind, and the current type of B.G.S. is proportionately quite as good and capable a vehicle as the racer. The firm exhibit at Champ de Mars a pretty two-seated car and a motor and frame, the former being fitted with "Kelly" and the latter with "Compound" tires. An inspection of the chassis at once reveals its extreme simplicity. The mechanical organs of the car really resolve themselves into an intermediary shaft carrying a set of driving gears, and all the parts can be readily and quickly taken down should occasion demand. One motor only is carried, for when one diminishes the size of an electric engine the yield decreases very rapidly, and

the constructors of the B.G.S. are strong advocates of the employment of a single motor of high production. This motor is carried in the fore part of the frame and is hermetically encased in a steel box. At the right of the driver and let into a well below the level of the seat is a small wheel by means of which the vehicle is entirely controlled. No less than six forward and two reverse speeds are provided, while a couple of electric brakes for the forward and a similar number for the backward motion are fitted. The steering is effected by means of an inclined wheel, and an additional pedal brake on the Renault double-action system is attached. In order to charge the batteries a current of at least 100 volts is necessary, and as the accumulators can be instantly detached from the car, the operation can be carried out with equal readiness whether the batteries are in place or not. Moreover if the batteries be fully charged the vehicle may remain unused two or three weeks without an appreciable loss of current. Other objects of interest on the B.G.S. stand are photographs of the big racing car and of the wagon in use by the fire brigade of Paris. This latter vehicle was built in the works of the fire brigade, but engine and accumulators are of B.G.S. construction. It weighs 2,600 kilo-

grammes and carries 520 kilogrammes of batteries. On ordinary roads it has a range of sixty kilometres, and since April last has been in daily use by the brigade.

M. Dupressoir, of Maubeuge (Nord), shows an excellently designed and constructed voiturette frame, carrying a 3 h.p. water-cooled De Dion motor. This voiturette is known as the "Rolling." It is fitted with three speeds and reverse motion, the intermediary speeds being secured by means of a friction clutch. Upon the pillar carrying the steering wheel are to be found the small levers necessary for the regulation of the air and



GENERAL VIEW OF THE BRULÉ-PONSARD MOTOR-CAR. (See opposite page.)

ignition, and above these is placed the speed change gear. A couple of pedals for the manipulation of the friction clutch and brakes complete the list of controlling parts. A very nicely turned out quadricycle frame and a number of differential shafts, gears, wheels, etc., go up to make a thoroughly interesting exhibition. All the parts are beautifully finished, and quite worthy of the reputation which M. Dupressoir holds.

A taking voiturette is exhibited by MM. Hanzer Frères, Petit-Ivry (Seine), the motive power being supplied by a 3 h.p. water-cooled De Dion motor. It is mounted on wheels of equal size (700 by 80) and weighs 340 kilogrammes. Three forward and one reverse speeds are fitted, and the steering is effected by an inclined wheel. This firm also show a tricycle furnished with a De Dion motor, and of neat and workmanlike construction.

A taking little vehicle is shown by M. Deschamps, of Rue St. Augustin, Paris, whose stand will be found next to that occupied by the Scotte trains. The car is known as the "Excelsior," and it is fitted with a two-cylinder petrol motor, developing 4 h.p. This engine is carried in front of the car; it is air-cooled, and its two cylinders are set at an angle of 90deg. A small lever actuates the speeds, of which there are three, and the steering pillar itself is utilised to throw the motor in or out of gear, as may be desired. When placed forward this pillar connects

motor and gear; when drawn back it disconnects. Running at all fast over bumpy ground, I fancy that to maintain the desired position of the pillar would be no easy matter, and that one would be continually cutting off the power. The usual levers for the regulation of carburation and ignition are provided. The total weight of the voiturette is 180 kilogrammes.

Another small car is that exhibited by M. Louis Guerraz, of Paris, the feature of which is the suspension of the body by means of C springs in such a manner as to render it remarkably free from the vibration conveyed to the frame by the motor. The "Aster" 5 h.p. water-cooled motor is employed, and is carried in front of the car. Three changes of speed permit the car to run at from five to thirty-five kilometres per hour. The vehicle weighs 250 kilogrammes.

The display made by MM. E. Delahaye & Co. is as excellent as it is varied. The disposition of the motor and frame as constructed by this firm lends itself particularly readily to the carriage-builder's art, and the result is shown by the stylish appearance of the cars exhibited. I have often wondered why MM. Delahaye place that box of lubricators at the back of so many, if not all, of their cars. To my idea the driver should have everything before his eyes, and should be able to tell at a glance whether his engine is receiving all the necessary attention in the matter of water, lubrication, etc. There should be no necessity to descend from his seat and inspect lubricators, etc., placed at the back of the vehicle. Let everything be visible from the driver's seat. To begin with the smallest of Delahayes' exhibits, there is the voiturette carrying a $4\frac{1}{2}$ h.p. single-cylinder horizontal engine. Except its habit of showing steam very quickly this little car is really excellent, for not only is it smart in appearance, but it is well and strongly made, and its mechanism is reduced to simplicity itself. All the other cars shown are fitted with either 7, or $9\frac{1}{2}$ h.p. motors, and they are: First, a four-seated wagonette or "tonneau," tastefully painted with yellow as the predominating colour. Then a big six-seated car fitted with a canopy. Access to the middle seat is by the side, while a door at the rear permits of entry to the back seats. Another "tonneau" and a covered-in wagonette complete the list, and the carriage-builder in particular should make a point of inspecting MM. Delahaye's collection.

An imitation of the Renault car is shown by M. Baudier, of Neuilly, Paris. The type exhibited is the "Spider"—that is to say, it has two seats in front and a light detachable seat behind. The frame is built up of steel tubes and carries in front a 3 h.p. water-cooled De Dion, the water circulation being secured by means of a friction pump. A radiator is fitted underneath the fore part of the car. The De Dion carburettor is used, and wheel-steering is usually fitted. The transmission is direct by means of a friction clutch, and three forward and one reverse speeds are obtained by a special gear, the wheels of which are always engaged. A contact button placed on the steering gear enables the electric current to be cut off when desired, and the car is certainly one of the neatest of its class that I have ever seen. The price is £168 and the weight about 200 kilogrammes. M. Baudier also constructs a smaller and cheaper car fitted with the $2\frac{1}{2}$ h.p. De Dion. Weighing only 150 kilogrammes, the two speeds with which it is provided are entirely sufficient for this little car, and enable it to successfully negotiate all ordinary hills.

(To be continued.)

A PETITION by Mr. C. E. Foster and other contributories of the London Electrical Cab Company, Ltd., asking for the compulsory winding-up of the company, was before Mr. Justice Wright, sitting as an additional Judge of the Chancery Division, on the 8th inst. It was arranged that the petition should stand over.

At the Lambersart Track, Lille, on the 5th inst., an hour motor race was run off. There were eight starters, viz., Béconnais, Fossier, Demester, Vasseur, Loste, Cabailot, Bathiat, and Louis. The winner was Béconnais, with $57\frac{1}{2}$ kiloms. to his credit, his intermediate times being; 10 kiloms., 10m. 30s.; 20 kiloms., 20m. 30s.; 30 kiloms., 31m. 4s.; 40 kiloms., 41m. 45s.; and 50 kiloms. 52m. 36s. The distances of the others were: Loste, 54 kiloms. 600m.; Demester, 53 kiloms. 800m.; Cabailot, 53 kiloms. 320m.; Fossier, 53 kiloms. 200m.

THE BRULÉ-PONSARD MOTOR-CAB.

A NOVEL form of motor-cab has recently been introduced in France by Messrs. H. Brulé and Co., of Paris, the feature of the vehicle being that the whole of the motor and the power-transmitting mechanism is carried on a turn-table on the fore carriage, the front wheels thus serving for the driving and steering of the vehicle. As will be seen from the illustration the arrangement adopted forms a kind of *avant train*,

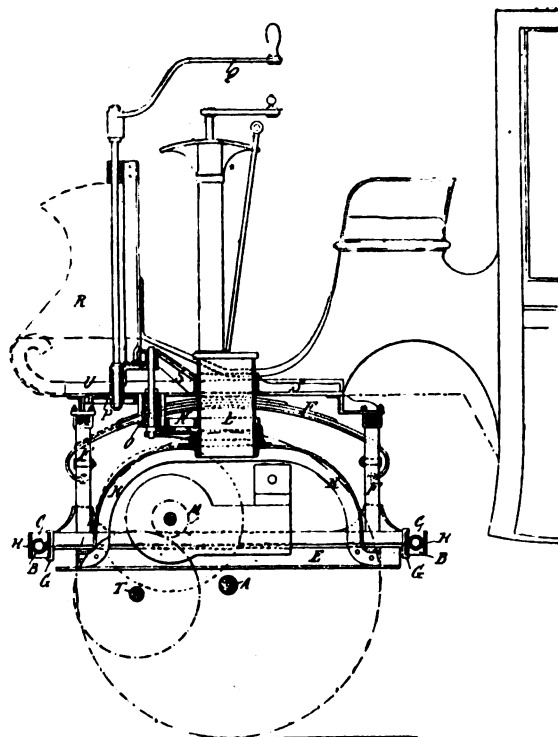


FIG. 2.—PART-SECTIONAL ELEVATION.

or what may be termed a self-propelling bogie, so contrived that it can be substituted in a very short time for the ordinary fore carriage of a horse-drawn vehicle. As shown in the sectional elevation, Fig. 2, the bogie comprises a platform *E E'* built up of angle iron, supported on the divided rotating axle *A*, driven through balance gearing from the

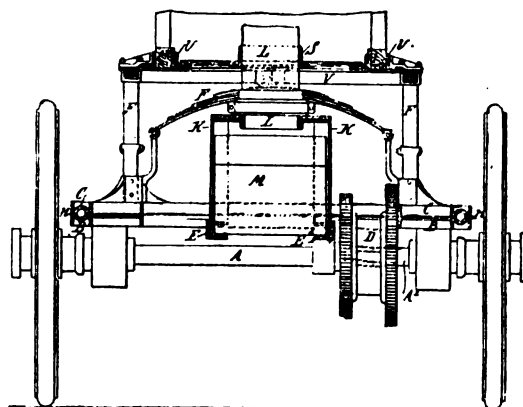


FIG. 3.—TRANSVERSE SECTION.

motor, which is mounted on the platform. The latter carries a ring *B*, grooved to form a ball race. To the fore part of the vehicle body is also attached with intervening supporting springs, *F*, a similar ring *C*. These two rings bear one on the other through the medium of the balls *H*. Means are of course provided for keeping the balls in their places, and preventing the rings from separating. The platform *E E'* and the lower ring *B*, which carry the motor and all the driving mechanism, are connected with the front road wheels, and move

with the same under the action of the steering gear. The motor, which is of $4\frac{1}{2}$ h.p., is also of a special character. It is known as the Rozer-Mazurier, and is a combined petroleum-spirit and hot-air engine, the exhaust gases from two of the cylinders being used to actuate the third or hot-air cylinder.

From the crank shaft *M* the power is transmitted through gear wheels to the intermediary *T* (Fig. 2). The latter carries the speed-varying gear, two forward speeds—7 and 16 kilometres per hour—and one backward motion being provided. From the intermediary to the front wheel axle the power is transmitted through the gear wheels shown in Fig. 3. A jack-in-the-box gear *D* is also provided on the front axle.

Dealing now with the steering mechanism, the platform *E E'* and the ring *B* are connected by the arched pieces *K* to the vertical tube *L* (Figs. 2 and 3). This tube, which is fixed centrally, carries on its exterior a toothed sector *N* (Fig. 2), steering being effected through the pinions *O* and *P* connecting the handle *Q* with the sector. The tube *L* also serves as a passage for all the levers controlling the motor and the transmission mechanism, brakes, etc., these levers being all grouped on a standard behind the steering handle. We learn that since this vehicle was constructed certain modifications have been decided upon. The most notable of these is that the steering pillar and the lever-supporting standard are to be combined, thus giving a more compact appearance to the controlling mechanism in front of the driver.

WE hear that steps are being taken in Newcastle-on-Tyne to form a motor-car club in the northern city.

THE Shah of Persia last week visited the most recently-equipped fire station in Paris, where he examined the automobile fire engine with interest.

THE Motor Manufacturing Company's 6 h.p. Panhard car which went through the 1,000-Mile Trial is now in Bournemouth, it having been purchased by Mr. H. Passmore.

THE Rev. A. B. Whatton, who is well-known in motor circles, has, we learn, ordered one of the new Canello-Durkopp cars from the British and Colonial Motor-Car Company, of Baker Street, W.

A COLCHESTER correspondent writes that every day heavy motor-wagons carrying all kinds of merchandise are to be seen in the streets of the town, to say nothing of automobiles speeding on their way from London to the east coast.

THE motor-car now plays an important part in the programme of country games in Aberdeenshire. At the Haddo House games last week two cars running on a circular tour were very largely in demand during the greater part of the day.

THE Star Motor Company, of Wolverhampton, ask us to mention that in the tabular statement given in their recent advertisements of the performances of the various cars in the 1,000 Mile Trial the full records of the Roots and Venables heavy-oil car were, by an oversight, omitted.

WE learn that the Sports Motor-Car Company, of 103, Fulham Road, South Kensington, S.W., are about to put on the market in this country a new car fitted with a double-cylinder engine of 6 h.p. The vehicle is fitted with three speeds forward and one reverse. The car has no belt nor chains and will it is claimed, climb up any gradient of 1 in 6 with a full load of four persons and on ordinary road average thirty-five miles per hour.

ONE of our visitors the other day was Mr. F. Sadler, of 15, Grays Inn Road, W.C., who is about to bring out a new anti-vibratory handle bar for motor-cycles. In the new arrangement the bar proper is made separate from the stem, to which it is connected by special connecting links, the vibration being taken up by two springs in a sort of small cage on the top of the stem. The arrangement adds but little weight to the bar, is not unsightly, and is claimed to greatly reduce the amount of vibration transmitted to the rider's hands. We are promised a trial of a machine fitted with the new bar.

CORRESPONDENCE.

A BLAZE AT LINCOLN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to the paragraph referring to a slight flare-up on one of my company's cars, it may interest you to know that the incident was so trivial that, after examination at the dépôt, the car was directly after again running on the route as though nothing had happened. With pressure feed there will always remain a similar risk. A pipe fracture or a loose connection and the thing is done. The oil tank never became ignited, nor did the flames rise "to a height of several feet"! Possibly the driver's eyebrows were singed. Truly a terrible catastrophe!

Yours truly,

ALFRED W. GOODALL,
Manager the Lincoln Motor Bus and Parcel Delivery
Company, Limited.

Lincoln, August 12th, 1900.

PNEUMATIC TIRES AND PUNCTURES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR—The suggestion made by your correspondent Mr. Vanderhyl to place a piece of leather belting on the inside of a pneumatic tire is a very old idea, and has been tried by, I might almost say, many hundreds of inventors, but he will find if he tries it that there are no means of making the leather belting part and parcel of the outer cover, and if it is left loose there is an enormous amount of internal chafing set up. The simplest way to avoid the punctures your correspondent refers to is by having large diameter tyres so that the weight per square inch of surface is much reduced, and it requires very sharp puncturing instruments to go through the cover. With large pneumatic tires punctures are extremely rare.

Yours truly,

14, Regent Street, London, S.W.
August 13th, 1900.

S. F. EDGE.

QUESTIONS RE MOTOR-CYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Have any of your readers devised any satisfactory method of regulating the throttle or quantity valve of motor-cycles direct from the handle grip, by revolving it or otherwise, instead of by means of the usual lever which is placed on the top tube? In driving my quadricycle there are many occasions upon which I cannot spare a hand from the handles long enough to regulate the lever with that nicety which I desire, such as when rounding corners of winding lanes, when the road slants to one side, and so on, and when the road is very rough the jolting in any case makes it difficult to place the lever in the correct position for the speed desired. In consequence I have to do a good deal of regulating under such circumstances by switching the current off and on, with resulting unpleasant jerky progression for passenger and self, the lever being placed haphazard so far open as would give me much more speed than desired if the current were kept on without intermission. I do not know what other readers think, but I am of the opinion that the ability to regulate the throttle direct from the handle grip would be one of the greatest conveniences possible in connection with driving a motor-cycle.

I should also be glad to know whether anyone has devised a satisfactory and easily worked exhaust valve opener for the Ariel motor-cycle, which does not in any way damage or overstrain any existing part of the machine. I arranged and fitted up an opener some time since, but I found it was damaging the compression tip, from whose lever the device was worked, and also wearing the exhaust valve lifting rod, so I had reluctantly to take it off. I found it a great boon, when stopping for restive horses, to do away with the "piffing" noise, or to stop the same noise if horses were about, when running down hill cooling the engine, or when starting, etc.

Yours truly,

Bolton, 11th August, 1900.

"NOVICE."

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to Mr. T. Smith's letter in your last issue regarding the exhaust valve lifter as fitted to his Beeston quad, I have ridden a Beeston trike some months, and found exactly the same trouble as described by Mr. Smith. I have got over my troubles by having a Wilkins and Boon Bowden exhaust valve lifter fitted, which I find works excellently, and I am sure if any motor-trike rider once gives this device a trial he would never ride a trike or quad without one. It consists of a lever and spring to open valve, and is actuated by a Bowden wire and lever fitted to the handle bar. It was devised and is made by Mr. A. Boon, of Messrs. Wilkins, Boon, and Co., at their Barnes depot. As far as I can remember, I believe they charge 21s. for fitting this to any make of trike or quad at their works, or can send sets of parts, if not convenient to take the machine to them.

Yours truly,

STUART W. PHILLPOTT.

Glencairn, Holmethorpe, Redhill,
August 13th, 1900.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to the inquiry of your correspondent, T. Smith, jun., I can recommend him to have his exhaust valve opener altered so that it will be actuated by a separate lever working a Bowden brake wire. The only people I know of who fit this arrangement are Messrs. Wilkins and Boon, of Barnes, S.W., who could doubtless send the requisite parts to Stockport with instructions for fitting. The advantage of separating the exhaust valve lift from the brake lever will be not only to overcome the difficulty your correspondent has experienced, but also to enable him to leave the exhaust valve closed when it becomes necessary to apply the brake fully; the machine will stop more quickly with the compression at work than with it released by the opening of the exhaust valve.

The question of whether a trailer attached to a tricycle is subject to the provisions of the Light Locomotives Order of the Local Government Board relating to a separate vehicle drawing another is a rather important one of some nicety, which has never been authoritatively determined. It may be contended that the tricycle and trailer combined form one machine, in which case the painting of the name and the restriction of pace will not apply. But if your correspondent wishes to be in a position to claim that his tricycle and trailer constitute one machine he should take the precaution of paying the two guineas tax for a licence for a carriage having four or more wheels, the production of which licence would be evidence of bona fide belief that the combination constituted one machine.

Yours truly,

A. J. WILSON.

168, Clerkenwell Road, London, E.C.,
August 11th, 1900.

EPICYCLIC GEAR FOR VOITURETTES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Could any of your readers tell me why some English voiturettes are not constructed with epicyclic gears, thus dispensing with belts and clutches? Let us take the common type of voiturette—3 h.p. water-cooled motor geared through a pair of spur wheels to the rear axle by chains (or it may have a live axle). Now, could not a vehicle of this type be constructed with three epicyclic gears mounted on the countershaft to give two speeds and a reverse? The motor would transmit its power to these gears by bevel gear so that one of the gears when held by its brake would give a reverse. It seems to me that this system of transmission possesses all the advantages of spur gear, (i.) with the wheels not in mesh; (ii.) with the wheels in mesh, because there is no danger of teeth-stripping, as in (i.), and no need of clutches (or any similar mechanism), as in (ii.).

Yours truly,

R. A. COBB.

29, Dalby Square, Margate,
12th August, 1900.

COMMERCIAL TRAVELLERS AND MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to our par last week concerning a Cardiff commercial traveller adopting a motor-tricycle, it may be of interest to mention that we lately supplied a Swansea commercial traveller with a Star car of the phaeton type, which has been fitted with a hood and other special attachments to meet the peculiar requirements of Welsh roads. This car was severely tested during the rough weather experienced both before and after the last Bank Holiday. It is sufficiently commodious to take in a few extra parcels or a couple of customers if needs be, which could not be entertained on a tricycle.

Pontypridd,

August 13th, 1900.

Yours truly,

MORRIS BROS.

MOTOR-CARS AND THE FOURTH VOLUNTEER INFANTRY BRIGADE CAMP.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—When I was making arrangements for the four weeks emergency camp of my brigade I proposed the employment of a motor-car for communication with post and station. Some of my staff had misgivings, but the venture was made. The result was a decided success, although our experiences also convey a warning.

For the period of the camp the car made several journeys a day, bringing and taking down three mails and carrying a large number of officers and their friends. On many occasions a single mail consisted of about three hundredweight of letters and parcels, there being sometimes upwards of 3,000 men in camp at one time. But for the car we could only have had one delivery and despatch a day. Besides this work the car was several times used in connection with manœuvres, and on some days ran from 35 to 40 miles. It is admitted by all the staff that it would have been impossible to get the same work done by any horse conveyance without two teams and two drivers, and instead of the journey being done in fifteen minutes the one way and thirty-five the other—the road having a heavy rise in one direction—the time would have been half an hour the one way and an hour the other. It is also a great advantage in a camp to have a vehicle which is ready to start at any moment.

There is another side to the picture. During the first fortnight we had a good car, and only on two occasions was there any delay, and then only for about ten minutes. The car was, however, once off from a part having to be replaced, which could not be done on the spot. This car was under engagement elsewhere, and we had to be content with another, which was not nearly so satisfactory. To do the company justice from whom we got the cars, they did not profess to have a sound car available for the second fortnight, and only sent the one we used on being pressed, as we could not do without a conveyance of some kind. But, undoubtedly, although it did a great deal of work, the mishaps of the last fortnight were not a good advertisement for the new locomotion. I would strongly urge three things—(1) that companies should rather decline an order than bring discredit on a rising business by sending out an untrustworthy carriage; (2) that they should have the courage to supply themselves with a good stock of vehicles for hire, so as not to be sending out worn-out or shaky machines; and (3) that they should send no carriage to the country except in the hands of a man who can replace parts, and without sending with the car a box containing all spare parts necessary to replace those which have the most tendency to give way.

Yours truly,

J. H. A. MACDONALD.

Edinburgh, August 13th, 1900.

IRISH ROADS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am afraid Mr. Mecredy's letter re Irish roads will do harm. The road authorities in Ireland are apathetic enough, goodness knows, and most of them have no conception of what a good road is, for they have never been on one. If these men get hold of Mr. Mecredy's letter they will "sit tight" and do

nothing, accepting his remark that "perfect touring, either for motor-car or cycle, can be enjoyed in this country" as a certificate that the roads in Ireland cannot be "bet." When Mr. Meccredy took his tour the roads in Ireland were at their best, and they will continue so for about another month. Then the process of spreading loose stones will commence, and continue for two or three months. And these stones will be left for the traffic to roll in, or drive to the side of the road—an operation which takes some months—consequently, not till May are the roads fairly fit to go on, but never are they absolutely free from loose stones. For six months at least out of the twelve it is perfect torture to ride a bicycle on most of the roads, and, I should say that pneumatic tires of motor-cars would have but a short life on them.

Yours truly,
Bann-aboo, near Wexford, J. R. MAGRATH, Colonel.
13th August, 1900.

THE RENAULT VOITURETTE.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—We are surprised to read in the July 14th issue of your journal a note to the effect that Mr. C. Friswell had secured the sole agency for the sale of our automobile voituresses in England. We think it right to inform you that we have given no invitation whatever to Mr. Friswell, and that we have never granted to him the agency of our firm. We should add that we have given no licence for construction in England. All our voituresses are made in France, and should bear the mark "Renault Frères, Constructeurs, Billancourt, Seine," on the differential case, upon the rear axle, and on the speed-changing gear case, as well as a metal plate on the body of the car.

We should be glad if you will kindly publish this letter in order to avoid confusion.

Yours truly,
RENAULT FRERES.

Billancourt, France, August 9th, 1900.

CHARGING ACCUMULATORS.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Re the letter in your last issue, it is with pleasure I herewith endeavour to give Mr. Francis Tidcombe the benefit of a little experience gained by myself regarding the charging of small portable accumulators. I have found that bichromate elements do not charge storage batteries efficiently unless they give a voltage largely in excess of the output of the cells when charged. For example, two accumulators, i.e., 4 volts, would require a "charging voltage" of 8 to 12, varying with the type of accumulator. Under these conditions only are you certain of getting the cells reasonably charged. Even if the three "primaries" purchased were of one quart capacity each, and were connected up to the accumulators (the last-named preferably in parallel, i.e., + to + and — to —), it is a question whether good charging would be obtained.

No! the best thing to be done under the circumstances, although the initial expense comes rather heavy, is, in my opinion, to purchase a small shunt-wound dynamo, giving a current of 5 ampères at 10 volts (price about £3). To drive this I would suggest a water motor; that known as "Chicago's Top" is to be specially recommended, being small, light, powerful (with correct water pressure), and comparatively cheap (about £2).

I think Mr. Tidcombe would be "at rest for evermore" as regards charging troubles if he invests in the above outfit, which can be obtained from Messrs. John J. Griffin and Sons, Sardinia Street, Lincoln's Inn Fields, W.C.

In regard to the period at which re-charging becomes necessary, this point is usually indicated by a rapid fall of the potential or voltage. Until this occurs the cells may be relied upon for the purposes of ignition. From the information given in Mr. Tidcombe's letter I should say the accumulators can be kept in use until the voltage drops to about 2.5 or 3; they should then be re-charged. Under no circumstances should the cells be

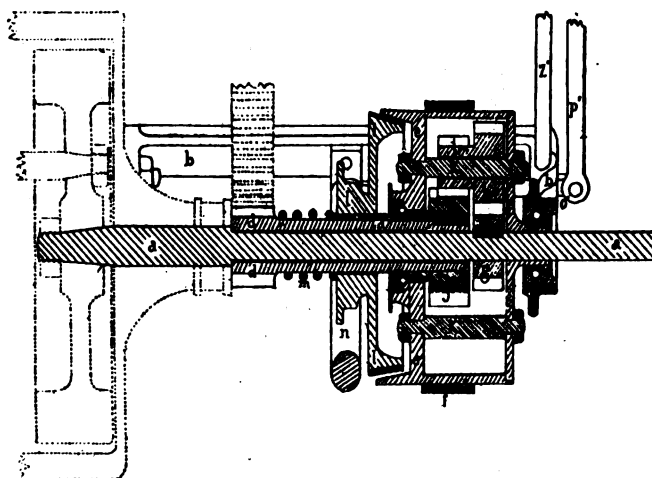
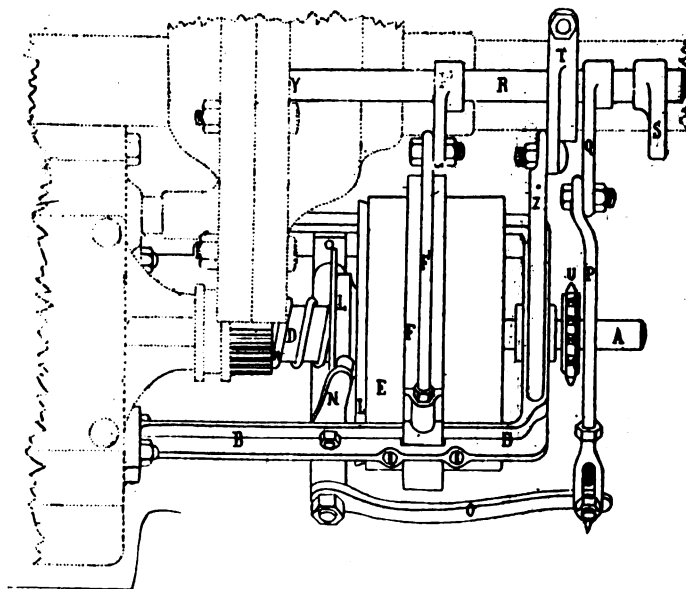
completely discharged, otherwise the deterioration of the plates will ensue.

Yours truly,
W. G. BELL.

7, Loudoun Road, St. John's Wood, N.W.
August 13th, 1900.

THE BONNEVILLE VARIABLE-SPEED GEAR.

A NEW variable-speed gear suitable for motor cycles and voituresses has lately been introduced by M. L. Bonneville, of Toulouse, France, and of which illustrations are given herewith in Figs. 1 and 2. It consists of a train of reducing gears enclosed in a steel case *E*, concentric to the axis of the motor, and gives two speeds, and what is termed a "free wheel," that is to say, the motor can be so disconnected from the driving gear that it can be kept in operation even when the machine is at a standstill. When this is the case all the gear in the box *E* is at rest, and to start the cycle or car it is only



FIGS. 1 AND 2.

necessary to tighten the hand brake *F* round the drum *E*. The motor then transmits its power through the speed reducing wheel train in the ratio of 6 to 1, giving the slow speed; the fast speed is obtained by making a rigid connection between the motor shaft *A* and the gear box *E* by means of the clutch *L*. At the high speed none of the reducing gear wheels are working, so that no additional noise or wear is caused.

The gear is controlled by the intermediary of the small levers *O P* carried on a shaft *R* supported above the tricycle axle. Presuming the motor is at rest it can be started by means of the free-wheel sprocket *F*, actuated by pedal or hand-driven chain-

gearing. The lever is then pushed over from the centre of a quadrant, this giving the slow speed, the high speed being obtained by pulling the lever over in the opposite direction. In the case of a tricycle the gear is attached to, and entirely supported by, the motor, so that any jolting or vibration due to uneven roads is transmitted equally to the motor and gear, thus relieving the gear wheels of strain. When adopted in a voiturette the gear can be fitted to one of the intermediary shafts.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

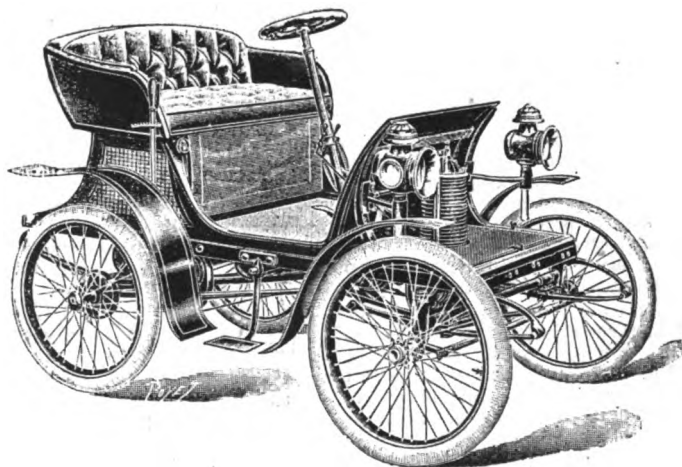
The Spa and Ostend Automobile Meets.

WITH the possible exceptions of the hill-climbing competitions to be held in the autumn no further automobile races are likely to be decided in France this year, and consequently the greatest interest is being evinced in the Spa and Ostend meets, which will take place at the end of the current month. At both places the most capable drivers and the fastest cars in France should be seen, for men and vehicles alike are simply spoiling for a race. Why, it was only with Paris-Toulouse that the majority of *chauffeurs* commenced to race with their new cars, and now, having had their appetites whetted, they must forego the pleasure of again racing upon French soil, for the remainder of this year at any rate. Spa and Ostend, however, afford them a couple of opportunities of indulging in the sport, and that they will avail themselves of these opportunities cannot be doubted. The Spa meet is already well known, for this is the third year that it has been held, and as it precedes the Ostend fixture I will give its programme first. The categories into which the competing vehicles will be divided are as follows:—1. Voiturettes weighing less than 400 kilos and fitted with motor of less than 4 h.p. 2. Voiturettes weighing less than 400 kilos and fitted with motor of 4 or more h.p. 3. Cars weighing more than 400 kilos and fitted with motor of less than 8 h.p. 4. Cars weighing more than 400 kilos and fitted with motor of from 8 to 12 h.p. 5. Cars weighing more than 400 kilos and fitted with motor of from 12 to 15 h.p. 6. Cars weighing more than 400 kilos and fitted with motor of from 15 h.p. upwards. 7. Motor tricycles. Proceedings will commence on Sunday, the 26th instant, when the cars exceeding 400 kilos in weight will race over the same 185 kilometres as utilised last year. This route is from Spa by way of Bastogne, Marche, and Aywaille, back to Spa. Upon the following day the small fry will race from Spa via Vielsahn, Fraiture, Borna, and Aywaille, back to the starting-point, a total distance of 105 kilometres. Tuesday, the 28th instant, will see the tricyclists competing over the Bastogne-Marche route of 185 kilometres, and the two following days will be devoted to a congress and festivities. The prizes offered are considerable, and range in value from £28 for the first in the big car class to 33s. for the fourth among the cycles. A big party is expected to travel through to Spa from Brussels on the previous Saturday, the journey being broken at Huy and Aywaille. This party is being organised by the Automobile Club of Belgium, and it is also to the Club that entries for the races should be made. The fees for the courses are 50 francs for the cars, 30 francs for the voiturettes, and 20 francs for the cycles. It is very certain that the majority of motor men will not remain in Spa until the finish of the meet, for it is on Thursday, the 30th instant, that, for the first time in the annals of automobilism, a series of races will take place upon a track. It is to Ostend that the honour of first organising such races belongs, and the Wellington Hippodrome will be utilised for the holding of the events. Special precautions are being taken to render the surface thoroughly firm, so that the big cars can be let go for all they are worth. The programme is as follows: 1, Voiturette and motor-cycle gymkhana; prizes, six *objets d'art*. 2, Motor-cycle race, distance 50 kilometres; prizes, £40, £16, £10, and £6; entrance fee, 10 francs. 3, Voiturette race, distance 50 kilometres; prizes, £60, £24, £12, and £8; entrance fee, 25 francs.

4, Car race, distance 100 kilometres; prizes, £120, £80, £40, and £24; entrance fee, 50 francs. Entries should be made to the Wellington Hippodrome at Ostend, or to the office of the "Vélo" at Paris. The track measures 2,700 metres, or upwards of $1\frac{1}{2}$ mile. Among the entries already received are the names of Levegh and Jenatzy, and doubtless many other leading racing men of the day will also participate. In the event of the practicability of racing under these circumstances being clearly demonstrated, there can be but little doubt that other moto-dromes will be exploited, for a means of satisfying the racing fever must be found. No wonder, then, that the experiment at Ostend is being watched with the greatest interest, and that a large number of Frenchmen interested in automobile matters have already signified their intention of being present. From a social point of view the meet will also be of interest, for it is more than probable that the Shah of Persia will be a spectator of the races. He will be in Belgium at the end of the month, and is reported to have expressed the intention of going to Ostend and witnessing the automobile sports. Should this prove to be the case it will certainly do much to ensure the success of the meet, and if by chance he put in an appearance on his new Serpollet, what a reception he would have, to be sure!

The "Simplest" Voiturette.

"LA Plus Simple," or the "Simplest," is the name given to a little two-seated voiturette lately turned out from the works of M. René Legros, of Fécamp (Seine-Inférieure). It is driven by a 4 h.p. single-cylinder air-cooled motor, fitted in the fore part of the frame as shown in the accompanying illustration. The car is gear driven, the pinions working in an



oil bath. The ignition is electrical, a feature being the employment of a small pedal to cut off the electrical current when necessary. Steering is controlled by an inclined hand-wheel; a pedal actuates a band brake on the differential gear, while there are band brakes operated by a hand lever on drums attached to the hubs of each of the rear wheels. The car, which weighs about $4\frac{1}{2}$ cwt., can, it is claimed, attain a speed of 35 kilometres per hour and mount gradients of 12 per cent.

The Flotte-Lemaître Case Again.

THE Flotte-Lemaître case has advanced another step, and the Versailles Court has, acting upon the report of the medical men deputed to examine Flotte, assessed at £800 the amount of damages payable by M. Lemaître to the injured mechanic. I say "advanced another step," for if reports be true the affair is not yet finished, M. Lemaître having the intention to again appeal, this time against the amount awarded by the Court to the plaintiff. And this amount is in reality but a third of that claimed, for Flotte considered himself entitled to £2,400. M. Lemaître must be pretty firmly convinced of the justice of his cause, for he is contesting every inch of the ground with the same determination

that he has so often shown in automobile races. When will it end?

Belgian Roads.

ONE of the greatest tribulations of the automobilist touring in Belgium is the terrible condition of many of the roads; indeed, some of them are quite impossible for self-propelled traffic. But what can be expected when the State, instead of setting an example by keeping the roads under its direct control in irreproachable order, neglects many of them to such an extent that the motor man who has the slightest regard for his car and for his personal comfort is compelled to studiously avoid them. The route from Brussels to Antwerp may be cited as an example, and again that leading from Brussels to Malines, via Vilvorde and Sempst. Why, but quite recently the members of the newly-formed Moto Club of Belgium, who were engaged upon their opening run, were compelled to make the journey between Brussels and Malines by way of Perck and Elerdyt, finding the local routes infinitely preferable to the main road. There is considerable talk in automobile circles of organising a campaign on this question, but unless energetically pressed home nothing is likely to result, for the Government has a careful eye to its finances, and road-making is no inexpensive item.

FURIOUS DRIVING CASES.

AT the West London police-court last week, Mr. Harry Lee, residing at 149, Lupus Street, Pimlico, was summoned, before Mr. Lane, Q.C., by the police for unlawfully driving a motor-car at a speed greater than was reasonable and proper having regard to the traffic. Mr. Arthur Newton defended. Police-constable 517 T said the defendant drove at the rate of seventeen miles an hour along the Chiswick High Road. He judged the rate of speed as he himself rode a bicycle and had some difficulty in keeping up to the car. Mr. Newton pointed out that motor-cars, owing to the noise they made, gave the impression that they travelled much faster than they really did. The defendant said that he was not travelling faster than seven miles an hour. The car was purchased in Paris for £1,000, and could be brought to a standstill immediately. Mr. Newton asked his worship for an expression of opinion as to what constituted a dangerous rate of speed. Mr. Lane, Q.C., did not think the police would interfere if a car was driven at a fast rate in a road where there was little or no traffic. Under certain conditions twenty miles an hour might be, he said, a perfectly safe and proper speed, but in the case of a car managed with less skill and without the same delicate adjustment twelve miles an hour would be a dangerous and an improper speed. In the interests of the public he fined the defendant 5s., with 2s. cost.

AT the Worthing Petty Sessions last week Albert Edward Knight, a motor-car instructor, pleaded not guilty to a summons charging him with driving a motor-car furiously in the Broadwater Road on April 23rd. Police-constable Pennicott deposed that on the evening in question he was on duty in plain clothes when he saw the defendant and another man come over the railway bridge in a motor-car. The car was going at about eighteen miles an hour, and several children, who were playing in the road, had to run out of the way. The car was certainly driven to the common danger of the public. Defendant said it was impossible for the motor to go eighteen miles an hour. Superintendent Bridger deposed that on the evening in question he was driving through Broadwater Village when he met the defendant, who was driving a motor-car in the direction of Worthing. The car was going at a most dangerous pace, and witness had great difficulty in holding his horse, which shied at the car. Defendant stated he had driven motor-cars for five years, and had never had a complaint made against him before. He should say they were not going at more than seven or eight miles an hour. George Wills, of Chapel Road, Worthing, deposed that on the evening of the 22nd April the defendant brought the motor-car to his yard to be examined, and he found that the engine was defective. It had lost compression entirely, and it was impossible for the machine to have gone at more than nine miles an hour when he saw it. By the Clerk: He could not remember at what time of the day it was the defendant came to him. The Bench held that the case was proved, and imposed a fine of £2 and £2 3s. 3d. costs, the chairman observing that it was quite time the reckless driving of motor-cars was put a stop to.

AT the Steyning Petty Sessions last week George Thomas Langridge, of Epsom, was summoned for driving a motor-car at a greater speed than twelve miles an hour on the highway at Storrington on July 29th. The offence was denied. Police-constable T. Bristow said about 4.45 on the afternoon of the day named he timed the motor-car which the defendant was driving for a quarter of a mile, which it covered in fifty seconds. As defendant got near him he shouted, "One minute, sir, please," and defendant slowed down a little, but did not stop. Witness tried to take hold of the handle, but defendant pushed him aside.

Witness then caught hold of the back of the motor and defendant's coat. Witness hung on till the defendant stopped. He took defendant's name and address. Harry Eade, Ashington, judged the pace to be not less than seventeen miles an hour when he first saw defendant. Defendant was sworn, and said he had been a cyclist since 1874, and during the last eighteen months had driven a motor 150,000 miles, and had never been stopped. He had never passed a horse at a rate of more than six miles an hour. He denied that he was going at the rate alleged, and said if he had known the policeman was there he should have done just the same. He was not going more than twelve miles an hour. Ordered to pay 19s. 6d. costs, no conviction being recorded.

LA SOCIÉTÉ DES ANCIENS ÉTABLISSEMENTS PANHARD ET LEVASSOR v. THE PANHARD AND LEVASSOR MOTOR CAR CO.

IN the Chancery Division, a few days ago, Mr. Vernon Smith, Q.C., mentioned a motion in this action to Mr. Justice Cozens-Hardy. The plaintiffs seek an injunction to restrain the defendants from trading under the names Panhard and Levassor. Counsel stated that the defendants had put in affidavits which raised a number of defences, and the affidavits would have to be submitted to the French directors of the plaintiff company. He did not think the motion would be effective during the present sittings, and asked that the matter might be ordered to stand over until after the Long Vacation. Mr. Justice Cozens-Hardy acquiesced.

AN UNPROVOKED ASSAULT.

THE motor-car does not find favour in the sight of two stablemen down Putney way. On Bank Holiday Mr. Robert Tweedy Smith, solicitor, of Carey Street, W.C., put his car up at Mr. Beach's stables there, as it was raining. Henry Sexton and Alfred Sexton, stablemen in the employ of Mr. Beach, seemed to resent the presence of the car, and displayed a bias against motor-cars in general. Some hours later, when Mr. Smith and his friend were about to drive off, the stablemen, who were under the influence of drink, suddenly attacked him. They pinned him to the wall, and hit him savagely about the head and body. Mr. Rawlings corroborated the complainant's evidence, adding that he never had witnessed such a savage assault, and that the men acted as though they were disappointed at not receiving a "tip." These facts came out at the South Western Court on Saturday last, when the two men were summoned for the assault. Mr. Rose, in addressing the defendants, said: A Bank Holiday, some beer, and an objection to motor-cars—these were the moving elements in this absolutely unprovoked assault. You must each of you pay 20s. and 2s. costs, or go to prison for fourteen days. The money was paid.

MOTOR-CAR ACCIDENT NEAR ALCESTER.

A MOTOR-CAR accident happened on Tuesday, last week, on the road between Alcester and Stratford-on-Avon. Messrs. Eadie, Smith, and Edmunds, all of Redditch, were returning on the way from Stratford, on a De Dion voiturette, and on descending Red Hill the car overturned, and the occupants were thrown out with considerable force. Mr. Smith's left arm was broken, and his face badly injured. A slight injury was sustained by Mr. Edmunds to his left arm, but Mr. Eadie escaped unhurt. From particulars we have received, it appears the steering wheel (left side) dropped off through the axle breaking.

THE Bedford Motor-Car Syndicate, Limited, is being voluntarily wound-up.

APPLICATION has been made to the U.S. Post Office Department for an automobile mail carrier for Washington County, Pa., to carry mail on the old National pike between Washington and Brownsville.

THE Worshipful Company of Coach Makers and Coach Harness Makers of London offer a scholarship of £25, tenable for one year at the Higher Technical Day Class for Road Carriage Building at the Polytechnic, Regent Street, London, W.

RECENT additions to the list of members of the Automobile Club include the following gentlemen: H. M. Beddington, A. R. Bower, Clement Braby, Rev. H. C. Coote, W. G. Crombie, W. K. D'Arcy, Maurice Egerton, H. P. Fernald, L. F. Giers, G. H. Healey, John D. Hill, W. R. Holmes, Sidney T. Hone, W. M. Leon, O. E. Lord, Wm. Hy. Schneider, F. S. St. Quintin, John St. L. Strachey, Hon. H. N. Sturt, Edgar Thornton, Charles Threlfall, Arthur Thwaites, T. U. Thynne, Edgar Webster, Arthur Gerald Weguelin, and G. St. Maur Willoughby.

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COMMENTS.

AN excellent illustration of H.R.H. the Prince of Wales and the Hon. J. Scott-Montagu, M.P., on the latter's 12 h.p. Daimler, appears in the last issue of the *Sphere*. The picture is reproduced from a photo taken at Highcliff Castle, Hants, on the 14th July. Unfortunately the writer of the notice accompanying the illustration is not very happy in his statements with reference to the Prince of Wales's connection with motor-cars, for in one place it is stated that this was "the first occasion when the Heir Apparent boarded a motor," and in another, "so far the Prince has

not gone in for a motor-car of his own, but he may yet possess himself of a machine." It will apparently be news to the writer of the article in question, although not to readers of the *Motor-Car Journal*, to learn that it must be nearly three years since the Prince of Wales made his first trip on a motor-car, and that not only has H.R.H. had a motor-phaeton of his own for over two months, but that he has, as stated in our last issue, two more vehicles on order. Royalty is certainly becoming a very appreciative patron of automobilism, and on his way to receive the Prince of Wales at Wilhelmshohe, on Thursday, the German Emperor made use of a motor-car which had been sent there by the German War Office.

Motor-Racing in Ireland.

THE first motor race on an Irish track took place last week at Navan sports, and was very well received by the public. Four competitors competed, all being mounted on Ariel motor-tricycles. The preliminary heats were over a distance of two miles, and in the first J. Macdonald won easily from H. Kenny; whilst in the second J. C. Cooney came in well ahead of R. W. Stevens. In the final, Cooney also proved the winner, doing the distance in 11min. 0½sec., which is very good for a gravel track. Great interest was centred in the event, and already some other fixtures of a like nature have been billed.

Motor-Cars at Bournemouth.

THE dead-set which is being made in certain quarters against the motor-cars at Bournemouth has already been referred to in these columns. The Bournemouth *Observer*, in commenting on the matter, considers that this "motor-phobia" "principally attacks those who have never entrusted their susceptible personages to the exhilarating motion of the motor-cars, and whose requirements in the matter of rapid transit have not enabled them to appreciate the great advantages of this means of conveyance over the leisurely cab and creeping omnibus. More especially does the disease take possession of the official mind, and it seems likely to create a perversion of public authority as typified in the constabulary executive."

Blocking their Way.

OUR contemporary points out that several ways have been officially tried to check the adoption of the motor-car system in the town. It was sought to impose harassing conditions by making the cars run where they were not wanted, and could not possibly make a remunerative route. Such an attempt was found to be *ultra vires*. The Horse Committee of the Town Council then agreed to recommend the Council to withhold the licences of the drivers. At the last moment they were bound to admit that this proposed action was legally unwarrantable, and they had to withdraw their recommendation. Now the symptoms indicate that the question of speed is to be the one crucial point to which they are to direct their attention, with the view of blocking the progress of the cars.

Judging the Speed.

THE question is very wisely asked, how many people are capable of gauging the speed of a motor-car? How many constables can be regarded as trustworthy on such a point? No doubt there will be cases of reckless driving of motor-cars, just as there are with horse-drawn vehicles, which should be dealt with by a firm judicial hand. Up to the present, such cases have been relatively few throughout the country, and in Bournemouth it has been pleasant to note the carefulness and dexterity of the drivers. The *Observer* adds that it is satisfactory to note that magistrates of experience in giving their decisions in such cases are very slow in accepting the uncorroborated testimony of the police.

Advice to Provincial Magistrates.

AUTOMOBILISM is a comparatively new thing. With its advent has come the possibility of a new public offence, and an additional opportunity of police vigilance. Hence, metropolitan and stipendiary magistrates, who are experts in reading the promptings of official testimony, are very chary in convicting on a charge of over-driving a motor-car. It will probably be some time before a like-mindedness is displayed on the provincial bench. It will require a more prolonged familiarity with automobilism, and possibly a few appeal cases with judgments reversed on appeal, possibly even a special statute, to protect motor-cars from the influences of prejudice and feverish alarm, before they can be freely run without risk of undue interference.

Excessive Speed in Norfolk.

AT the Norwich Shire Hall last week Colonel Dawson drew attention to the speed at which motor-cars were driven along the road. He stated that an evening or so previously he was standing in his garden at Old Catton, and saw a car pass at the rate of twenty miles an hour, which he considered was absolutely improper. He asked if any steps could be taken to prevent such a speed. Mr. R. B. Longe suggested that the member of the County Council for the division should be requested to ask the Council what regulations were made,

and to make suggestions as to speed. The Chairman said he was the member for the division, and would carry out the suggestion. He thought, however, that if the gentleman who had been referred to was cautioned by the police it would be sufficient, as he might be unaware of the speed allowed by the County Council.

Porlock Hill Mounted by a Motor-Car.

It was only in our last issue that we chronicled the fact that the 16-h.p. Napier car was in the north of England. Now we learn that last week end it was creating new records in the west of England, achieving the distinction of being the first motor-car to ascend the well-known steep Porlock Hill, near Minehead. Of this hill, the "Contour" Road-book states that it is "a sheer descent with two twists near the bottom; there is scarcely any surface to this part of the road—it is more like a river bed." The three miles climb is equal to a lift of over 1,300 ft., and comprises gradients as steep as one in six. The attempt to mount the hill was, we understand, the result of a wager between Mr. S. F. Edge and a local hunting sportsman. A large party gathered to witness the failure of the attempt, but the 16-h.p. Napier upset all their calculations. With three persons up it took the worst slopes at a steady seven miles per hour, and covered the distance from the village to the road junction on the hill top in 17m. 35sec.

Business in a Motor-Car.

WHAT a convenience it would be were business men able to take their holiday in a motor-car. A member of our staff who has lately been vacating has been endeavouring to keep up his connection with the office work, but finds it rather irksome having to do things in strange surroundings and away from all the usual references. This, too, is a difficulty experienced by all busy people who are unable to entirely tear themselves away from business and professional worries. Mr. Fiske, an American millionaire, has, it is said, got over the worry by the utilisation of a motor-car. He lives in a suburb an hour's ride from New York and spends the two hours a day, which would otherwise most probably be wasted, in a motor-car, which has been fitted up as an office, and in which he works to and from his business place. There is a type-writing outfit in addition to the usual office fittings, so that he is able to fully appreciate the proverb, "Money is time." Whether such movable offices will ever be available for business men in this country when on their holiday is a matter of problematical conjecture.

Motor-Car Accidents.

FREQUENTLY have we referred to the habit of newspaper scribes giving the motor-car the discredit of every accident to horses or horse-drawn vehicles. An instance occurs in connection with the terrible accident to Miss Page, which has occurred in Hyde Park this week. After describing the way in which she was thrown and dreadfully injured, the reporter goes on to say: "It is thought that the animal shied at a motor-car." This seems a kind of concluding line to every report of the kind, and we would again protest against what is evidently a prevailing custom. To say "it is thought" a motor-car caused the accident is a very unfair way of putting the case, especially when the evidence as to a motor-car being near is absolutely *nil*.

Near Bonnie Dundee.

AFTER a trial for a number of weeks the two motor-cars which were substituted for the ordinary horse 'bus on the run between the village of Downfield and the Dundee steam car terminus at Fairmuir have been stopped. Several reasons have been advanced by village gossips for the stoppage of the vehicles, but what appears to be the most accepted by the travelling public of the district is that both of the vehicles put on the route were altogether unequal to the traffic. One fact certainly must

have led to a change, and that was the unpunctuality of the running. No route can be expected to meet with the wished-for traffic if the public have to wait about for a length of time in which they can almost walk the distance. Then on rainy days nothing could have been more miserable than being seated in the open car.

A Quick-going Family.

MR. W. K. VANDERBILT, JR., whose fast Daimler machine has so disturbed Newport, inherits the love of speed that has been in the Vanderbilt blood from the first. With the old Commodore, with his brother, Captain Jacob, and the former's son, William H., it was fast horses. William H.'s day of triumph was when, with Maud S. and Aldine, he lowered the record for a double team in harness. With Cornelius and William K. it was fast railroad trains, and the Empire State Express is the monument to the love of speed in that generation of the family. Now come Cornelius, Jr., and William K., Jr., the latter with his Daimler, and both with yachts. The performances of the 70-footers, Yankee, Rainbow and Virginia, sister boats to the Mineola, are of present day fame. There must be something fascinating about motoring for it to appeal so strongly to such a quick-going and sporting family.

Wiltshire on the Watch.

THE Standing Joint Committee of the Wiltshire County Council has been considering the question of the speed of motor-cars. Two or three different views as to the responsibility for watching the drivers were presented, and ultimately those who wanted to thwart automobilists seem to have got very little satisfaction. The clerk suggested that it was the duty of the police to check an excessive rate of progress. The chief constable, however, contended that the duty also rested with the public, who by complaining to the police could effectively set the law in motion. The drivers of motor-cars, it was said, possess something of the elusive tactics of a Boer general. They are unknown in the district through which they whirl, and by the time the nearest constable had been apprized of an unseemly rush the driver would be miles away, unless something happened to his apparatus. When complaints become sufficiently general in the county of Wiltshire the chief constable has offered to put a policeman on the look-out on certain roads.

Motorists and Hotels.

BICYCLISTS have been a boon to many innkeepers on the main roads, but motorists promise to be an even more profitable class of patrons. They feel the want of liquid refreshment both to wash the dust down their throat and, as is often the case, to revive the circulation after being chilled by the rapid motion through the air. Moreover, they belong, as a rule, to a class having greater spending powers than the average cyclist, and go in more for the luxuries of life in the shape of wines and cigars. It would pay innkeepers up and down the country to keep supplies of petrol, as the fact of their doing so would attract motorists to them and so be a new source of profit.

Over the Alps.

MRS. PENNELL's pen and Mr. Joseph Pennell's pencil make a combination that secures for the little volume published by Mr. T. Fisher Unwin a favourable reception. This is entitled "Over the Alps on a Bicycle," and with the three previous books of the series completes the record of a journey from London to Rome in the years 1884 to 1897. Mrs. Pennell records many chatty reminiscences, and although the ascents she made would not always be acceptable to the motorist, many knights of the steering wheel will appreciate the description of the route from Dijon to Lucerne. At the end of the book is given a summary of the route, with some notes on the character of the roads which were traversed.

Accidents in France.

ACCORDING to the "Velo's" statistical table, the four great means of transport were last month responsible for 1,073 accidents in France, giving rise to 114 deaths and the injury of 959 persons. No deaths are attributable to the automobile, and the sum total of its offences is the injury of 34 persons, some of the victims being automobilists themselves, others members of the general public. The bicycle's black list shows a total of 98 accidents, which brought death to seven and injuries to 91 of the victims. The railway figures to the extent of 29 fatalities, and is also responsible for the injuries sustained by 36 people. Only one other class is included in the "Velo's" list—the "fiery steed"—but, as is invariably the case, more accidents have occurred during the month by the use of the horse than by the employment of all these mechanical means of transport. To his charge must be laid 876 mishaps, resulting in injuries to 798 and death to 78 victims. It is truly an appalling list! Were the horse compelled to pass an expert with regard both to his construction and his behaviour, as is the motor in France, we should probably hear less of his dangerous eccentricities.

A Warning to Manufacturers.

THERE is a practical tone about an article in the *Coach Builders' Journal*, in which attention is drawn to the danger of the motor-car drifting into its wrong sphere, "for the reason that motor-vehicle makers have been devoting their entire efforts to making it a thing of pleasure and an expensive luxury for the aristocrat." After pointing out other matters, our contemporary adds: "It is the commercial world which is waiting for a motor to take the place of the horse. The motor is essentially a thing of work, its mission is to abolish distance by means of more rapid transit than is possible under the circumstances which now obtain; to carry loads, whether of passengers or goods, at, if possible, a cheaper rate, though this is not so much an object so far as passengers are concerned as the saving of time, and fortunes can be made out of the passenger traffic of London and the large cities of this kingdom alone. One or two motors might be made and lent to either or both of the great bus companies in London, who would gladly put them to practical tests. If they were found more economical than the horses now in use, the certainty of increased dividends for their shareholders would ensure their speedy adoption. We presume that the primary object of the motor engineers when going into business, like that of every one else, is to make money. We think, however, that until they bring themselves to look upon the motor as a substitute only for the horse, capable of doing more work more economically and more expeditiously, as is the case with the railway locomotive, and to understand that the general public and not the aristocracy, or any other single class, will be their best customers, motors will be used only to a very limited extent."

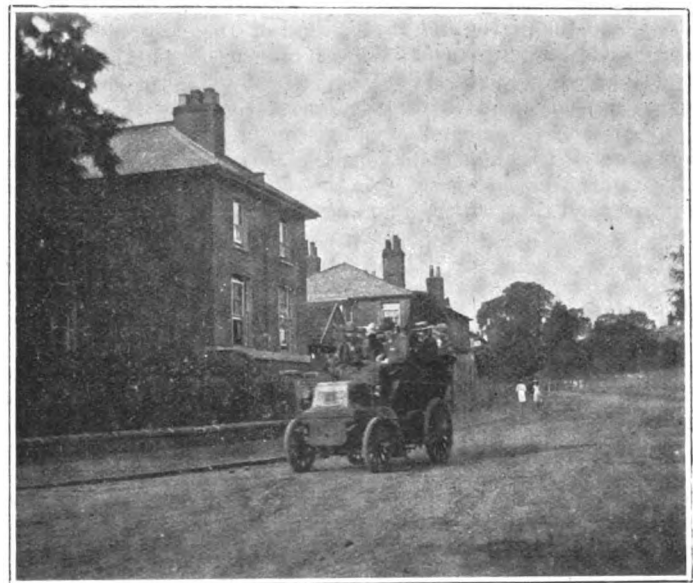
On Swiss Mountains.

MR. CHARLES P. SISLEY has done well in taking a motor-car into Switzerland and giving additional proof of its value amid the mountainous passes of that favourite country of the tourist. That it was a French car—a voiturette with a 6 h.p. engine—need not arouse any jealous feeling in the minds of patriotic Britishers, for an English vehicle can be obtained which would have been equally reliable and given quite as satisfactory results. The adventure was as much a trial for the motorist and his companion as for the car, for while ascending gradients they had to be ready to jump off at a moment's notice. Any slight error of judgment might have hurled them down a precipice. Perhaps the most exciting moments on these mountain roads occurred when passing vehicles. In Switzerland the horses are not yet as accustomed to the motor-car as they are in France, and it was often hard to say whether the motorists or the occupants of the other vehicles were most in danger of instant precipitation into space. Once, when passing through a village near Interlaken, a horse attached to a farm cart was standing outside an inn. The motor-car coming swiftly along did not seem to disturb the animal until

arriving almost abreast of it. Then without warning it broke loose, overturned a water trough, scattered all the poultry in the yard, and made a wild dash after the car. For half a mile or so it was a desperate contest—the mad animal close behind the occupants of the motor-car, who were piling on all the speed in their power; then gradually the horse tired, but it did not actually cease running for several miles.

Tramways v. Motor-Cars.

THE merits of tramways and motor-cars have often been discussed during recent weeks, to the advantage in almost every instance of the motor-car. Certainly the greater mobility of the latter, and the fact that it requires no great preparation of road surface, and does not monopolise half the roadway, are factors to be considered and regarded in these days. Probably in the future we shall have long lines of electric trams supplemented by motor-omnibuses in the crowded areas as well as the less thickly populated ones, for tramways would never be appreciated in the central parts of great cities, and in many



A MERRY PARTY ON THE WAY TO GUILDFORD.

localities would never be profitable. In such circumstances the motor-vehicle will be undeniably useful and profitable.

A Business Visitation.

"THE head of a firm who wishes to see his agents throughout the country, would like to arrange with a gentleman having a motor-car to tour with him on mutual terms, one to three months.—Address, c.o. — Advertising Offices." Such is an advertisement which has appeared in a business paper, and we reproduce it as suggesting a development of the usefulness of the motor-car, which should be of interest to our readers. To anyone with large business connections in out-of-the-way towns, as well as in the great commercial centres, the motor-car offers a means of conveyance that is comfortable in use and economical in time; for it certainly will save much wasted time and the confusion usually associated with railway travelling in a hurry.

Views of a Buxton Motorist.

MR. AUGUSTUS BEATSON, of Buxton, and a friend went by motor car from Buxton to Sheffield the other day, greatly enjoying the run, *via* Castleton and Fox House. When they were going back the "trembler" went wrong near Fox House, and, owing to the screw-driver having been left behind, they had the greatest difficulty in adjusting it, and it caused considerable delay; in fact, they did not reach the bottom of Taddington Hill (they returned *via* Baslow, Hassop, and Ash-

ford) until about midnight. Here they had another delay from the same cause, and it looked at one time as though they would never get the engine going, but would have to spend a night with the glow-worms! However, they managed to get back to Buxton all right. There are three brakes on the car, so there is absolute control over it, and as an experiment Mr. Beatson has run into the coach-house at about twelve miles an hour, and pulled it up dead! The brakes on his new car are still more powerful. A motor-car, like a horse, requires a drink occasionally—and so of course does the driver!—and when Mr. Beatson was driving to Derby last week he stopped at an inn for this purpose, and got into conversation with a "bobby," and he admitted that it was impossible for him to tell whether a car was going at six or nine miles an hour. No one can tell to a mile or two what the speed is, unless on a measured road and with the aid of stop watches. The convictions for furious driving are perfectly ridiculous, and if drivers of motor-cars are fined, a great many drivers of horses in and around Buxton ought to be also, for they certainly drive at a "furious" pace sometimes, and cannot pull up sharp the same as a motor car can. Mr. Beatson says he cannot tell how many times he has been thanked for either slowing down or stopping dead—just as circumstances require—for restive horses, and the driver and also several of the passengers of the Derby and Matlock coach thanked him the other day for stopping dead for them to pass. The sooner the owners (especially the "great unpaid") and drivers of horses recognise the fact that motor-cars have come to stay, and educate their horses so that they are not frightened at them, the better will it be for themselves and everyone else. Such are the views of a Buxton motorist, and they will be endorsed by all our readers.

◆ ◆ ◆
**"Horseless Vehicles,
 Automobiles, and
 Motor-Cycles."**

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 This is the title of a work from the pen of Mr. Gardner D. Hiscox, an American engineer, which has just been published by Messrs. Sampson Low, Marston, and Co. As its title indicates, the book is quite a comprehensive review of the motor-vehicle and covers the subject in a readable manner with a great deal of attention to detail and numerous practical particulars of considerable interest. The contents commence with some introductory historical notes and the first type of automobile dealt with is the steam machine as being the forerunner of the industry. Steam vehicles, motor appliances, with a very lucid description of the Serpollet boiler, the pioneer of light steam generators, are described together with details such as burners and arrangement of tubes. Then a chapter is given to specialties in automobile construction, comprising the compensating bevel gear train, two pinion differential gear, tires for automobiles and roller bearing axles. Under steam propelled vehicles and automobile carriages, road rollers, traction engines, trucks, fire engines, motor-vehicles for heavy traffic, and various types of modern steam automobiles are handled. A chapter is devoted to horseless vehicles with explosive motors, one to electric ignition, while in another the carburettor, a very essential part of the petrol-motor, and the various types are explained, as well as operating devices and speed gears, friction clutches, steering gear and silencers, etc. Next to be treated are electrical vehicles, one chapter being devoted to "How to Build an Electrical Cab." Compressed air power for vehicles occupies another chapter, and the work concludes with miscellaneous vehicles, motors, and appliances. The book also contains a list of patents on motor vehicles of various kinds, from 1856 to the time of publication; also a list of addresses of automobile builders in the United States, as far as known to the author at the time of publication. It is perhaps quite natural, in view of the fact that the author is an American, that American vehicles should receive the largest share of notice in the book, but it is with regret that we notice that such builders as Panhard and Levassor, Peugeot, and Mors, are not even mentioned, and that the Daimler vehicle is represented only by its carburettor. The books of reference on automobiles in the English language are, however, not too numerous, so that, despite the drawbacks above alluded to, the work will be found useful by many interested in the new means of locomotion.

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**From London to
 Leeds by Motor-Car.**

The establishment of motor-coach services has frequently been advocated in these columns, and we are pleased to learn that an attempt in the direction named is now being made. The credit for the new departure is due to Mr. A. E. Wynn, of Knaresborough, this gentleman having just started a service between London and Leeds. At present only one service per week in each direction is being carried through, but no doubt, if the experiment proves successful, further cars will be put on the service. At present the car is timed to leave London on Thursday mornings at 9 a.m., reaching Leeds on Friday evening. The return trip is made on Mondays, Leeds being left at 9.30 a.m. and London reached on Tuesday evening. The route followed is *via* Hatfield, Stamford, Grantham, and Doncaster, the stopping place for the night being the George Hotel, Stamford. The fare for the journey between London and Leeds is £2 2s. each way, with intermediate rates to Stamford and Grantham. It is interesting to note the conditions on which the car tickets are issued. The proprietor reserves the right to stop the car at any time if there is sufficient reason for doing so, and no person having booked a seat or taken a ticket shall have any remedy against the proprietor for so exercising his right except a return of the fare paid. If from any unforeseen cause the whole of the journey is not made by the car a due proportion of the fare is to be returned. All tickets are sold and places booked on this understanding. The inaugural trip was made on Thursday last week, Leeds being reached on Friday a few hours behind schedule time. Our Leeds correspondent writes that on the second trip, which started on Monday at 10 a.m. from Leeds, there were only two passengers, but probably when the fact that such a service is now available becomes better known the number of passengers will quickly increase. In any case Mr. Wynn is to be congratulated on his enterprise.

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**An Incident at
 Folkestone.**

◆ ◆ ◆
 MR. GRAHAME WHITE, who has lately been coaching Lord Wolverton in the management of a motor-car, had an exciting experience at Folkestone last week. He was driving his 12 h.p. Daimler with a full complement of passengers, including Lord Wolverton, Lady Haliburton, a coachman, and four children, from Deal to Folkestone, by way of Dover. The steep descent into Dover was negotiated in safety, and when the equally notorious hill into Folkestone was reached, the first and steepest part of that was also descended without thought of danger. Then the pace quickened, and Mr. Grahame White found to his dismay that the brakes had fired and burnt away under the prolonged strain. With admirable nerve, however, he set himself to conquer the difficulties of the situation. In the first place he reversed the engine; then he steered the car from side to side of the road in the hope of reducing its speed, but in vain; it surmounted every obstacle against which it was driven. Finally, he drove the car on to the pavement, between a lamp-post and a wall, the clearance being so narrow that, as Lord Wolverton says, "you could hardly have put a sheet of notepaper between the wheels and the post," then he pulled the car straight across the road and steered it through a narrow gateway into the yard of Folkestone Junction station. The alternatives here presented were either to dash into the station buildings or to slue the car round within an extremely narrow space while travelling at thirty miles an hour, heading it back through the gate and checking the momentum by turning up the hill. Naturally he chose the latter course. According to a newspaper account, all four tires were ripped off simultaneously as the car was wrenched round in its tracks, but the wheels held together despite the tremendous strain. Back through the gate went the car, round to the right, and at last it was brought to a standstill on the up-grade. But for the clear-headedness with which Mr. Grahame White grasped the only possible way out of the difficulty, the car would have continued its headlong course into the town, with results too terrible to imagine.

THE ROCHET MOTOR-CAR.

SINCE the Rochet car was first put on the market a number of changes have been made in it, the most notable of which is the placing of the engine under a bonnet in the fore part of the frame instead of at the rear. Fig. 8 shows the frame of the latest type of vehicle, complete with motor and transmission gear. This is so arranged that any desired form of carriage body may be mounted on it, and secured thereto by bolts. Fig. 1 shows the "duc touneau" style of body, with seating accommodation for six persons, but any other may readily and quickly be substituted for it. The frame is constructed from cold-drawn steel tubing with brazed joints, and is very rigid. All of its members are in internal communication, and it is made to serve as an auxiliary cooler for the cylinder jacket water. Two semi-elliptic springs in the rear and a transverse elliptic spring in front support the frame on the axles.

The Rochet motor is an adaptation of the Daimler engine, but it embodies a considerable number of improvements in the details of its construction. It is shown in Figs. 3 and 4, and has two cylinders, developing 6 or 8 h.p., according to size. Some vehicles have two of these motors on one shaft, which gives them 12 or 16 h.p. The two cylinders are cast in one piece and bolted to the crank case. All the moving parts, save the levers acting on the exhaust valves, are inclosed. The crank case has the usual splash lubrication, and a glass set in its side enables the operator to observe the level of the oil. The governor is within the case *J*, and the starting crank is worked from the front end of the vehicle. The cover *B* incloses a commutator to distribute the current for the spark, first to one and then to the other cylinder, electrical ignition being now employed.

The valve box is cast in one piece with the head. The fresh mixture enters at *T* and passes to one or the other cylinder,

while the exhaust gases pass out at *Z Z*. On top of the valve box are four screwed plugs, *a a c c*, which permit immediate access to the valves without dismantling the cylinder head; a meritorious feature. The two plugs *c c* over the inlet valves are formed to receive the sparking plugs *K K*. Two cups *M M* on the cylinder head are provided for the introduction of a few drops of petrol, when starting, to dissolve any gummy oil that may have clogged the piston rings. The governor is set to permit a normal speed of 750 revolutions per minute. The cranks are set opposite to minimise vibration. The speed of the motor is controlled by causing one or both of the exhaust cam rollers to run off from thin cams on to adjacent circular cams, thereby putting one or both of the exhaust valves out of action. The air supply to the carburettor, which is of the constant-level type, is warmed by passing around the exhaust pipe, and the mixture is diluted by an adjustable opening on its way to the motor. A small-screwed plug at the base of the carburettor permits of draining the latter of stale petrol, and also of lowering the level in case the apparatus becomes "flooded" by non-operation of the float. The exhaust valves are operated from a secondary or cam shaft, parallel with the crank shaft, and geared to it by spur gears in the ratio of 1:2. The piece transmitting the push from the cam to the valve stem consists of two parts, the lower sliding rod, which has attached to it the roller, rolling on the cam, and the upper part, *f*,

which is hinged to the lower part. A spring, acting through a pin on the projection of the lever *f*, ordinarily holds it in line with the part to which it is hinged. The lever *b*, pivoted from a support fastened to the crank-case, connects to the rod *f* by means of a link *d*. On the same shaft with lever *b* is another lever, which carries a roller at its lower end. This roller can be moved sideways on its shaft, and by this motion it is brought successively into contact with two cams on the cam shaft. These cams, through the intermediary of levers, throw

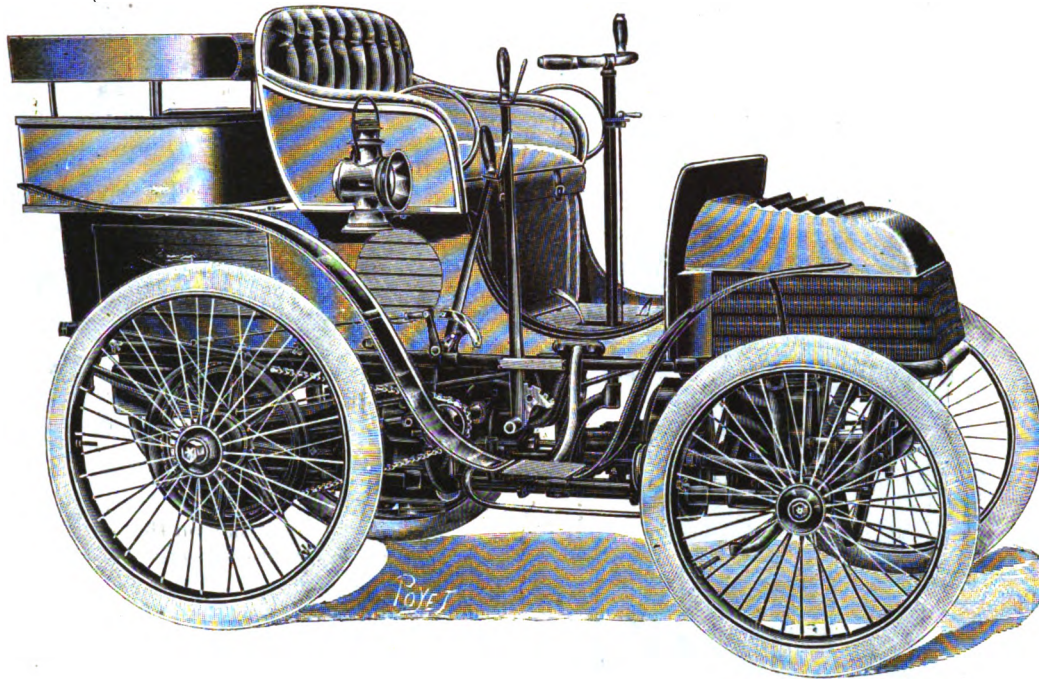


FIG. 1.—GENERAL VIEW OF ROCHET CAR.

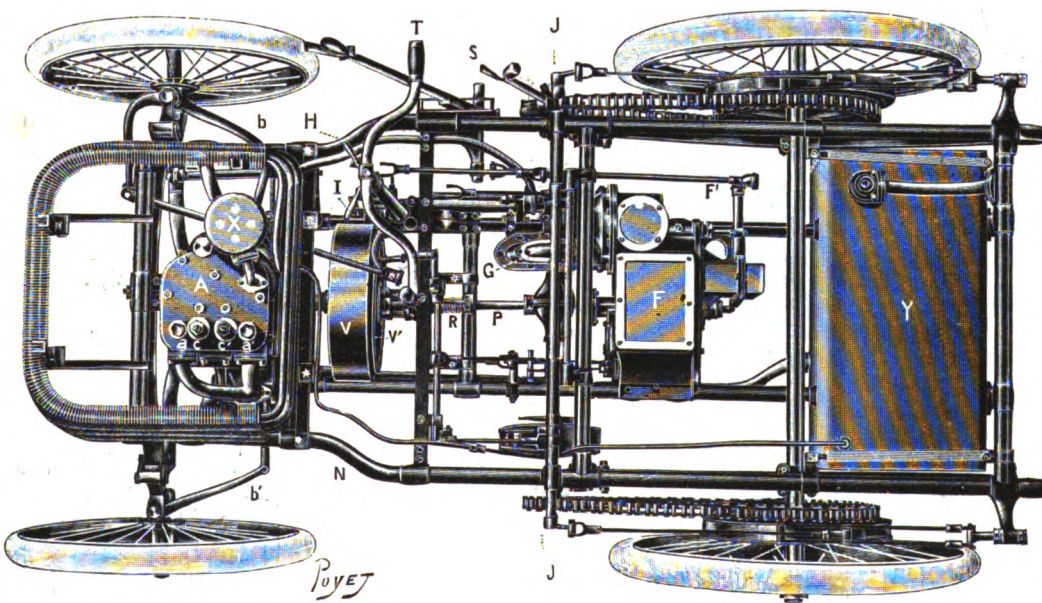


FIG. 2.—PLAN OF FRAME OF ROCHET CAR.

the rod *f* out of line with the part to which it is hinged, and thus make it miss the valve stem, when it is lifted by the exhaust cam. The shifting of the roller is effected by the centrifugal governor. The water circulation is maintained by a pump, a large radiating coil being also fitted in the fore part of the frame.

Four forward speeds, ranging from 5 up to 30 kilometres per hour, and a reverse motion are provided. As already stated, the motor is in front and the power is transmitted through the conical friction clutch *I'I'* and the shaft *P* to the speed-changing gears in the case *F* (Fig. 2). The change gears of the Rochet vehicle are of a somewhat different order from those usually found in French vehicles. The gear case with the gears in place is illustrated in Fig. 6. The central gear wheel *A*, the shaft of which is seen protruding, is the driving gear, and is concentric

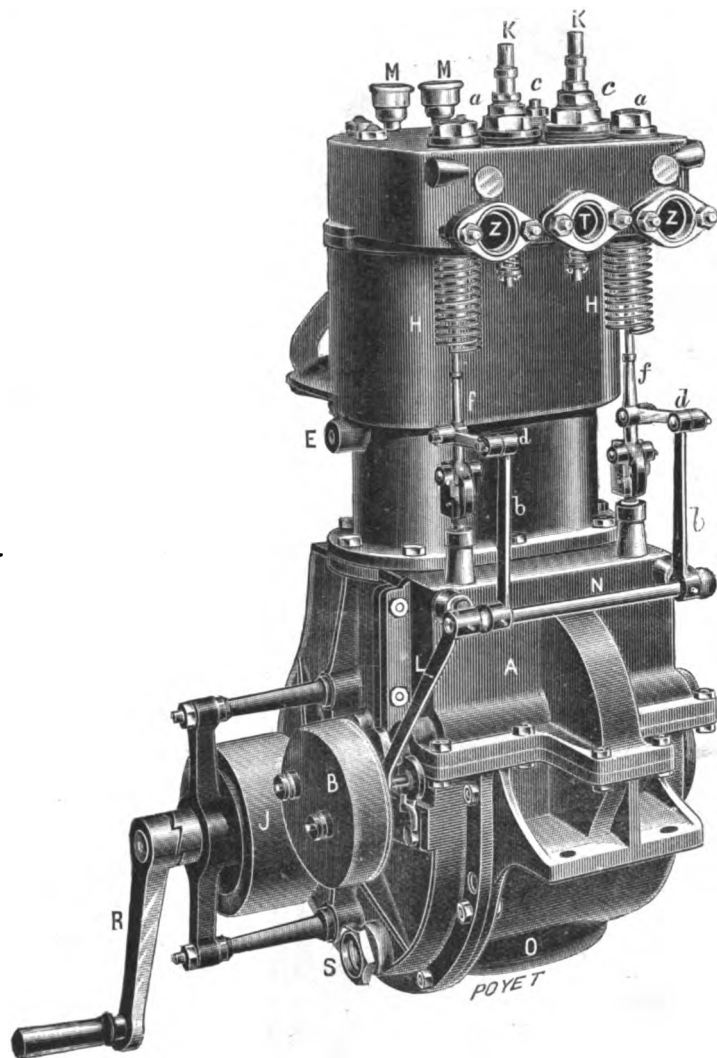


FIG. 3.—VIEW OF ROCHET MOTOR.

with the motor-shaft. At the side of this wheel, running loosely on the motor-shaft, is a disc *K³*, which on one face has projecting from it five short spindles, on which are mounted spur-wheels *K¹*, *K²*, *K³*, *K⁴*, *K⁵*. The last four of these, while being each of a different diameter to give the necessary variation in speed, are continually in gear with the wheel *A* on the end of the motor-shaft. The four wheels *K²*, *K³*, *K⁴*, *K⁵*, each have rigidly connected to one of their sides small spur-wheels *C²*, *C³*, *C⁴*, *C⁵*. Under the action of a lever, the disc can be rolled round the wheel *A* until any one of these small spur-wheels is brought into gear with the spur-wheel *B* on an intermediary shaft parallel with the motor-shaft. In this way any one of the four speeds can be quickly put in gear; for the backward motion, the spur-wheel *K¹*, driven through the train of wheels *A K⁵ C⁵*, is brought into gear with *B*. From the intermediary the power is transmitted through a bevel wheel to a similar bevel wheel on the differential shaft (Figs. 2 and 9), and from the latter to the rear road-wheels through the usual chain gear.

The vehicle is steered by a handle-bar *T* (Fig. 8), of which the left handle is bent upward while the right hand one is horizontal. The handle bar method of steering is claimed by the company to possess numerous advantages over the wheel; its management is more instinctive, its position indicates at once the

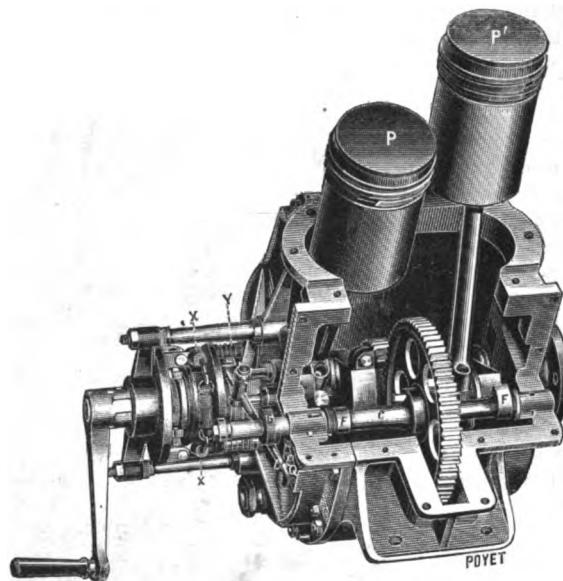


FIG. 4.—SECTIONAL VIEW OF ROCHET MOTOR.

angle of the front wheels, a thing of the first importance when manœuvring in close quarters. On the standard of the steering handle are two small handles working on notched segments. One of these acts on the governor of the motor and the other on the ignition, to vary the lead of the latter. Another and larger lever *U* acts on the speed-changing gears. To increase the speed the lever is moved forward, while a backward movement engages the lower gears successively and then reverses the vehicle.

At the driver's right is a brake lever *W*, which tightens leather-lined brake bands on two drums, one on each of the hubs of the rear wheels, after first having by the same movement disengaged the motor at the cone clutch *V*. This lever *W* is latched by a dog engaging a notched segment, so that the vehicle may be braked and the hand then employed for other purposes. There are two pedals, of which the left-hand one first disengages the motor and by further movement applies a brake on the differential. The right-hand pedal acts in precisely the same manner as the lever *W*, first disengaging the motor and then applying the rear wheel brakes. These brakes can therefore be applied either by hand or by foot, as most convenient. In an

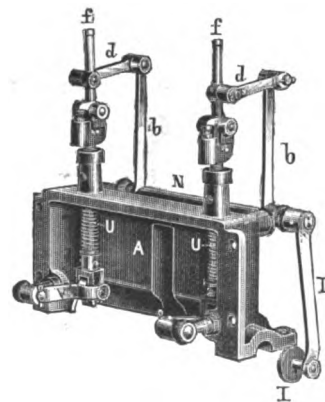


FIG. 5.—DETAILS OF EXHAUST VALVE GEAR OF ROCHET MOTOR.

emergency both brakes can be applied at once. A third pedal, operated by the driver's heel, releases a latch governing the speed changes, and is always operated in connection with the lever *U*. Cycle type wheels are fitted, these being shod with pneumatic tyres. The Rochet car is made by La Compagnie Générale des Cycles et Automobiles, of Paris, and is being introduced into this country by Messrs. Friswell and Co., Limited.

THE RECENT PARIS-TOULOUSE RACE.

THE Sports Committee of the Automobile Club of France has at length issued to the public the exact net running time made by each of the finishing competitors in the recent Paris-Toulouse-Paris race. The preparation of this official return has been no light undertaking, for the passage of every racer through the dozens of controlled towns encountered *en route* had to be accurately timed, and a corresponding deduction made from the unadjusted figures standing to his record. To ensure absolute accuracy all this was done with an infinity of precautions, and the figures now quoted are quite beyond suspicion. In but one single instance are the placings affected by the deductions, and, as will at once be surmised, this relates to the positions held by Voigt and Pinson. The gross times gave Voigt a lead of 51sec. over his rival; but, now the reductions have been made, it is Pinson who secures second place after Levegh, and this is by a 49sec. margin from Voigt. This is a truly astonishing result over so great a distance as 1,348 kilometres (842½ miles), and affords another proof of the reliability of the Panhard cars. The two vehicles in question are identical, with the exception that Voigt's machine is provided with ball bearings, whereas bearings of the ordinary type are fitted to Pinson's car. In view of the closeness of the finish

Cycles.

Teste ...	11	30	16	12	23	45	23	54	1
Collignon ...	14	8	2	13	20	32	27	28	34
Bardin ...	16	12	33	13	47	53	30	0	26
Gasté ...	15	41	25	14	51	7	30	32	32
Gleizes ...	21	28	53	14	50	21	36	19	14
Fournier ...	26	53	37	13	5	42	39	59	19
Durand ...	39	4	4	31	27	36	70	31	40

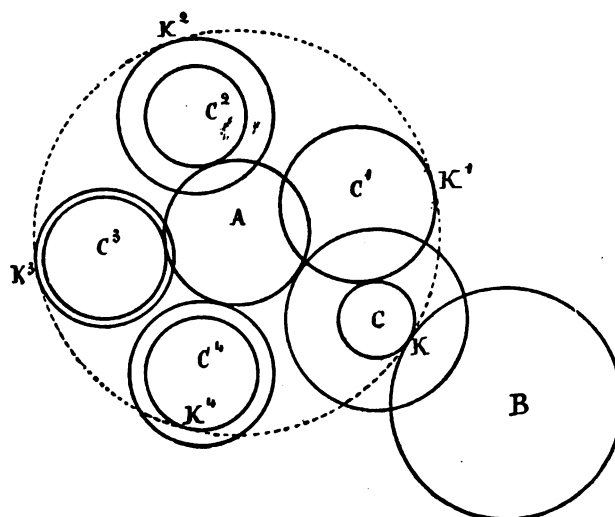
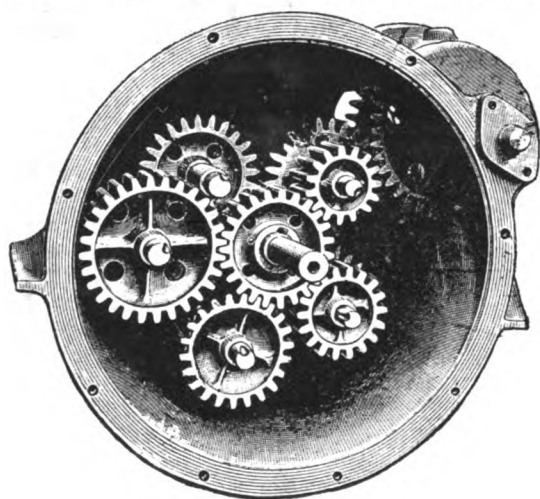
Voiturettes.

Renault ...	18	30	32	16	3	6	34	33	38
Schrader ...	27	2	12	18	47	23	45	49	35
Cyrus ...	39	43	58	17	40	45	57	24	43

The average speeds per hour achieved by the competitors throughout the race were:—Cars—Levegh, 64 kil. 700 metres; Pinson, 60 kil. 815 metres; Voigt, 60 kil. 754 metres; Giraud, 58 kil. 800 metres; Antony, 50 kil. 300 metres; de Turckheim, 35 kil. 800 metres; Ravel, 32 kil. 800 metres; Brillie, 30 kil. 495 metres.

Motor-cycles.—Teste, 56 kil. 400 metres; Collignon, 49 kil. 100 metres; Bardin, 46 kil. 900 metres; Gasté, 44 kil. 100 metres; Gleizes, 37 kil. 100 metres; Fournier, 33 kil. 700 metres; Durand, 19 kil. 100 metres.

Voiturettes.—Renault, 44 kil. 100 metres; Schrader, 29 kil. 400 metres; Grux, 23 kil. 400 metres.



FIGS. 6 AND 7.—THE ROCHET VARIABLE SPEED GEAR. (See page 423.)

the organising committee decided to give the third man an equal prize to that taken by the second, so both Pinson and Voigt secure a silver medal and £240 in cash. The other placed men took the following awards:—

Cars 1, Levegh, £320 and a silver gilt medal; 4, Giraud, £160 and a bronze medal; 5, Antony, £120 and a bronze medal; 6, de Turckheim, £80; 7, Ravel, £40.

Motor-Cycles.—1, Teste, £80 and a silver gilt medal; 2, Collignon, £60 and a bronze medal; 3, Bardin, £40 and a bronze medal; 4, Gasté, £20; 5, Gleizes, £20; 6, Fournier, £20; 7, Durant, £20.

Voiturettes.—Renault, £160 and a silver gilt medal; Schrader, £80; Crux, £40.

The official times and placings are as follows:—

Name.	Cars.	1st stage.			2nd & 3rd stages.			Total.		
		67.3 kil. 500.			67.5 kil. 250.					
		h.	m.	s.	h.	m.	s.	h.	m.	s.
Levegh	10	11	11	10	38	58	20	50	9
Pinson	12	11	56	9	59	5	22	11	1
Voigt	11	58	0	10	13	50	22	11	50
Giraud	11	56	24	10	59	8	22	55	32
Antony	13	15	6	13	31	21	26	46	27
De Turckheim	18	5	57	19	29	39	37	35	36
Ravel	26	50	2	14	10	27	41	0	29
Brillie	23	34	54	19	55	14	43	30	8

The time made by Levegh, allowing for halts on both sides and corrected with regard to distances, is some fifteen minutes faster than the speediest train running between Paris and Toulouse. The performance made by Pinson on the return journey is even faster still, but it was accomplished in two stages, whereas the outward run to Toulouse was made without a break, and consequently much more trying both to man and motor.

MOTOR-CAR trips are just now a favourite amusement at Hastings. The vehicles run at frequent intervals between that resort and Bulverhythe, carrying full complements of passengers. A motor-car trip to Brighton was announced to take place on Tuesday.

It is stated that the Swiss Council of State has issued an order forbidding the use of automobiles throughout the territory of the canton of Grisons under penalty of fine and the confiscation of the vehicle. The automobilists in the district have lodged an appeal with the Chambers-General against the decree.

MESSRS. MARSHALL AND Co., of Manchester, inform us that they have recently adopted roller-bearings on their motor-cars, and that the results are giving great satisfaction, both from the point of view of hill-climbing capabilities and of increased average speed.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

The Ostend-Meet.

IN order to save automobilists the necessity of hurrying away from Spa before the close of the meet, the Ostend authorities have decided to postpone the date of their fixture until Saturday, September 1st. The programme remains exactly as originally selected, indeed it would be difficult to effect any improvements in this respect. Quite a caravan of motor-men will journey through from Spa on the 31st inst., and another party will leave direct for Ostend from Paris. The royal automobilist, the Shah of Persia, is already at the famous Belgian watering place, but apparently has no intention of using his lately acquired Serpollet cars before he returns to Teheran in the late autumn, for I understand that the vehicles will be dispatched direct to the capital of the Shah's domain.

For the Motor Cyclists.

HAVING already submitted to the Director of Customs a petition on behalf of the owners of motor-cycles and having had it favourably received, M. Ballif, the President of the Touring Club of France, has now brought the matter before the notice of M. Caillaux, the Minister of Finance, who, it is confidently anticipated, will regard it with favour. As all cyclists are well aware, a reciprocal arrangement exists between the Customs authorities of certain countries whereby members of various federated cycling clubs, such as the English "C.T.C." and the French "T.C.F.," can introduce their machines free into those countries, and it is to extend this right to motor-cycles that M. Ballif is now petitioning the Government. So many men now indulge in motor touring that the concession would be keenly appreciated, and M. Ballif and the "T.C.F." are to be heartily congratulated upon having initiated the movement. The Touring Club's work is by no manner of means confined to cyclists, but embraces automobilists, and the new sport has already good cause to be grateful to the "T.C.F."

New Records.

NOT since Bonnard's motor-bicycle performance, achieved on June 30th last over a route of 100 kilometres, had any new records been made for any distance or for any type of machine until the 12th instant, when new figures were set up for the 50 kilometre motor-tricycle and the 100 kilometre voiturette records. These performances were made on the Orléans-Salbris road, and were organised with the greatest secrecy; indeed, but very few Parisian automobilists had any idea that such an expedition was on foot. Thanks to these precautions the speed trials were successfully carried out without any interference by the authorities, and although all the attempts were not productive of fresh records, still in a couple of instances, as stated above, new figures were set up. Rigal was the successful performer in the case of the 50 kilometre motor-cycle record, and his time of thirty-six minutes for the distance will take a lot of beating. It represents a speed of 84 kilometres, or 52½ miles per hour! The previous "best" was Béconnais', made on July 17th last, and was four minutes slower than Rigal's performance. In the case of the 100 kilometre voiturette record Marcellin was the performer, and he knocked nearly three minutes off the time made by Cottureau in this year's Critérium des Voiturettes. The new figures are one hundred and two minutes, which is practically an average speed of sixty kilometres per hour. Loppart, who attacked Béconnais' record for 100 kilometres, can be heartily consoled with, for although he actually achieved better times the figures cannot receive official acceptance owing to a "contrôleur's" absence from his post during a portion of the trial. Hard lines for Loppart. The timekeeper was M. Gaudichard, who has so often held the watch for speed trials of this description.

Motor-Racing in Russia.

A HUNDRED verst automobile race was run near St. Petersburg on Saturday, the 4th inst. Seldom, if ever, had so much excitement been visible on the roads around the capital. The route lay from the Narva Gates along the Tsarskoe Selo road to Krasnoe Selo, as far as Strelna, forming a triangle of forty-one versts, which had to be covered twice, and winding up with a run direct to Strelna. There were three categories, namely, automobiles, voiturettes, and tricycles. Of course, the entries for the last-named were the most numerous. The Grand Duke Sergius Mikhaylovich presented the prize, a handsome dressing-case, for the automobile category, in which M. Barbet's carriage secured first place, covering the 100 versts in 3h. 57min. 20sec. M. Fomin won the voiturette race in 4h. 23min. 50sec. The tricycles made the best time, namely, 2h. 53min. 39sec., which was M. Dechamps' performance. M. Mikhayloff, who was second, took 3h. 1min. 2sec.

Motor-Cars in the Austrian Army.

MOTOR traction has been playing an important part in the Austrian army manoeuvres, and the experiments have excited much interest, as the locality near the Carpathian range of mountains is hardly the best for such trials. Twelve motor-vehicles on the Amédée Bollée system were in use, while the staff officers at headquarters were supplied with motor-cycles.

A Scarcity of Petrol.

M. PIERRE LAFITTE writes to the *Velo* deploring the universal lack of petroleum spirit prevailing along the French northern coast. M. Lafitte went to Cabourg to enjoy a week's touring, which has been brought to an abrupt and premature termination by a petrol famine. Automobilists have flocked to the Trouville and Deauville coast in such numbers that the supply began to run short in the district. Local dealers made application to the wholesale trade for further provision, but in vain. Meanwhile, hundreds of motor men are said to be stranded along the Normandy coast in despair being at unable to use brand-new cars of the latest pattern, and anxiously wondering how they will get back to Paris again.

A Race from Berlin to Aix-la-Chapelle.

A long-distance race is about to be run off in stages from Berlin to Aix-la-Chapelle. The start will take place at the Zoological Gardens in Berlin at nine a.m. on the 30th inst., Magdeburg, 142 kilometres, being the end of the day's journey; on the 31st Hanover, 152 kilometres, will be made for; on the 1st September Munster, 188 kilometres; and on the 2nd Aix-la-Chapelle, 206 kilometres, the total distance thus being 688 kilometres, or about 430 miles. The race, which is being organised by the German Automobile Club, of Berlin, and the West German Automobile Club, of Aix-la-Chapelle, will be divided into the following four categories:—(1) racing cars; (2) touring cars weighing more than 400 kilos and having engines of not more than 9 h.p.; (3) voiturettes of not more than 4 h.p. and weighing less than 400 kilos; and (4) motor-cycles.

A MOTOR-CAR trip took place a few days ago from the Grand Hotel, Newcastle-on-Tyne, to Harrogate and Leeds, the fares being 15s. and 12s. 6d.

THE De Dion Bouton British and Colonial Syndicate, Limited, 14, Regent Street, London, write us to the effect that the car upon which Mr. Eadie and two other gentlemen met with an unfortunate accident last week, through an axle breaking, was not a voiturette of Messrs. De Dion Bouton's construction. The latest type of the latter are stated to be of a very different construction to the car in question.

PARIS EXHIBITION NOTES.

(FROM OUR OWN CORRESPONDENT.)

(Continued from page 413.)

I DO not for one moment suppose that the reader of these notes will, when visiting the Exhibition, carry out my suggestion to first visit the Musée Centennial des Voyages et du Tourisine, for upon entering the automobile section his first thought will be for—Panhard. And it is very natural, for no matter what may be his nationality every automobilist regards the Ivry firm with something akin to reverence. Here in France the position of Panhard continues absolutely unique, and there are no real signs of its diminishing. In the racing world they may not now have matters all their own way as of yore, but the fact of their competitors winning a few races can have but very little effect upon the business of the firm. All classes of motor men are still willing to admit that for reliability no vehicle can yet be compared to those turned out from the Ivry factory, and the man who can pay the price does not hesitate long in his choice of a car. Their exhibition at Champs de Mars is in every respect worthy of the firm. First of all there is a "tonneau" wagonette, of which the carriage work has been executed by Jeantaud. Painted white, with broad red lining, red wheels, and red leather upholstery, this 8 h.p. car is very smart. It is fitted with "compound" tyres and carries a light awning. A "tonneau" of Rothschild construction comes next, and this vehicle is painted red, with fine yellow lines. Red leather upholstery, brass fittings, and yellow painted wheels combine to make a harmonious whole. Next upon the list is a brougham, built by Mülbacher, which carries the motor under the front seat. This beautiful carriage is painted black and green, with red lining and red wheels. It is constructed to carry four people inside. At the other side of the stand is a car fitted with a less costly class of carriage work. In shape it is a wagonette, and is upholstered in blue cloth. As compared to the other wagonettes shown it is not a graceful vehicle, the lines being stiff and harsh. The fifth and last carriage shown is a 12 h.p. car of truly magnificent proportions. I

cannot give it a name, for Labourdettes' design is absolutely original. First of all there is the motor in front, then comes a seat amply sufficient to carry three persons, all three being sheltered behind a glass screen, raised or lowered at will. This seat is upholstered in red leather. Then follows another movable glass screen, behind which are a couple of pivotted seats, which face in any desired direction. The space between these two seats permits of access to the spacious seats found at the back of the car, and which readily accommodate three people. The rear portion of the vehicle is enclosed at the sides, while from end to end stretches an awning. The rear seats are upholstered in brown corduroy, and the car is painted a rich red, lined yellow. It

is an exceptionally handsome vehicle, and certainly of unique design. A whole family might comfortably tour in the car for weeks together, as it is a veritable caravan. One other interesting feature of the Panhard stand is the table of racing records displayed, which date from the Paris-Bordeaux of 1895 to the events of the current year. And what a difference in speeds! Paris-Bordeaux, 1895, was won at an average speed of 20 kil.390 per hour, while in Pau-Peyrehorade-Pau, 1900, the winner made 70 kil. per hour, or practically three and a-half times faster than the champion's speed of five years ago.

The exhibit of M. Terrot, of Dijon, consisting as it does of but a single De Dion quadricycle, would call for no attention were it not for the attachment of a cooling apparatus to the motor of this machine. This apparatus outwardly has the appearance of a bent tube, and is fitted on to the lubricating hole of the base chamber.

It carries at its base another bent tube, through which is passed the lubricating oil to the chamber. The other extremity of the cooling apparatus is bent over the cylinder head. Now, when the piston ascends, a quantity of cool air is drawn into the cylinder and base chamber, from the walls of which it absorbs a certain quantity of heat. During the piston's descent this air is forced out, and so the operation is continued with every revolution of the motor. It appears to me that the only objection that can be urged against this plan is that it interferes with the proper lubrication of the pistons and cranks; but the inventor claims that the construction of the

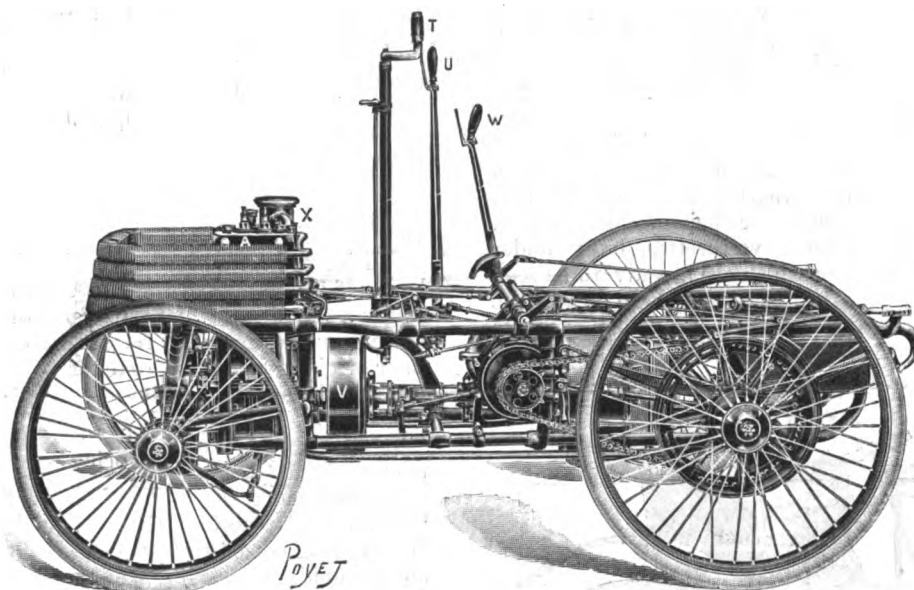


FIG. 8.—ELEVATION OF FRAME OF ROCHET CAR. (See page 423.)

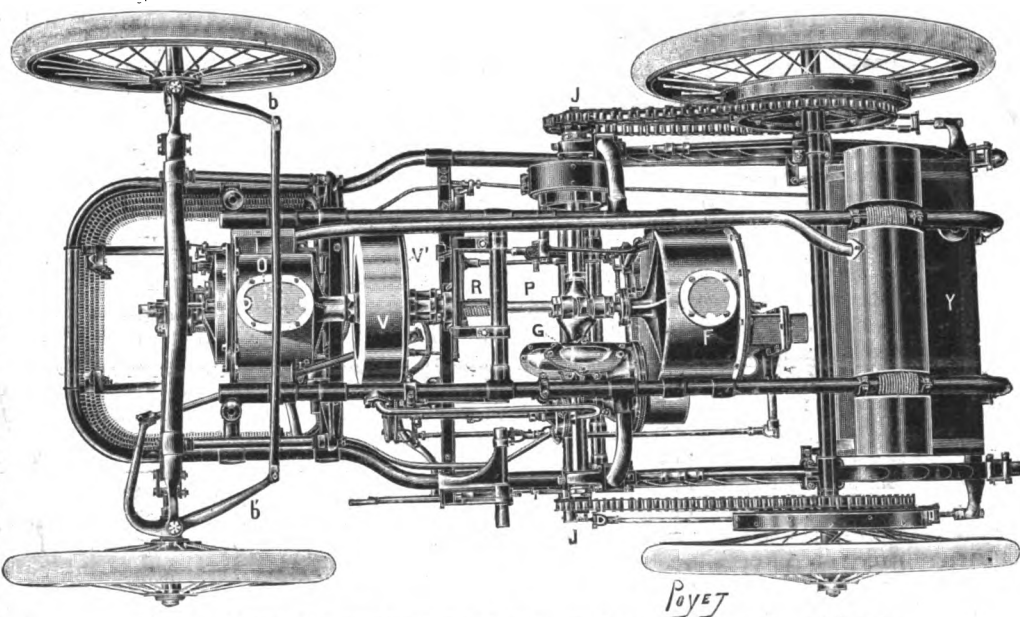
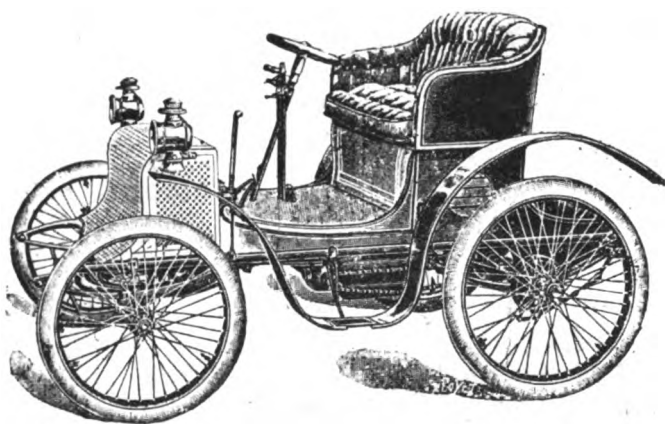


FIG. 9.—UNDERNEATH VIEW OF FRAME OF ROCHET CAR. (See page 423.)

apparatus renders the loss of lubricating oil an impossibility. Personally, I know of at least one automobilist who has worked a very similar plan with great success on a motor-cycle, and as his was a somewhat makeshift contrivance M. Terrot's perfected apparatus should give even better results.

MM. Teste Moret et Cie, of Lyons, show but one car, and that one is of a style far removed from that of their ordinary productions. It is a voiturette, tastefully painted in white and gold, and built in the Louis XV. style. Really artistic pictures adorn the panels on either side, and the upholstery, in a reddish tint of plush, is very pretty. A gold and silver water-cooled De Dion motor is attached to the rear of this wonderful vehicle, which never fails to evoke enthusiastic cries of admiration from the ladies, to whom, of course, it strongly appeals. The car is naturally only intended for advertising purposes; for, although doubtless capable of running well, its splendour would be too quickly dimmed were it permitted to join its brethren of the route, and career over muddy roads.

The Clément factories, at Levallois-Perret (Seine), have sent a large assortment of cars and cycles to the show, and the man who is on the look out for something thoroughly reliable at a moderate price cannot do better than give their machines a trial. First, we have a couple of "Krebs" voiturettes, built under licence from Panhards, a number of which are already to be seen running about Paris. The one is a two-seated car, while the second is built to carry three persons. A Clément voiturette fitted with a water-cooled De Dion is also to be seen, and then we pass into the motor-cycle class, represented by a quad and a



THE TURGAN-FOY VOITURETTE.

tricycle, both carrying De Dions. The remainder of the exhibit is made up of a variety of ordinary cycles.

The display made by MM. Turgan and Foy, of Rue Carnot, Levallois-Perret (Seine), consists of a couple of their well-known voiturettes, the one being belt and the other gear driven. The former system of transmission was that originally adopted by the firm, but the means employed for utilising the four speeds with which the vehicle is fitted is distinctly complicated, and I infinitely prefer their gear-driven car. Apart from the system of driving, the two voiturettes are practically of similar design. First of all we have a two-cylinder air-cooled motor, developing $4\frac{1}{2}$ h.p., placed on the fore part of the frame, and as this engine differs in many respects, both as regards construction and pose, from the ordinary type of petrol motor, a few brief details concerning it may not be out of place. The two cylinders are horizontal and are disposed end to end, the crank shaft passing vertically between them. The cranks are angled at 180deg., and the lower extremity of the shaft carries a horizontal fly-wheel. By this disposition the constructors claim to have largely overcome the vibration difficulty, and the absence of the usually-employed horizontal crank shaft certainly saves the carriage springs from the jar arising from each downward impulse of the piston. By the medium of two spur pinions, a toothed wheel of double the diameter is driven, and the shaft to which it is keyed governs by means of cams the exhaust valves and timing gear. The frame of the car is built up of steel tubes; the front wheels are pivoted, while the rear wheels are the drivers. In the case of the belt-driven vehicle the steering is effected by a wheel

placed on the right of the driver, whereas the other type of car is fitted with the ordinary inclined irreversible system. The firm also turn out motor-cycles, the motor usually employed being of $2\frac{1}{4}$ h.p., but if desired for racing purposes, an engine measuring 100 m.m. diameter by 100 m.m. stroke can be supplied.

(To be continued.)

CUSTOM AND THE MOTOR-CAR.

IF the horseless carriage, like the poor and the single-tax agitation, we are to have "always with us," it is to be hoped that we shall some day cease to miss the horse. That, however, cannot come about until some genius shall invent and persuade us to accept such forms of the new vehicle as will enable us to forget him. But in order to do that we must forget the vehicle that he drew—that is to say, we must have a vehicle whose difference from the old one consists in something more than its horselessness. Nearly every part of the one that we have has been constructed with direct or indirect reference to the animal that used to pull it, and fond recollection presents him to view as still pulling it.

Divorced from him it looks bereft, uncomfortable, and helpless. It offends the eye, shocks our sense of the fitness of things, and is a sore trial to the spirit generally. Probably, though, its horse-born features will remain in evidence for centuries after their origin is forgotten. Posterity will regard them as essential parts of the automatic scheme—will feel, for example, that without a "dash-board" the thing could not be made to go.

It requires generations for us to learn how best to do a new trick evolved from an old one. You shall not cast your eyes anywhere among the works of man without their resting on some "survival"—something that once had a purpose and a meaning, but has long ceased to have either, and is perpetuated by nothing but a stupid, unreasoning conservatism—a habit of continuing to do what has always been done. I could fill this entire newspaper with instances in point. Why have so many buildings watch-towers without watchmen, battlements from which to fight no battle, bastions loopholed for archers, and so forth? Go into a cemetery and observe the number of marble, granite, and bronze "urns." When cremation was the rule (most of us think it is a new fashion) real urns were used to hold the ashes of the dead. There are ashes no more, but the urns are there all right, and in explanation we say they are symbols. That word "symbol"—what a multitude of stupidities it covers! To-day a convenience, to-morrow a superfluity, the next day a symbol—such are the genesis and development of things most precious to the sentiments. But the days are ages long.

Not all survivals are "symbolic"; only such as touch the sentiments. Most are merely nuisances; but we go on making the thing, or doing the act, as diligently and gravely as if it were needful. The merchant vessel of to-day is frequently painted to look like a war ship with portholes for cannon. That is to scare away the pirates. The pirates have all left the high seas and gone into business on land, but that makes no difference; the traditions of the ship-painting art require the dummy portholes.

In England and several other European countries the railway coach is still so made and painted as to resemble three stage coaches in line. Why? Because in the mindlets of the first builders of railway coaches that form was associated with the most rapid locomotion they knew about and with the carrying of passengers. The builder of to-day has not ventured to alter it lest some appalling calamity befall. It cannot be too often repeated that man is of an intelligence but little inferior to that of the gods. He made the gods. So we shall doubtless have the automobile for a few centuries without material change of form—that is to say, crying out audibly for the horse. It is rather a pity, for it offers great opportunities to the artist. It could be made beautiful exceedingly. I have no designs to submit for rejection, further than to suggest a study of the prow of a Greek galley, or a Venetian gondola, with a view to emancipation from the hideous "dashboard."—AMBROSE BIERCE in the *New York Journal*.

CORRESPONDENCE.

150,000 MILES!

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In the report of a furious driving case in your issue of even date, my attention is arrested by the reported evidence of a "defendant" at Steyning. If the report is correct, this gentleman states that he covered 150,000 miles in the last eighteen months! Allowing 365 days in a year, and admitting, for the sake of calculation, that these eighteen months contained 548 days, this wonderful *chauffeur* must have done an average every single day of the last eighteen months of $273\frac{1}{2}$ miles per day! And yet he goes on to say that he has never passed a horse at more than six miles per hour!

We read the other day of a gentleman summoned on a 12 h.p. Panhard racer, coming down a medium incline at full speed, and who swore in a witness-box that he "did not know he was going more than twelve miles per hour"!

We are familiar with the erratic evidence of ignorant and over-zealous police-constables; but don't let us *chauffeurs* get a name for this sort of thing, or the innocent will have to suffer with the guilty. If you have done wrong, be a man and say so. Don't whine!

Yours truly,

Sowber Gate, Northallerton, J. ERNEST HUTTON.
August 18th, 1900.

QUESTIONS RE MOTOR-CYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having read with interest Mr. Smith's letter of the 4th August, and also having been the possessor of a Beeston "quad" with a similar defect to that mentioned, I should like to explain how the readjustment was carried out. In my machine the lever was secured to the right side of the handle bar, and was utilised for releasing and keeping open the exhaust valve, besides applying the brake (the only one fitted, by the way). The unfortunate part was that, in this case, the brake totally failed to act. On examination the tapped rod attached to the band of the brake—which was in connection with the above-mentioned lever—was found to be insufficiently screwed through the metal block attached to the end of the steel band. It was found necessary to disconnect the lever rod and give the same several right-handed turns before the brake worked to my entire satisfaction. I should therefore recommend Mr. Smith to detach the rod in question and go through a left-handed twist performance.

Yours truly,

7, Loudoun Road, St. John's Wood, N.W., W. G. BELL.
August 13th, 1900.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent "Novice" could obtain what he desires by means of a Bowden brake wire connecting the throttle valve crank to one of his handle grips. As he seems to use an Ariel tricycle, I presume that it is the right hand grip which switches the current on and off; he should then have a Bowden brake wire worked by the left handle grip. I scarcely think, however, that the result will be so satisfactory as he seems to expect, and would suggest that he should substitute the more liberal use of the brake and the exhaust valve opener. I found no difficulty whatever in fitting Messrs. Wilkins and Boon's exhaust valve opener to my Ariel tricycle, and it worked perfectly during the 1,000 Mile Trial.

168, Clerkenwell Road,
London, E.C.,
August 18th, 1900.

Yours truly,

A. J. WILSON.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to "Novice's" query of a device for more effectually controlling the engine from handle-bar of a tricycle or "quad," the very best and simplest idea is in my mind the Bowden wire affair, as supplied and fitted by Mr. Boon.

By this very simple arrangement compression is quite done away with for starting the motor with pedals and for running down a steep hill after shutting off spark and mixture, thus greatly helping to cool the engine and economising current and petrol. It also does away with the hissing and spitting compression tap by holding the exhaust valve wide open, thus enabling one to start easily and silently or run past a restive horse without noise. I believe Mr. Edge had one fitted to his 6 h.p. De Dion trike, which greatly facilitated the control of this speed instrument.

Yours truly,

A. E. J. STEELE.

13, Bartlett's Buildings, Holborn Circus, E.C.

August 21st, 1900.

PNEUMATIC TIRES AND PUNCTURES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Re placing leather belting between the inner tube and outer cover of pneumatic tires; I should advise your correspondent, Mr. W. Vanderbyl, not to try it. I recently have seen a bicycle treated in this way—a hogskin band was placed in the outer cover—and the inner tube was literally sawn almost in halves by the leather. There must also be a great loss of resistance.

Yours truly,

R. A. COBB.

29, Dalby Square, Margate, August 12th, 1900.

FROM LLANDUDNO TO EALING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It may interest you to hear of a successful run made by myself and friend this week. Leaving Llandudno at 3 p.m. on Sunday, we ran through to Shrewsbury, arriving at 9 p.m. Leaving Shrewsbury on Monday at 8.20 a.m., we reached Ealing before midnight; distance, 260 miles. The car was a De Dion voiturette, and excepting having to take off cylinder to regain cotter pin of inlet valve, which had fallen through the port, our troubles were slight.

Yours truly,

T. B. PERCY.

Hotspur Lodge, Ealing Common, W.,
August 18th, 1900.

IRISH ROADS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I cannot agree with Colonel Magrath that my letter on this subject is calculated to do harm. The County and Rural Councillors in Ireland are the people who have the power in their hands as regards the roads, and they are not likely to see the *Motor-Car Journal*. Even if they were, I think I had made it perfectly clear in my letter that we possess roads both good and bad, and, in fact, my object in writing was to make intending purchasers institute enquiries as to the localities which would suit best for touring.

With all due respect, I think I have more experience of the roads in Ireland than Colonel Magrath, who lives in the county Wexford, where the roads are notoriously bad. My experience has embraced every county in Ireland; in fact, I have cycled in this country close on 90,000 miles.

That the county Wexford roads are, as a rule, exceedingly bad, I quite admit, but I join issue with Colonel Magrath in his statement that all Irish roads are covered with loose stones, and that they are absolutely unfit for use in the winter. During our recent tour of 700 miles we often traversed very long stretches of road without meeting a single loose stone, and, despite the weight of our cars, our tires came back in perfect order—there was hardly a mark on them. I have cycled on some of these roads in the middle of winter, and have found them in most cases quite free from loose stones, and I have ridden on dry smooth surfaces two hours after rain.

I think Colonel Magrath's letter, which comes directly under the notice of English motorists, is calculated to do considerable harm to this country, in that it will prevent tourists from travelling here. As I have before stated, some of our roads are execrable, but, on the other hand, others are very near perfection.

It was with the object of impressing this on your readers that I wrote my letter, as I did not wish them to come to this country and return disappointed through not having proper routes ketched out for them. I am quite prepared to do the needful in this direction for any tourists, and I might state that I shall not send them to the Co. Wexford, from which Colonel Magrath has derived his experience.

Yours truly,
R. J. MECREDDY.

Dublin,
August 21st, 1900.

THE SIMPSON-BODMAN STEAM VEHICLES IN AMERICA.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—You will be interested to hear that Mr. W. L. Bodman, of Messrs. Simpson and Bodman, Manchester, England, has severed his connection with that firm and joined this company in order to develop the Simpson-Bodman system for road transport in the American States. At present we are makers of a light two-passenger car, but it is our intention to construct a full line of steam vehicles from this size up to the heaviest that Mr. Bodman thinks advisable for use on American roads, and to shortly proceed to heavy and systematic manufacture. We made our arrangements with Mr. Bodman after careful tests in Lancashire, and consideration of other and competing systems, as being the only system that was practical for use on the heavy and uneven road surface and variable climate and season prevalent in the United States.

Yours truly,
MILWAUKEE AUTOMOBILE CO.

Milwaukee, U.S.A., August 8, 1900.

THE RENAULT VOITURETTE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am surprised to see in your issue of the 18th a letter signed by Messrs. Renault Freres, of Billancourt, stating that Messrs. Friswell are not agents for their cars. I, Harry Farman, have been appointed, and hold a contract for the sole representation of the Renault cars in England, and this, for a consideration, I have turned over to Messrs. Friswell (which I have the right to do), who now have the exclusive right of selling these cars in England. Messrs. Renault cannot import these cars into England, and if any of your readers do import them I should be very glad to hear of it.

25, Rue de la Paix, Paris. Yours truly,
August 20th, 1900. HARRY FARMAN.

A MEETING of the Union of German Automobile Clubs is to be held in Berlin on the 29th inst.

THE Caledonian Motor-Car and Cycle Company, Ltd., have furnished the Aberdeen *Free Press* with a new motor delivery van, in place of the one destroyed in the recent fire in their premises.

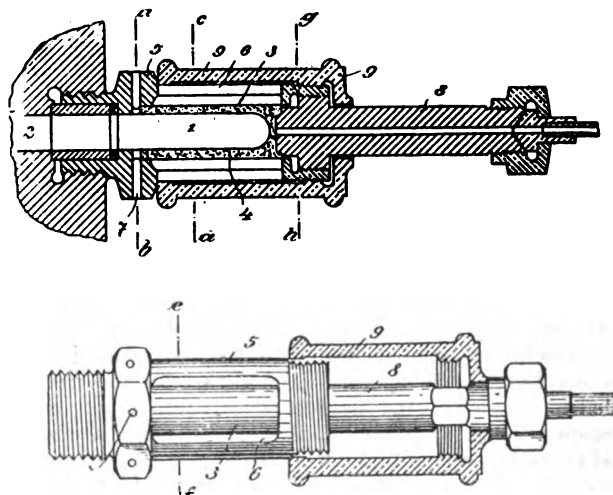
THE other afternoon a somewhat serious street collision occurred in the Old Christchurch Road, Bournemouth. Just as a motor-car was proceeding down the road a wagonette from Mastrick Hall, Branksome, proceeding in an opposite direction, came out a little way from behind a brewer's dray. The front off wheel of the motor struck the hind wheel of the wagonette, knocking off both wheels. The occupants, however, escaped uninjured.

A RACE was recently held under the auspices of the Allgemeine Radfahrer Union and l'Automobile Club d'Alsace-Lorraine. The route was Strasbourg and return *via* Kehl, Dillingen, Rheinau, Boofzheim, and Plobsheim, a distance of fifty-six miles. The following were the results:—Class 1, Racing Vehicles: 1. Baron A. de Turkheim, of Lunéville, 1h. 28m. Class 2, Tourist Vehicles: 1. Max Schultzenberger, of Strasbourg, 2h. 12m. Class 3, Voiturettes: 1. E. Kraenker, of Audincourt, 1h. 44m.; 2. E. Benz, Mannheim, 2h. 3m. 30s. Class 4, Motor Cycles: 1. Dublon, Mannheim, 2h. 9m.; 2. Baron Hirsch, Paris, 2h. 20m.

THE FAHNENFELD-STADLER IGNITION TUBE.

A SOMEWHAT novel ignition tube has lately been devised, and is now being used by two Austrian sportsmen—Herr Anton C. von Fahrenfeld and Herr Ernst Stadler von Wolfersgrün, of Laybach.

In the new device the property possessed by some gases of becoming ignited by contact with sponge platinum or platinum shavings is utilised. The igniting tube 1 is connected in the ordinary way with the explosion-chamber 2 of the motor, and surrounding the igniting tube is another tube 3 of the same material as the igniting tube (platinum), while the space between the two tubes is filled with platinum shavings 4. The igniting tube is closed at the end remote from the explosion-chamber; but the outer tube is open at both ends. Around this outer tube is a sleeve 5 which is screwed into the wall of the engine, and is provided with a projecting nut portion adjacent to the wall. This sleeve has in it two openings 6, through which access may be had to the outer tube, and in the nut portion there is provided a number of radial passages 7, through which the space between the igniting tube 1 and the outer tube 3 communicates with the atmosphere. The feed-pipe 8 for the explosive mixture is screwed into the front end of the inner sleeve 5 and opens into the annular space



FIGS. 1 AND 2.

filled with platinum shavings between the igniting tube or pin 1 and the outer tube 3. Over the inner sleeve 5 is arranged another sleeve 9, which is guided upon the feed-pipe 8, and held in place by a screw-thread on the inner sleeve 5. To set the apparatus into operation the outer sleeve 9 is pushed back (Fig. 2), and the outer tube with the platinum shavings in it is then heated up by a suitable lamp through the openings 6 in the inner sleeve 5. The combustible mixture intended for the heating of the igniting tube 1 is then admitted thereto through the feed-pipe 8. The mixture on reaching the platinum shavings 4 ignites and burns, and the products of combustion pass to the apertures 7, and escape through them into the open air. When the outer tube 3 has been sufficiently warmed by the external flame for the platinum shavings to heat the entering combustible mixture to the ignition temperature, the external flame is removed or turned off, and the outer sleeve 9 is pushed over the inner sleeve 5 to protect the outer tube 3, and screwed up thereon against the projecting nut portion. A writer in *La France Automobile* states that he has used the new ignition arrangement on a 7 h.p. car for some months with very satisfactory results.

"W. P. W." is referred to the work on "Horseless Vehicles," by Mr. Gardner D. Hiscox, just published by Messrs. Sampson Low, Marston, and Co.

MOTOR-TOURING IN AMERICA.

MR. GEO. F. FOOTE, of Ithaca, New York, has sent the following interesting account of a recent motor tour in America to our contemporary the *Horseless Age* :—

"At 1 p.m., Saturday, June 16th, the Hon. E. C. Stewart and myself in my Winton motor-carriage started from Ithaca on a journey East. We were accompanied by Mr. Samuel Howe, of Cornell University, and his friend, Mr. S. M. Vauclain, jun., in the former's Winton carriage. Our first stop was at Cortland, 22 miles distant, which we reached in an hour and an half. We found the roads in fair condition, but passed through a very hilly country, some of the grades taxing our cars to their utmost. At Cortland we stopped to oil our machines and put in a fresh supply of water. Between Cortland and Truxton we met with our only mishap on the trip. As we rounded a curve about three miles this side of Truxton, we came in sight of a carriage containing a woman and child about one-eighth of a mile distant. The woman became very much excited and rattled at our appearance, and reined the old family horse around in great haste, spilling herself and grandchild into the ditch. The top of the buggy struck the fence and rebounded back on to its wheels, allowing the old horse to jog away down the road out of sight. The ditch being about three feet deep, the sudden disappearance of the woman and child made our hearts palpitate in a rather unpleasant manner. On riding up, we were greatly relieved to find that they were not seriously injured. After gathering up the lady's effects, I took her into the car beside me, and the Senator was pleased to play footman for a mile or so. Mr. Howe, who was about a mile in the rear at the time of the mishap, came up and took charge of the girl, and we proceeded on our journey. At a farm house, about two miles below, we found the family horse and buggy in possession of the owner of the place, and on our nearer approach the horse showed no fear of the machines, which convinced us that the woman was at fault for the accident rather than the horse. We found that she was some five miles from her brother's, whom she was on the way to visit, and as she was somewhat nervous from the shaking-up, we suggested that they remain at Truxton over night, and continue the journey the next day. We employed Mr. Farmer to drive the horse to the hotel at Truxton, and we delivered our passengers at the same destination. After expressing our regrets for the accident, and settling for their entertainment until morning, we continued our journey to De Ruyter, some ten miles away, where we took supper. At this point Senator Stewart returned to Ithaca, and my son, who had come up by train, joined us. We pushed on to Cazenovia, seventeen miles away, to spend the night, making a run of sixty miles in about five and a-half hours, which we thought very good, taking into consideration the condition of the roads and the hilly country we passed through.

"At nine o'clock the next morning we left Cazenovia for Richfield Springs, passing over some of the poorest roads encountered on our journey. The farmers, unfortunately for us, had been working them, plowing as they do along the ditches and throwing the sods into the middle of the road; and it was bump, bump, bump from 9 a.m. until 3.30 p.m., and both Mr. Howe and myself were relieved to reach Richfield Springs without any break-down. This is what is called the old Cherry Valley turnpike, and in taking this road instead of going from Cazenovia north to Syracuse, and so on down the Mohawk Valley, we expected to save about twenty miles. You can rest assured that after that day's experience we made up our minds that we would give the Cherry Valley turnpike a wide berth in the future. After tea we consulted our maps and decided to leave this route and go to Fort Plain, and so on down the Mohawk Valley to Albany. We had a refreshing night's sleep, arose early, gave our machines a thorough overhauling and cleaning, breakfasted at 6.30, and left Richfield Springs at 7.30 for Fort Plain. We had a delightful run through a wild country, over good roads, to Fort Plain. From that place we continued our way down the valley of the Mohawk through Herkimer, Little Falls, St. Johnsville, Fonda, and Schenectady, arriving at Albany about five o'clock in the afternoon. From Fort Plain

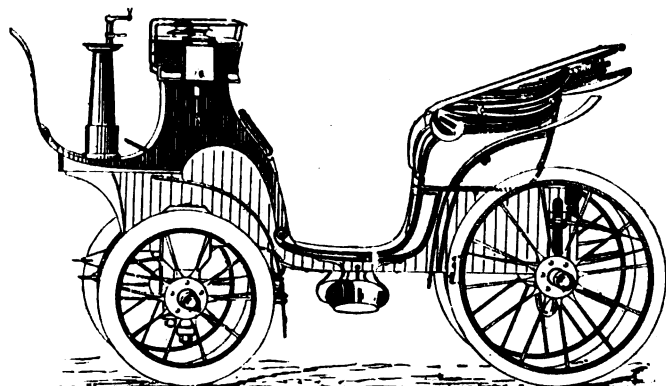
to Schenectady we found very good roads, beautiful farms, and fine scenery. It was very amusing to have the New York Central trains go by us, the engineers saluting us with three whistles. At times we would come up with freight trains, and where the roads were good could hold our own with them. In places I think we travelled at the rate of eighteen or twenty miles per hour. From Schenectady to Albany, seventeen miles, we followed the old turnpike road, which was in very bad condition, the same being in places from six to eight inches deep, which necessitated slow progress. Mr. Howe and friend having decided to remain in Albany for a day or two, we left their genial company Wednesday, at twenty minutes to five a.m., and made a good run to Hudson, forty miles by the route we took, in two and one-half hours. At Hudson we stopped for breakfast and sat down to a meal fit for the gods, with appetites whipped to a keen edge by that delightful ride in the exhilarating air through the foot-hills of the Catskills.

"Leaving Hudson at nine a.m., we passed through the pretty villages of Burden, Manorton, Red Hook, Rhinebeck, Staatsburg, and Hyde Park to Poughkeepsie, over what I believe to be the ideal roads of America for automobiling. Some of our fastest time was made over these roads, and at times we attained the speed of twenty-two miles per hour for short distances. The run from Hudson to Poughkeepsie was made in two hours and fifty minutes; distance registered on our cyclometer forty-three miles. The views of the Catskills from the east side of the Hudson are superb and long to be remembered. After an hour and a-half rest, proper attention to the inner man and a good feed of oil to the iron horse, we left Poughkeepsie, passing through Fishkill, climbing the mountains between Garrison and Peekskill in good shape, and arriving at Sing Sing at five p.m., making a day's run of 125 miles. After stopping over a day with friends at Sing Sing, we made the run of seventeen miles to Greenwich, Conn., by way of Tarrytown, White Plains, and Port Chester, in an hour and a quarter.

"Our return was over the same route to Albany, from Albany to Saratoga Springs, Saratoga Springs to Amsterdam, and so up the Mohawk Valley to Syracuse, and from there to Ithaca. Distance covered, 450 miles from Greenwich. This ended one of the most delightful trips it has ever been my pleasure to take."

A KRIEGER ELECTRICAL VICTORIA.

THE accompanying illustration shows an electric victoria on the Krieger system, displayed at the Paris Exhibition, by Messrs. Guet and Co., of Paris. The body is of the Victoria pattern, painted blue, lined with yellow, the under-carriage blue, picked out with two broad lines of yellow. The accumulators weigh 9 cwt., and are of a capacity sufficient to run the car forty-five miles on one charge. The maximum speed is



fifteen miles per hour. The diameter of the wheels is 41½ inches and 33½ inches. The body is hung on elliptic springs in front; at the back there are side and cross springs. The wood wheels are shod with pneumatic tyres, the weight of the vehicle complete being given as 26 cwt. We are indebted to *La Carrosserie Française* for the illustration.

THE DEVELOPMENT OF THE MOTOR-CAR.*



WITH the recent advent in force of motor-vehicles, under their various synonyms of horseless carriage, automobile, autocars, and motor-cycles, in a list in which the roots auto and moto enter into many names designating the specialities of manufacture in Europe and in the United States, comes the search by the curious to find the true history of progress in the development of self-propelled vehicles. Wheels as a rolling device have been in use for more than four thousand years with oxen and horses as their propelling power for transportation. The only improvement during the past four hundred years has been in the art design of the vehicles, and only during the past two centuries has thought been given to other means or powers of vehicle propulsion. The spirit of invention and improvement seems to have taken a movement among thinking minds in the fourteenth century and was thus early expounded by that philosopher in mechanics, Roger Bacon, in the following prophetic words: "We will be able to construct machines which will propel ships with greater speed than a whole garrison of rowers, and which will need only one pilot to guide them, we will be able to propel carriages with incredible speed without the assistance of any animal, and we will be able to make machines, which, by means of wings, will enable us to fly in the air like birds."

The first indication of the application of a mechanical device for the propulsion of vehicles seems to have begun in the sixteenth century in a vehicle propelled by springs, built in Nuremberg, by Herr Johann Haustach. The spring motor fever raged at times during the passing centuries, and seems to have culminated in the United States a quarter of a

century since as spring-stored power for street railway cars and vehicles. Its life for such work was short. Its true sphere is a lasting one through the centuries for the storage of power for time service. Wind sails for vehicle propulsion were a common sight in Holland away back in the palmy days of the republic, and have since been seen on the Western prairies, but no permanent success has resulted from this power for vehicle propulsion.

The first effort at propelling a vehicle by steam seems to have been made by a Jesuit missionary, Father Verbrest, in the thirteenth century, probably using the reaction wheel of the Heron type that had apparently laid dormant for more than a thousand years. It was a steam-propelled vehicle, with a motor of the reciprocating type, that made its advent with the early progress of the steam engine for power purposes that was the forerunner of the thousands of self-propelled vehicles that have, as it seems, sprung into useful operation during the last decade of the nineteenth century. Steam traction vehicles for haulage, for drays, for ploughing, and for passenger service have advanced steadily in Europe and in the United States, even extending to many other countries. The advent of the internal combustion motor soon gave a new phase to the self-propelled vehicle, and

*Abstract from introduction to Mr. Gardner D. Hiscox's work on "Horseless Vehicles, Automobiles, and Motor-Cycles." (London: Sampson Low, Marston and Co.)

gave a further impulse to its use as a pleasure carriage. The electric motor and the storage battery seem to have followed in due time to form the triad of powers that will give the horseless vehicle all the probable elements of success in every avenue of usefulness. The gasoline motor was first used for vehicle propulsion with success about 1888, but was proposed at an earlier date by Lenoir in France. The electric motor and storage battery soon followed, and came into use within the last decade of the nineteenth century. The patents in the United States for motive power and running gear date back to the beginning of the century in small numbers, increased in the decades from 1860 to 1880, and in the last decade of the century swelled up to a total of about 275. The earlier patents that expired previous to 1886 covered nearly all the essential features of the present construction. It appears from published data that in Europe there are now well over 7,000 owners of automobiles. Many of these own more than one vehicle, so that perhaps the number of vehicles could be put at 10,000. Of the 7,000 no fewer than 5,600 are in France. The general idea has been that in France the interest was centred in Paris, but this is erroneous, there being of the 5,600 no fewer than 4,541 scattered all through the departments. No such figures as these are at present obtainable for the United States, and if we put the number of automobiles

in America at 700 it will probably be an exaggeration. The number of makers actually at work or organising is probably more than 100. Fortunately for our credit as an inventive and enterprising nation, the first year of the new century ushers in with every promise of a great outburst of activity in the manufacture of automobiles of every description.

American constructors of gasoline motor-vehicles have, from the beginning, aimed to regulate speed through the motor and to reduce the speed gears to one or two, obtaining all

intermediate speeds by increase or diminution of the charge. In many of the French and American vehicles intermediate speeds are obtained by varying the tension of driving belt or other friction devices, and it is to be noted that the very latest French construction tends in the same direction as our own, viz., towards speed regulation by the motor. This tendency is universal, and it is only because the necessity of striking out in that direction was appreciated in the United States from the beginning that American constructors to-day may be considered as far, if not farther, advanced than their competitors in other countries where automobile experience is of much older date. When the speed changes in gasoline vehicles are under consideration, it should also be remembered that the momentum of a vehicle in motion always serves to efface all abruptness in the transition from a higher speed to a lower one or the reverse.

Steam seems to have taken the lead as the source of power for the horseless vehicles in England and France, with varying success, dragging slowly along with the progress of the steam engine for nearly a century, yet hampered by popular and governmental prejudice, obstructive laws and bad roads, which even in this enlightened decade has not been entirely cleared away. Official restrictions are still retarding the progress of the automobile in the United States; but are fast disappearing in Europe. During the past half century, the improvement of common roads has made great progress in France, Germany and



FIG. 1.—GENERAL VIEW OF "MIGNONETTE" VOITURETTE. (See opposite page.)

England, so that at the present time France has taken the lead in good roads and is equally in the lead in the manufacture of automobiles.

In England the agitation in the interests of good roads started more than a half century since, with only steam traction interest as the principal mover. Single-handed it battled for road improvement with but slow progress against popular prejudice and obstructive regulations and laws. The advent of the explosive and electric motors for vehicle propulsion added other and powerful impulses in the agitation for good roads, and with the pressure from the vast bicycle interest the quadriad of forces has come together with a combined power that will, we hope, make road improvement a foregone conclusion and a necessity in this and all other countries of progressive instincts. With good roads in the United States the automobile industry should soon forge to the front in legitimate activity.

France has so far taken the lead in the development of the automobile as a pleasure carriage. The reason for that is not far to seek. Paris, where the automobile is carrying everything before it, is in a superlative degree the city of good roads. Asphalt pavements, kept in perfect order and smooth as a billiard table, offer tempting inducements to automobile constructors and riders. Every variety of design and device for self-propulsion can be tested under the most advantageous conditions. If easy running, with good loads and high speed, cannot be attained on the Paris boulevards, then it is impracticable anywhere. Prizes have been offered to stimulate invention, and races arranged to test the devices offered.

To a great extent, what is true of Paris applies in nearly equal degree to the other large cities of France, and to the roads connecting them. Long runs can be made with the assurance of finding the perfection of good roads the entire distance. If, as is frequently the case, automobiles break down or fail from exhaustion of motive power under such conditions, it should be through no fault of construction or in ineffectiveness of the motive power when subjected to the test of long journeys, for this is common to all methods of travel. Following in the contest methods for invigorating constructive and perfect action in all parts of a vehicle and its power, the great contest in France in 1897 has been most prolific in the improvement of its weak point.

It is now fairly demonstrated that the horseless vehicle can be driven long distances over medium good roads at average speeds of fourteen miles per hour, and for touring parties this leaves the horse drag far in the shade for care and expense. The automobile fever has set innumerable inventors at work on motors of various kinds, while many *bona fide* companies have been formed for real work in producing automobiles for the market, and many more who are not inventors, or even manufacturers, that have organised away up in the millions for apparently the sole purpose of foisting upon capitalists a worthless stock.

There seem to be but three kinds of motive power that are taking the lead, viz., steam, internal combustion, and electric motors, each of which has its adherents or is specially suited to its own sphere of action or special field of usefulness. As for compressed air, the radius of action for road vehicles is somewhat limited, and although it has been tried in France and some experiments made in the United States, it has not as yet made much progress. Carbonic acid gas has as yet failed to give satisfaction, owing to the great sacrifice of pressure from its liquid state required to bring it within the limit of the working strength of a motor. Acetylene gas is somewhat expensive, and, although but slightly experimented with for vehicle power, it is yet to be developed as to its radius of usefulness in automobile work. Liquid air is out of the question for motive power.

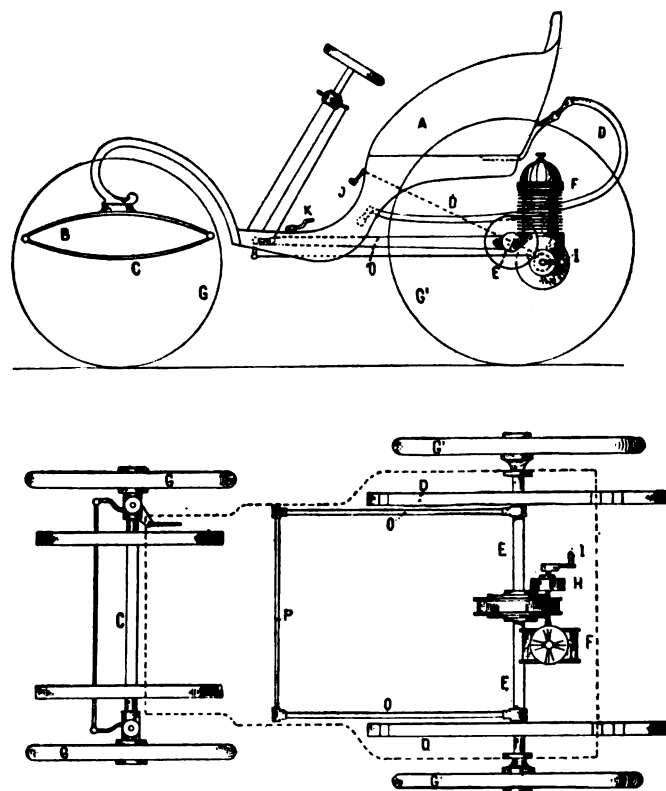
(To be continued.)

MR. ROWLAND WINN informs us that he has now taken possession of new premises at 13, Cookridge Street, Leeds, where he has installed a plant to enable him to undertake repairs of all kinds to motor-cars and cycles.

DR. ORFORD, of Pontefract, is one of the latest members of the medical profession to adopt the motor-car, he having chosen a Marshall car. The vehicle was driven to Pontefract by road on Friday last, and with three persons up made a very successful run.

THE "MIGNONETTE" VOITURETTE.

MESSRS. WEHRLE AND GODARD DESMAREST, of Neuilly, France, have sent us a photograph of the "Mignonette" voiturette, which they have recently introduced, and which is reproduced herewith in Fig. 1. The car, which has seating accommodation for three persons, is provided with a 3 h.p. water-cooled motor—either a De Dion or Aster, as desired. It is fitted with electrical ignition, the carburettor being of the Longuemare type. The engine is located in the rear of the frame, and is geared direct to the differential on the rear axle. Three speeds forward and a reverse motion are available; the gear wheels, which are continuously in mesh with the differential, work in a dust-proof oil-containing case. A friction clutch, operated by a foot pedal, is provided on the motor shaft, while there is also a special device which acts on the exhaust valve when the clutch is thrown out to prevent the motor "racing." Steering is controlled by an inclined hand wheel, on



FIGS. 2 AND 3.—ELEVATION AND PLAN OF "MIGNONETTE" VOITURETTE.

which is fitted the current-breaker, the handles controlling the mixture and the sparking being fitted on the steering pillar. The variable-speed gear is controlled by the handle at the side of the car, while a foot pedal actuates a band brake on the differential drum. Either wood or cycle-type wheels, shod with pneumatic tyres, are fitted, while the body, which is spring-suspended at both front and rear, is constructed largely of aluminium. As will be seen, all the propelling gear is entirely concealed, thus giving a very neat and finished appearance to the car. It is claimed for the motor that the explosive mixture is ignited at the moment of maximum compression, thus obtaining the greatest result from the explosion, which acts directly on the piston.

AUTOMOBILISTS passing through Warwick must take care not to exceed the legal pace, for at the close of the business at the Borough Police Court, on Monday, the Mayor asked the police to endeavour to prevent the drivers of motor-cars going through the streets of Warwick at such a rapid pace as was their habit. On Saturday night he had been nearly run over by one. He had no opportunity of getting to know the driver's name, for the occurrence so unnerved him that he could scarcely see the vehicle pass.

FURIOUS DRIVING CASES.

MISS VERA BUTLER answered, at the West London Police Court, on Monday, to a summons at the instance of the police for driving a motor-car at a greater speed than was reasonable and proper. Police Constable 191 B said that defendant drove into Redcliffe Gardens, Kensington, from the Fulham Road at a speed exceeding twelve miles an hour. A horse became restive owing to the noise the car made in its progress, finally overturning the van to which the animal was attached, and throwing the occupant into the road. On behalf of the defendant, who, it was stated, held a certificate for efficiency in the handling of motor-cars, it was contended that she was not travelling at a greater speed than seven miles an hour, but Mr. Walter Hay, a gentleman residing at 16, Redcliffe Gardens, corroborated the opinion of the police officer. He added that when the defendant passed him, she was going fourteen miles an hour. Mr. F. H. Butler, father of the defendant, said he was with her on the occasion in question. He asserted with every confidence that the car was not being driven more than seven miles an hour. Mr. Rose was satisfied the lady was going too fast, and imposed a penalty of 40s., with 2s. costs.

At the Darlington Borough Police-court, on Tuesday, Mr. Wilson Hall, of High Terrace, Darlington, appeared to answer two charges of breaking the Highways Act (Locomotives), one being that he was travelling at too great a speed, and did not give audible warning of his approach.—Mr. R. M. Wilkes conducted the prosecution on behalf of the police, and Mr. T. M. Barron defended.—Mr. Wilkes stated that on Wednesday, August 8th, at about mid-day, the defendant was driving a motor-car from the direction of Cockerton to Northgate. Whilst going round the corner from Prospect Place into Northgate, near the York City and County Bank, he travelled at such a speed, without giving notice of his approach, that had it not been for the skill of one lady who was with another lady a serious accident might have occurred. Thomas Arthur Johnson, tramcar driver, detailed that he was driving his tramcar in the direction of the town, and when near Fox's the motor-car came round the corner on to his track and he had to pull up a little to let the car get to its own side of the road. Mr. A. Hill, manager of the Imperial Tramways Company, said he heard the sound of the horn of the car and later he saw it travelling at about eight miles an hour along Northgate. It would have gone into the car if his driver had not pulled up. Miss Hopkins and her mother detailed being almost run over by the motor-car. Mr. Barron, in his defence, said one of the charges was that of not having sounded a horn in Bondgate. The evidence for the prosecution had disposed of that charge. Major Hill had heard the horn sounded as he came round Bondgate corner, and on that score he asked for that charge to be dismissed at that stage of the proceedings. The Bench decided to hear the whole of the case before giving a decision. Mr. Barron said he had witnesses who would prove that the horn was sounded near Tanfield's shop and again near the Monument. There were three persons in the car, but he could only call two of them as one was away on a business engagement. The motor-car was only geared up to eight miles an hour when running on top speed. The horn, which was a new one, was sounded repeatedly.—Mr. Hall regretted any inconvenience which might have been caused to any one by his presence. The defendant was also called, and denied that he was travelling at a greater speed than four miles an hour round the corner, and he stated that he sounded the horn all the way from Tanfield's shop to the Bank. The Bench retired to consult, and upon returning into Court the Mayor announced that the charge of failing to sound a horn would be dismissed, but that in the other a fine of 10s. and costs would be imposed.

ACCIDENT AT MARGATE.

A SERIOUS motor accident occurred on the front at Margate shortly before ten o'clock on Wednesday morning. Mr. Avery, of Oakleigh Court, Windsor, was driving his car past the South-Eastern railway station, when the front wheel skidded on the lines which have been recently laid for the new electric trams. The road had just been watered and this rendered it slippery. The car, which was travelling at a good speed, capsized with a crash, and Mrs. Avery and her little boy, who were in the car, were flung heavily out of the vehicle into the roadway, while Mr. Avery and the car attendant had exceedingly narrow escapes. Mrs. Avery was taken from under the car in a semi-conscious condition, with a bad cut on her head and greatly shaken. She and the little boy, who was also slightly hurt, were taken into the railway station waiting-room where they received medical attention.

CABMEN OBJECT TO MOTOR-CARS.

At the Hereford County Court last week Mr. James Tudor Hereford, of Mordiford, sued John James, cabman, Hereford, for £3 damages caused to a motor-car. Mr. Corner, appearing for plaintiff, said that the latter was the owner of a motor-car, and on June 12th last he rode it into Hereford. He was going away by a train, so he left his motor-car with Mr. Rough, cycle engineer, with an arrangement to meet him with it at the station on his return in the afternoon. Subsequently Mr. Rough went in the car to Barr's Court Station, accompanied by his son. There was a tremendous dislike by cabmen to motor-cars, and defendant used some very foul language towards plaintiff, and deliberately drove his cab against the motor-car. One wheel of the cab lifted up the motor-car,

which was damaged to the extent of £3. It was marvellous that Mr. Rough was not injured. Mr. Rough, Mr. P. Skelton (Catford), and George Rough (son of Mr. Rough), bore out Mr. Corner's opening statement.

The defendant said that he was at the railway station plying for hire, when Mr. Rough drove up with his motor-car and stood by a bus. When one of the cabs drove away Mr. Rough went into the place where it had been standing, and as it was his (defendant's) turn he should have taken the place where Mr. Rough was. Two ladies were calling witness at the door of the station, and as he went to pass the motor-car, the hind wheel of his cab just touched the front wheel of the motor-car.

His honour said this was a serious case. Evidently there was a "dead set" against the motor-car by the cabmen and busmen at the station. He had no doubt about that, and it was his duty to hold the law evenly amongst all parties. Motor-cars had a right to be on the road, though perhaps a good many people, especially cabmen and busmen, disliked them. One was aware that when new things came up they were abused for a good many years, until they became common, when no one took any notice of them. It happened so with the bicycle, and was happening now with the motor-car, and it might happen with anything in the future. There must be protection against any overt act of damage, and judgment would be given for the amount claimed and costs. The Judge added that although this was not law it was advice, namely, that he thought those who helped the defendant to abuse Mr. Rough should help to subscribe towards the costs.

AN OBSTRUCTION CASE.

MR. ALFRED H. GREGSON was summoned at Blackpool last week for causing an obstruction in Clarendon Park on the 20th July. Mr. C. W. Callis defended. According to the evidence of P.C. Swarbrick, the defendant's motor-car was left standing in front of the Imperial Hydro., and a crowd gathered round it. Witness went up to the defendant, who was sitting with a gentleman and two ladies on a seat at the opposite side of the road, and asked him to move the car away as it was an obstruction, when he replied, "I will if I like. I have never been taken down by a policeman nor never will be. I am a solicitor." Mr. Callis said there was not the slightest evidence that the car had proved an obstruction to anyone, and he therefore submitted that no case had been made out. The defendant was staying at the Imperial Hotel, and had arranged to go with Dr. Walker, who was also in the hotel and had a motor-car. Whilst waiting for Dr. Walker to come up he engaged in conversation with two ladies and a gentleman. Five minutes after the policeman had complained the car was moved away. The magistrates inflicted the nominal penalty of 1s. and costs.

Two different services of motor-cars are projected in the Charleroi district of Belgium—one between Charleroi and Trazegnies and one between Charleroi and Binche.

It is stated that the German Reichstag has just voted an appropriation of £7,000 for experiments with the use of automobiles in the army.

At the White Hart Hotel, Reigate, the proprietor is catering well for motorists, not only having petrol for motor-cars on hand but also being able to charge any electric cars that may happen to go that way.

THE Napier Motor Company, Limited, has been registered with a capital of £100, to carry on the business of electrical and mechanical engineers, smiths, founders, carriage manufacturers, etc.

At the last meeting of the Staffordshire County Council the clerk reported that he had received copies of the resolutions passed by the Ashbourn Rural District Council and the County Council of the Isle of Ely in favour of taxation of motor-cars. The chairman moved that the correspondence lie on the table, and this was agreed to.

THE British Motor Traction Company, Limited, has been registered, with a capital of £1,000,000, to adopt and carry into effect the following agreements:—(1) An agreement made between the British Motor Company, Limited, of the one part and this company of the other part; (2) between the British Motor Company, Limited, and H. J. Lawson, of the one part and this company of the other part; (3) with the British Motor Company, Limited, and J. Harris of the one part and this company of the other part; and (4) with the British Motor Traction Company, Limited, and S. F. Edge of the one part, and the present company of the other part; and, generally, to carry on in all or any of their respective branches the businesses of manufacturers of and dealers in motors, cycles, vehicles, ships, flying machines, etc.

THE Motor-Car Journal.

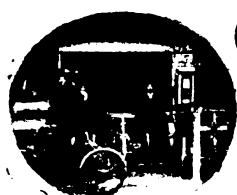
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COMMENTS.



ONE of our contributors has been taking his holidays in the West Country—a fact which accounts for the many references to that delightful district during the past few weeks. While many people call the West of England the worst of England, those who know the country regard it as the best of England. Just now the roads are in very fine condition. The journey from Minehead to Exeter and to Torquay is evidently all down hill, while the scenery through Dunster and Dulverton, and with the banks of the Exe lining the road for many miles, is most magnificent. Torquay to Taunton is another very fine road, every hill having been negotiable on our M. M. Co.'s phaeton, although the C.T.C. boards are freely *en évidence*. One hill between Teignmouth and Dawlish is nearly two miles long and particularly stiff. From Taunton back to Minehead—which we had made our headquarters—*via* Dulverton and Exmoor, is a road that opens up beautiful country.

From Lynmouth Town.

AT Minehead it was impossible to obtain petroleum spirit, and, having used up our reserve supply, we had to journey by coach to Lynmouth. On the return, and notwithstanding the splendid horses used in the coach, the start was inaugurated by an hour's tramp from the Lyndale Hotel. During this walk the "passengers by coach" gossiped about things in general, and one matter in particular. That was the recent wonderful ride up Porlock Hill. Again aboard the coach the talk continued, and we discovered that another member of the Automobile Club and a relative of the member reputed to have made the wager in connection with Mr. Edge's famous ride were participating in the conversation on the feat.

The Porlock Hill Ride.

THERE is no doubt this performance has done good to the industry, for it is the one topic of conversation among sportsmen in the West. Much has been said and written with regard to the wager which is reputed to have incited the ride. We have heard it gravely stated that the wager was for £2,000. Generally it is thought to have been £25, which was, we believe, the correct amount.

Accidents in the West.

ALL motorists know that horses in country districts are a source of danger. Often their antics are ungovernable by the driver and troublesome to passers-by. The drivers are fond of attributing their special viciousness to motor-vehicles—an unfair and partial way of looking at things. For generally the horse is to blame. At Hey Tor, on Dartmoor, we have recently witnessed a nasty accident, in which no motor-car was in any way concerned. A lady on horseback was approaching a coach—a Jersey four-in-hand char-a-banc—when her horse bolted, and the

rider was badly thrown. Probably the tooting of the horn alarmed her animal. In the same week at Brixham—a pleasant fishing village in Tor Bay—two ladies were thrown from a carriage drawn by a pair of horses, which were frightened by a little boy running from the pavement into the road.

Coach Accident at Cheltenham.

A FURTHER instance of the alacrity with which accidents are attributed to motor-cars, is afforded by a serious accident occurring at Cheltenham on Wednesday night. A tourist coach on its return journey had reached the brow of a steep hill, when a passing motor-car is said to have frightened the horses. They bolted up the bank almost overturning the coach and throwing driver and guard to the ground. When the coach righted itself, the horses dashed down the hill, and collided with a tree on the roadside. The passengers on the top of the coach were thrown off, and four or five persons were seriously hurt, including Mr. Coyney and Mrs. Shenton, who each had three ribs fractured, and Captain Hunt, late of Brighton, who was badly crushed and bruised. Everyone must regret the accident, but none should use it as a reason for obstructing the extended use of the motor-car.

The Voiturette Competition.

THE results of the Concours de Voiturettes recently held in connection with the Paris Exhibition have just been made known. Out of eighteen vehicles entered, thirteen—two Renault, one Hanzer, one Georges Richard, three Outhenin-Chalandre, one Peugeot, three Gladiators, one Créanche, and one Fernandez—succeeding in completing the 800 kilomètres at an average speed of 25 kilomètres per hour. The award of the jury is as follows:—Category 1.—Two-seated voiturettes weighing, empty, less than 250 kilogrammes: Gold medal, Gladiator voiturettes, Nos. 12, 13, and 14; silver-gilt medal, Georges Richard No. 4. Category 2.—Two-seated voiturettes weighing less than 400 kilogrammes: Gold medal, Renault voiturettes, Nos. 1 and 2; silver-gilt medal, Outhenin-Chalandre, Nos. 6, 7, and 8; silver medals, Fernandez, No. 18, and Hanzer, No. 13; bronze medal, Créanche, No. 15.

To Luton and Bedford.

ON Saturday next, the 3th inst., the English Motor Club is organising a run to Luton, where tea will be taken at Windmill Road between 4 and 5 p.m., at the invitation of Mr. E. W. Hart, a member of the committee. Then the run will be continued to Bedford, where the headquarters for the night will be at the Swan Hotel. It is suggested that the run back to town on the Sunday should be by way of Hitchin and then through Warden, Ickwell and Biggleswade; but the details will be finally settled by those participating in the trip. In our issue of October 20th last we illustrated the Maypole still standing in the quaint old village of Ickwell, and referred also to the model village of Warden, where the cottages are in marked contrast to those at Ickwell. Of the attractions of

Biggleswade, doubtless the Ivel Hotel will be well appreciated. All motorists are invited to take part in the outing, and the route laid down should specially appeal to North London *chauffeurs*. The scenery is good and the roads in excellent condition, so that with fine weather a fair contingent should be formed for this northern run. Hitherto the southern district has received most attention, and motorists will probably be glad of this opportunity of seeing the other side of London. Perhaps a run through Epping Forest would also prove popular.

An Exchange.

OUR advertising columns last week contained an announcement to which we give the further publicity of our editorial pages. It read as follows:—"Wanted, motor car, carry two; exchange diamond pin and Humber safety or cash." As a rule those who want motor-cars pay in cash, and the exchange system has not yet been introduced to any great extent. It would be interesting to know what cars are offered to our advertiser in exchange for a "diamond pin and Humber safety." Fortunately the alternative of cash is given, and that should prove more attractive than the dazzling brilliance of the diamond pin.

Motor-Cars and the Army.

IN our issue of the 18th ult., we illustrated some of the automobiles employed by the French military authorities, and now give a view of the Mors travelling telegraph office which is exhibited by the French Government at the Paris Exhibition. This is fitted with an 8-h.p. motor and has four speeds



Cliché de]

[Le Chauffeur.

ranging from 8 to 32 kilomètres an hour. There is accommodation for four persons—two seated in the front and two in a compartment at the rear. All the necessary apparatus for conducting telegraphic communication is carried on the car, which should prove a useful addition to the equipment of the French army.

Ox Wagons Cause Delay.

THAT our own military authorities will have to pay attention to the utilisation of the automobile is becoming increasingly obvious to all—save, perhaps, the War Office. A member of the Imperial Yeomanry now in South Africa has been writing on the slowness of the movement of the cavalry brigades owing to the slow transport of food and ammunition. These necessary commodities are carried in wagons, drawn by oxen

which only travel at a little more than two and a-quarter miles an hour, and they invariably stick at any spruit or steep climb which may lie in their path. In this manner a whole battalion is delayed for a considerable time, and its chances of gaining upon an active enemy are thereby made very remote. It will be fairly obvious that if the transport wagons could only move with the men at a greater, if not an equal speed, they would be the better able to bring the foe to bay, and at the same time the column would run less risk of having its supplies cut off by a convoy attack.

Motor Transport Necessary.

To overcome these difficulties and to secure greater mobility for the cavalry the ox-wagon should certainly be discarded. The provision of a number of horses fitted with pack saddles, each to carry a load of about 250 lbs. weight, is suggested, but while this would probably be an improvement on the present system the adoption of motor-vehicles would be a far greater advantage. The necessity for experiments in this direction is certainly being forced upon all observers of the war in South Africa and with the transport difficulties that will probably be experienced ere the Chinese puzzle has been solved too much attention cannot be given to the subject.

Empowering the Daimler.

IT may be remembered that during the recent Irish motor tour two Daimler cars took part which originally were of exactly the same power and geared identically. On the trial, however, Dr. Colohan's car proved itself to be considerably more powerful than Mr. Meeredy's, and repeated tests on the hills showed it was able to surmount them on a higher gear than the latter. Dr. Colohan justly attributed the improvement to the alterations which he had effected in the engine. After the trip Mr. Meeredy had his car dismantled, and then Dr. Colohan added the more important of his improvements. The result was quite remarkable. It was tried over a series of hills, the performances on which in the first instance were well known. In every case a very marked improvement was noticeable. Mr. Meeredy found he could take eminences on the high speed which previously he could only ascend on the second speed. He reckons the pace of his car up hill has been improved by fully five miles an hour. Further improvements are in contemplation by Dr. Colohan which he hopes to have ready for trial in September. At present he is reticent about details, as until his ideas are fully protected he does not wish them to be made known publicly. But in an unmistakable way he has given practical demonstration of the utility of his alterations, which, we may remark, were carried out at the works of Messrs. Hutton, Sons, and Co., Dublin.

The Motor-Car and the Stage.

IN a fashionable theatre at Berlin the motor-car has been seen on the stage. At New York it has been utilised for the performances of a couple of clever performers, and at the Alhambra it was welcomed some time ago as a change in the usual character of the performance. Now it has become the theme of the music-hall poet, and a motor-car song has been introduced by Mr. Arthur Roberts in his "H.M.S. Insuppressible." Of course "Teuf, teuf" is mentioned.

Miss Butler.

LADY automobilists are a growing numerical quantity and may yet establish records in driving motor-cars. At present the record is held by Miss Vera Butler, the daughter of the hon. treasurer of the Automobile Club, who was the first lady to drive between the English and French capitals. She is being much paragraphed just now by the Society journals, from one of which we learn she was educated at the celebrated school of the late Miss Buss, where she passed the Cambridge Local

Examinations and also obtained her certificate for music. She afterwards studied French and music for four years in Paris. Amongst her other recreations are swimming, golf, boating, cycling, and mountaineering in the High Alps. In our issue of July 28th, we gave a snapshot—taken in the grounds of Strawberry Hill House, Twickenham—of Miss Butler on her father's 6 h.p. Panhard.

The "Sphere."

IN the *Sphere* the Rev. Arundell Whatton has been telling a tale about an acquaintance who looked out for a motor-car which would not run and actually bought a second-hand machine upon the assurance of the owner that it never had. He found his pleasure in solving the problems of its obstinacy. We wish all the motor-car articles in our contemporary were as accurate in tone as that of the Rev. A. Whatton. Last week we corrected the *Sphere's* mistake with regard to the Prince of Wales. Instead of accepting that correction the Editor went on to say nothing had been heard of the car at Sandringham. Had he made inquiries at Marlborough House he would have got better information.

Motor-cars in Italy.

THE patriotic intentions of some of our Consuls abroad are highly creditable, and the following extract from the report of Consul C. C. Morgan, our British representative in Rome, will be read with interest:—The whizzing noise and the trumpeting which is now heard in the streets of Rome betoken the existence of a new industry. I find that the motor-cars in use up to the present are of Continental manufacture, and the fittings and accessories of the machines, which at this early stage are easily damaged, are imported from abroad, but not from the United Kingdom. It would be expedient for motor-car manufacturers and dealers to try to open a market here. I am confident that the superiority of the British machine would secure patronage.

Electioneering on the Motor-car.

THE ranks of political motorists are being swelled by several notable additions, and we hear that Mr. Alexander Williamson, of Blairesk Hall, Midlothian, prospective Parliamentary candidate for North Ayrshire, has started on a political tour through the constituency in a motor-car. He is accompanied by the secretaries of the various polling districts, and is visiting all the out-lying localities. Out-door meetings have also been held in several of the places in the itinerary. Mr. Tweedy Smith, the victim of the attack on a motorist reported in our columns a fortnight ago, is also a Parliamentary candidate, and the motor-car may be expected to figure prominently in his constituency—South Hants—during the contest.

The Darlington Case.

AT the Darlington police-court a case has been heard in which the motorist won on one side, and lost on the other. Those who read the report in our columns last week will wonder why Mr. Wilson Hall should have been fined for riding at an excessive speed when no evidence was forthcoming to disprove his statement that he was travelling at not more than five miles an hour. Evidently the Darlington bench requires a little practical education as to the capacity of the automobile to be stopped at the desire of the driver and also as to what is excessive speed, and what is not.

Dangerous (?) Speed at Bournemouth.

BOURNEMOUTH has been often heard of in connection with motor-car matters, and the services that have been instituted have been of great public convenience. Now some of the motor-car drivers have been summoned for driving their cars at such speed as, in the opinion of the magistrates, constitutes a public danger. The offence took place in a busy thoroughfare, and the

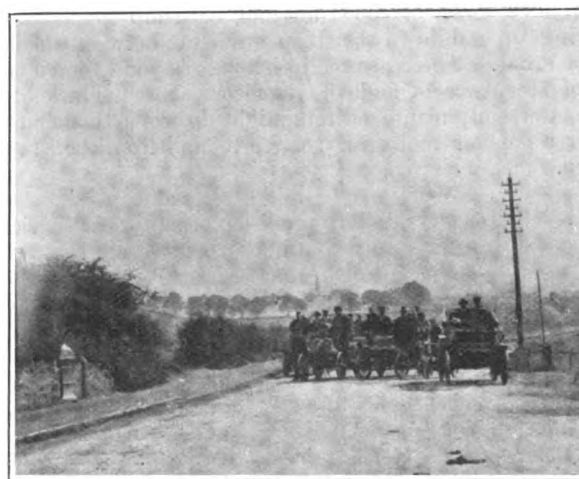
speed was ascertained by a policeman stationed at a given point. When the car passed, the policeman signalled to a comrade farther down the road, who at once started his stop-watch. The pace was about ten miles an hour, which the magistrates considered dangerous. They fined each defendant a small amount and costs. Seeing that the evidence proved conclusively that the vehicles could be stopped in a shorter distance than would be possible in the case of a horse-drawn vehicle, the justice of such a finding is not very clear.

Proposed Motor-Car Service in Ireland.

SEVERAL inhabitants of Enniskillen have expressed their wish and willingness to run a motor service to and from Bundoran in the summer months, and to and from the markets in the winter time, and if such a service could be instituted the cars would be largely availed of by the people of Enniskillen and district, and by tourists generally. Tourists are going to Ireland in vastly increasing numbers year by year, and they would not be slow in taking advantage of a speedy run to Bundoran along the beautiful route which skirts Lough Erne. Enniskillen folk who patronise Bundoran are sadly handicapped in that the last train back from that favourite watering-place is at 5.10 p.m. It could be so arranged to leave Bundoran by motor-car at any time up to 9 p.m., by which hour people would have enjoyed to the full the benefits of the sea. The route, which would be traversed on both sides of the lake, is very beautiful, the ever-varying scenery and panoramic views of the lake and its densely-wooded islands equalling any other scenery in Erin's Isle. We hear that several local gentlemen have conferred on the subject of a motor-car service, and it only needs the fillip of some well-organised trip to lead to the formation of such services in several places in Ireland.

The Scottish Club's Run.

SUPPLEMENTARY of the photos already published in connection with the meet of the Scottish Automobile Club, we have pleasure in giving the accompanying illustration from a photograph by Lord Kingsburgh. Included in the group is the motor-car which was used by the Forth Volunteer Infantry



Brigade in their camp at Lochcote, Linlithgowshire, and which rendered good service in carrying the mails. Lord Kingsburgh went out on the vehicle to Linlithgow to meet those taking part in the club's run, and the snapshot was taken on the road.

The Light Delivery Van Competition.

THE conditions relating to the light delivery van or *poils légers* competition, which is to be held in Paris from the 17th to the 22nd September, have just been issued. The trial is of an international character, and is open to all motor-vehicles capable of carrying a load of not less than 100 kilo-

grammes. Entries will be received at the Automobile Club de France, in Paris, until the 15th September.

A New Decauville Voiturette.

CALLING in at the Motor-Car Company's dépôt in Shaftesbury Avenue, W.C., the other day, we had an opportunity of inspecting the latest type of Decauville voiturette, which in many respects is a great advance on the vehicle with which most of our readers have been familiar for some time. In the first place, the motor, instead of being air-cooled, is now provided with a water-jacket, the circulation being maintained by a small pump driven off the fly-wheel. The engine is of the two-cylinder vertical type and develops 5 h.p.; the ignition is electrical, while a Longuemare carburettor is now being used. The water-tank is located under the small seat in front, a water-cooling coil being also provided. Other improvements in the new car are to be found in the fact that the motor and transmission gear are now enclosed by a detachable cover, and in the suspension of the body. The motor and transmission gear are supported on a tubular frame, and are entirely independent of the body, the latter being attached by springs to the frame both fore and aft. Painted in yellow and blue the new vehicle has quite an attractive appearance, and with its 5 h.p. engine it is claimed to be capable of conveying the three passengers for which it is designed at a good speed, both on ordinary roads and up hills.

A Note from Brighton.

BRIGHTON people have had a chance of seeing the motor 'bus lately running in London, and the vehicles of the Brighton Motor Co. going to Patcham and places round about have been well patronised of late. Last week Mr. Rudyard Kipling went for several drives from his house at Rottingdean on his motor-car. It took the steep ascents on the way to Brighton with apparent ease, while the four-horse 'buses went their journey with evident difficulty. Popular among excursionists, patronised by well-to-do holiday makers, and well recognised during the last few years by motorists, the wonder is that automobiles are not more familiar objects in the streets of Brighton than is actually the case. Only a few stray motor-vehicles can be seen, save along the Front, and yet there is scarcely a place on the south coast where the provision of a motor-car service would relieve horses of the strain and hardship involved in the journeying up and down the steep gradients between the station and the Front. These are really irksome beyond the customary strain of steep streets, and the numerous short inclines are very trying. Certainly manufacturers might do worse than endeavour to foster a popular motor-car service to and from the station at Brighton.

Motor-Car Services.

THE provision of motor-car services not only continues to increase, but they are being organised on such thoroughly business lines that their permanence is safely assured. Not only have they regular hours of starting and appointed termini, but time-tables are being published in connection with the services. We chronicle the fact in the hope that it will afford a useful suggestion to conductors of such services who have not yet published such guides.

More Motor Etymology.

So many attempts have been made to provide substitutes for the words automobile and motor-car without result that one would think that by this time the futility of the same would have been recognised. Although the question has not been heard of so much of late in this country, yet in America new words are continually being coined. Thus a New York etymologist writes to the *Automobile Review*:—"I beg to submit a well-considered protest against the open and painful incongruity of the term automobile. It is etymologically untenable and ought to be abandoned. It is a compound of two words

derived from two languages, Greek and Latin, that should never have been joined in unnatural and unscientific union. Give us words from one language. For example, the Greek. No more beautiful and expressive word could be imagined, I think, than tachy-drome, or swift running; purely Greek, not an illogical and awkward composite, but a true and logical compound. This word might as easily and swiftly gain acceptance as ever did the word telegram, as far as I can see. Calidrome would do very well also. Any honest, appropriate, euphonic word—not a hybrid, a jargon or jumble from two languages, like automobile—is the new term wanted. Tachy-drome is therefore recommended, or calidrome (fair running), but away with automobile for ever." Our contemporary adds that, "The word 'automobile' has become so firmly entrenched in the public mind to denote a mechanically propelled vehicle, that it would be probably easier to make water run up-hill than attempt to eradicate its use at this date." We in this country have preferred the word motor-car; and although other terms have been suggested, none of them seem likely to supplant it.

An American Contest.

At the automobile exhibition and race meeting to be held at Chicago from September 18th to 22nd there will be some interesting tests, in which the following ratios of points will be established as winning values:—

	Points.
Speed (to be determined on a 5-mile run) ...	20
Elegance of carriage design and practicability ...	20
Best arrangement of brake and control of speed ...	20
Best climbing of grades ...	20
Best and surest safety devices for operating vehicles on either grades or level ...	10
Best, simplest, and most easily accessible mechanical construction ...	10

There will be a hill-climbing contest, also a contest on an incline and decline grade, and a heavy draft contest, open for all heavy draft motor-trucks built for commercial hauling. In this contest the following ratios of points will be established as winning values:—

	Points.
Construction ...	20
Power ...	20
Carrying capacity ...	20
Design ...	20
Control ...	20

After decisions have been rendered on tests covered by above rulings, the prize-winners of each class will be allowed open competition on:—

	Points.
Carriage design for general practical utility ...	30
Easiest manipulation ...	30
Safety and emergency devices ...	20
Cost of power per ton mile ...	20
(Per ton mile to include complete weight of vehicle and passengers as well as any additional load that may be carried.)	

These points will be of interest to those who have anything to do with motor-car trials in this country as showing the relative importance attached to various points of a machine in the United States.

Useful Criticism.

ONE of the contributory factors to the success of the automobile industry has been the readiness with which designers, makers, salesmen, and purchasers have placed information at the disposal of each other. Details of construction have been criticised in the automobile press, and there seems to be a common desire on the part of all earnest workers in the industry to aid in the production of the most serviceable and most efficient vehicle, and to arrive at truths by an interchange of thought. It is this desire which is so rapidly elevating the industry.

THE AUTOMOBILE FETE AT VINCENNES.

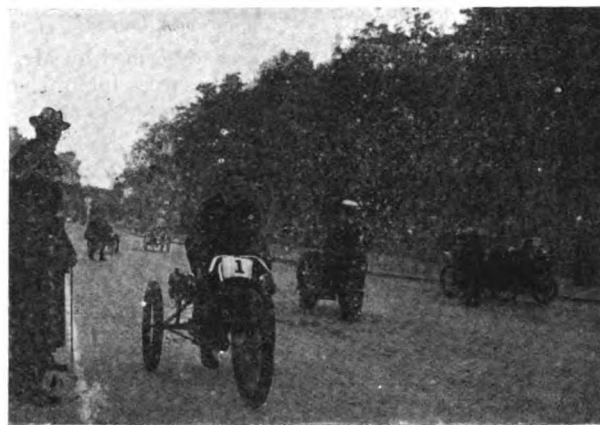
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(From Our Own Correspondent.)

WHEN I decided to honour Vincennes with my presence, it was not with any idea to enjoy myself, for the exhibition is not a very joyous place. No, it was because I desired, in the goodness of my heart, to give the unfortunate annex a chance by visiting it personally, and I selected for the occasion of my expedition, Thursday, August 23, as upon that date an automobile fête was announced to take place, and I had no desire to appropriate to myself all the honour of attracting the public. So then, at about one o'clock in the afternoon of that particular Thursday, I presented myself, equipped with a Kodak and a sweet smile, at the Palais Royal station of the new Metropolitan Railway, in front of which a long queue of would-be travellers had already formed. My surreptitious efforts to find a forward place being but unsympathetically received, I was constrained to fall in at the end of the queue and await my turn to descend into the bowels of the earth. It would indeed have proved a wearisome affair but for the entertainment generously offered to us free of charge by a fiery Frenchman, who, understanding German, resented the deprecatory nature of a criticism on his *patrie* and everything in it, exchanged between a couple of Germans in their native tongue. We all enjoyed it immensely excepting perhaps the man who nearly had his eye poked out in the discussion, but then he had no sense of humour. By a quarter to two I had approached sufficiently near to the entrance to hear the trains departing, which encouraged me to persevere, and when ten minutes later I actually arrived next to the policemen guarding the sacred portals I could have embraced them—the policemen. It was at that moment I discovered that the crowd in which I was embedded was waiting to go to the Champ de Mars, and that I could have proceeded to Vincennes three quarters of an hour previously. In a moment my smiling amiability was changed to rage, and I plunged furiously down the steps. The fares for any distance are respectively 25c. and 15c., and filled with a spirit of reckless extravagance, I determined to squander the larger sum, and take a first-class ticket. No sooner said than done, and a couple of minutes later I found myself in the train, where my ill-humour was quickly dispersed by the happy *rencontre* of Jules Dubois, bravo Jules Dubois, as Mrs. Kennard calls him, when writing of the Thousand Mile Trial. With such a jovial companion by my side the run to the Cours des Vincennes passed quickly, and the wait for the electric tramcar, usually so weary, was hardly noticed. Once aboard the car we followed the fortifications, passed the Portes St. Mandé and Picpus, and finally turning through the Porte de Neuilly, were put out at the Exhibition gates. It is really delightful at Vincennes, for nobody seems to know anything as to localities, and one may wander about in the exhibition for an hour or two without catching sight of a vestige of the show. But on Thursday there were actually some people there, so we just followed the stream and quickly reached the road running round the Lac Daumesnil, and which, roped off, served as a track for the races. This track measures exactly 2,264 mètres, and carries a broad white line down the centre to aid the *chauffeurs*. Matters commenced at half-past two with a procession of florally-decorated cars, led by the famous steam-carriage known as "La Mancelle," built by M. Amedée Bollée père, and winner of a silver medal in the exhibition of 1878. This *défilé* ended, and, truth to tell, it was not a very extensive affair, a thread-the-needle race for motor-cyclists took place, which Fossier succeeded in gaining, followed home by Laborde, Denesle, and Le Blon. Then we were treated to a real sensation—a motor-cycle race, once round the lake for the heats and two laps for the final. The first heat was won by Béconnais in 2min. 1sec., Fossier being second. The second heat was secured by Rigal in 2min. 11sec., Marcellin obtaining second place. In the final Béconnais got well away and completed the first lap in 1min. 52½sec.; Rigal lying second and Fossier third with Marcellin well in the rear.

Béconnais' second lap was made in 1min. 44½sec., which represents a speed of eighty kilomètres per hour, and the aspect of man and machine travelling at that speed was truly terrifying, for the cycle literally leapt from the ground like some new breed of kangaroo. Fossier finished second, and Marcellin third, Rigal breaking down *en route*. Then came a backward race for the voituresses over a distance of 500 mètres. The competitors were despatched in couples, and the results were:—1, Marcellin beat Wrad; 2, Ricard beat Schmidt; 3, Oury, a bye; 4, Marcellin beat Ricard (disqualified); 5, Oury beat Marcellin.

The completion of this race brought us to the event of the afternoon, the Omnium Handicap. And in what did this consist? Well, we had the bicyclists, the motor-tricyclists, the motor-bicyclists, the voituressists, the cripples, the roller-skaters, the bath-chairmen, the runners, and the donkeys competing, first separately and finally together, over a distance of 250 mètres. Every phase of this event was brimful of interest, but the series in which the public took the greatest interest were undoubtedly those reserved for the cripples, seated in those diminutive vehicles with which we are all familiar, and the donkeys. In the former class the entry of Hasslinger had deterred all other competitors from putting in an appearance, and there ere the hero of the voyage from Vienna to Paris in forty days was accorded a walk-over, which he performed at a



BÉCONNAIS—THE SPEEDY MOTOR-CYCLIST.

speed equal to 16 kilomètres per hour. But the donkey racers were legion, and the qualities displayed by the majority of them truly superb. How they coaxed and cajoled their fiery steeds, how they spurred them to still greater efforts, how they by turns whispered soothing words of comfort in their silky ears or shouted cries of battle above their heads, will live long in the memory of the spectators. I am not an expert on donkey mechanism, but it seemed to me that all the beasts were under-gear and their steering-gear defective. The majority were belt-driven, and when the belt was applied suddenly the effect was occasionally disastrous to the driver. The power generally appeared to be ample, but it was not always well applied, and the conductor appeared to have but little control over the forward and reverse gear which seemed to operate quite on its own account. Then, too, the carburation was, not up to the mark in every instance. On the question of brakes, however, I have nothing but praise, for frequently they acted with startling efficiency, and when once applied only the persuasive application of a carrot could bring about their withdrawal. But the sport is a grand one, and for the efficient exercise of every muscle in one's body it cannot be too strongly recommended. The final of the handicap went, as it should do, to the noble steed, but only after a desperate struggle with the bicyclist and the runner. The official placings were: 1, Thuan (donkey), 165 mètres; 2, Mathieu (cyclist), scratch; 3, Trante (runner), 85 mètres; 4, Guerry (roller skater), 140 mètres; 5, Hasslinger (cripple), 160 mètres; 6, Lesaint (motor-bicycle), 62 mètres 50; 7, Gama (bath chair), 120 mètres; 8, Schmidt (voituress), 80 mètres; 9, Laborde (motor-cycle), scratch.

It may be of interest to know the speeds per hour in kilomètres achieved by the various competitors. These were:—

Donkey, 15; cyclist, 45; voiturette, 30; cripple, 16; motor-cycle, 45; motor-bicycle, 33; roller skates, 18; bath chair, 21; runner, 27.

No sooner had this event been decided than Dubois and I made the best of our way to the station, a timely lift in Schmidt's little car enabling us to reach our destination before the crowd

CORRESPONDENCE.

150,000 MILES.

[TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. J. E. Hutton evidently wishes to be very smart, but many of your readers will no doubt consider it bad taste on his part to publicly accuse a total stranger of deliberate perjury on the strength of an extract from an obviously incorrect report in a newspaper. The statements given in your previous issue were not as related by me. I have owned a motor six weeks and have not been much over 1,500 miles. I ask you to be good enough to insert this in your next issue, though I am loth to take up any of your space.

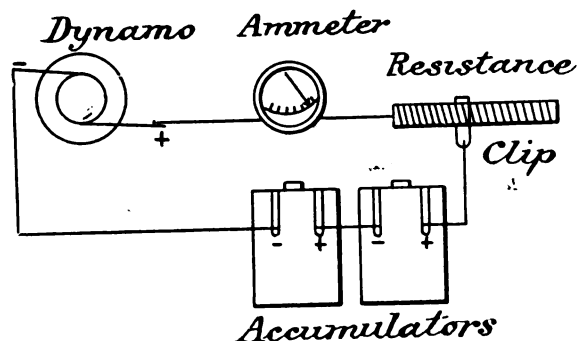
Foxlea, Epsom,
August 25th, 1900.

Yours truly,
G. T. LANGRIDGE.

CHARGING ACCUMULATORS.

TO THE EDITOR OF THE *Motor-Car Journal*

SIR,—Batteries of primary cells, as described by Mr. F. S. Tidecome and Mr. W. G. Bell, are not very successful for charging



accumulators with, nor, in fact, to produce any current which has to be steady for several hours. If no other charging current is at hand so that these must be used as generators, an ammeter should be connected in the wire of the feeding current and a voltmeter should be frequently used to measure the E.M.F. of each cell. This will give warning as to when new chemicals have to be added or when the whole charge has to be renewed.

At least four cells in series are required to charge two accumulators. The total voltage should be kept near 6 volts, but need not be any higher. If the voltage falls below 4 volts, the reverse of charging will take place, therefore it is necessary to watch the measuring instruments. A more successful plan to charge up is to draw the necessary current from a plating dynamo now found in most cycle repair shops. The 6 volts usually produced by these is just sufficient to charge two accumulators. A small resistance is easily and cheaply made by winding thin copper wire round a piece of dry wood or other non-conductor, and have a clip to slide along this to adjust the resistance, and a wire from the clip to run to the terminal of the accumulators. The charging current required by a pair of motor accumulators varies from 1 to 5 amperes according to the size of accumulators; to fully charge up six to eight hours are necessary, but it is preferable to continue the charging longer than necessary. The current consumed is so small that it can hardly be expressed in currency, and cycle makers should not charge too much for this if their engine is not run for the purpose. If the charging is done through electric lamps the current consumed is considerable, but it may be done at home when the light of the lamp is utilised, in which case the expense is reduced to nil.

To keep accumulators for motor-cars in good condition the following rules should be observed: Do not test with ammeters, draw sparks, or short circuit. Test with voltmeter and recharge as soon as E.M.F. in each accumulator has dropped to 1.9 volt. Never discharge below 1.8 volt. After this the accumulator discharges very rapidly and completely exhausting the charge deforms the lead oxide. To reform a completely exhausted accumulator takes 43 hours continuous charging, and two or three repeated discharges and charges to bring the accumulator up to its capacity. Overcharging in hours does not wear the plates out, but is very beneficial; charge up as often as you have occasion, but do not charge with more amperes than what the accumulator is made for. The usual time required to charge accumulators is six to eight hours; towards the end of the charge the E.M.F. in each cell runs up to 2.5 volts, in some to 2.7 volts. When this is reached they only take half the charge. After having charged up full, allow the accumulator to cool, and then test the electrolyte with a densimeter; if too strong, that is above 1,230 spec. weight, add some distilled water or boiled rain water, and reduce the spec. weight to the normal density; water continuously evaporates, but very little acid gets lost. Keep the plate well covered with electrolyte. Again test with voltmeter only; as long as the E.M.F. is above 1.8 volt, the accumulator is not discharged. The ammeter will draw a considerable amount of current from the accumulator, and it is not difficult to test an accumulator with an ammeter for a few seconds to such an extent that it need not be used again.

Yours truly,
Coventry, August 25th, 1900. H. W. VAN RADEN.

VAST sums are being expended by the Government of Madagascar on the construction of excellent wagon roads, connecting Antananarivo with the east and west coasts at Tamatave and Majunga respectively, and also with the southern district of Betsileo.

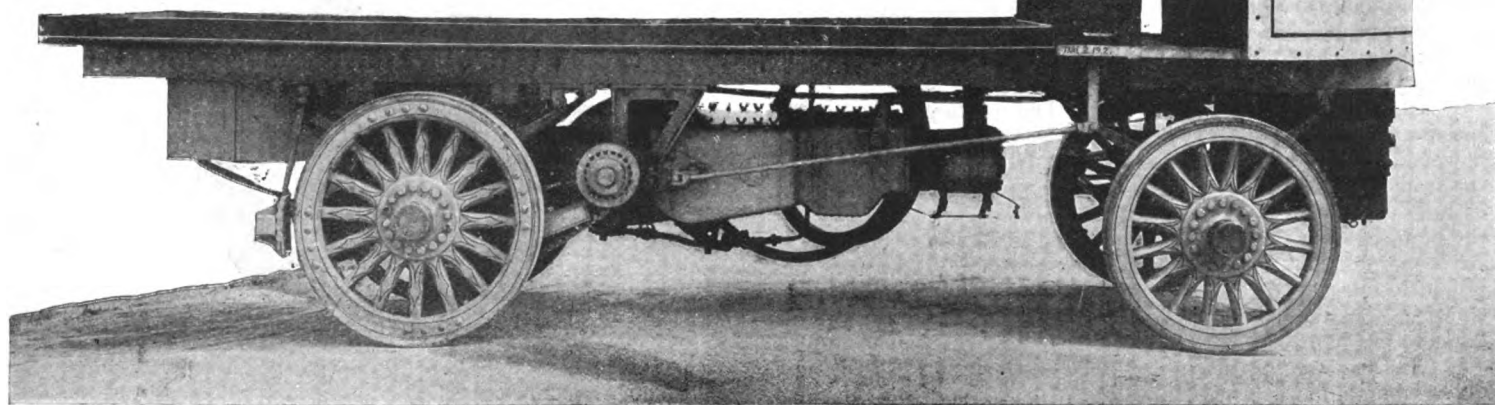
THE first instalment of the electric omnibuses for the American Autocarette Company, of Washington, D.C., has arrived. The vehicles are to be run on the storage-battery system, and are equipped with solid rubber tires. Each vehicle has accommodation for twenty passengers. The first line to be permanently established will run the entire length of the city, on a route passing nearly all the Government buildings.

ACCORDING to *L'Automobile Belge* there are now 321 motor-cars and 108 motor-cycles in the province of Brabant. Next comes the province of Liège with 148 cars and 94 motor-cycles, Antwerp with 55 and 34, Hainaut with 42 and 39, East Flanders with 8 and 7, West Flanders with 25 and 3, the province of Namur with 14 and 9, Luxembourg with 7 and 3, and Limbourg with 4 voiturettes. This gives a total of 1,119 motor-cars and 297 motor-cycles already in use in Belgium.

A MEETING of manufacturers of petrol motor-vehicles, and of motors for automobiles, which was called for the purpose of forming an association to fight the Selden patent, owned by the Electric Vehicle Company, took place in Buffalo, N.Y., U.S.A., on the 2nd inst., with about twenty manufacturers of vehicles and motors in attendance. After a two and a-half hour discussion of the merits of the Selden patent and the necessity of an association, a committee on organisation was appointed. The committee made nominations for officers, and the nominees were all unanimously elected as follows:—President, Mr. Elmer Apperson, of the Haynes and Apperson Company, Kokomo, Ind.; Secretary, Mr. George H. Brown, of the Winton Motor Carriage Company, Cleveland, O.; Executive Committee: Mr. E. B. Gallaher, of the Keystone Motor Company, Philadelphia, Pa.; Mr. H. M. Sternberg, of the Duryea Power Company, Reading, Pa.; Mr. A. Snyder, of the Buffalo Gasoline Motor Company, Buffalo, N.Y.; and Mr. John S. Clarke, of the Autocar Company, Ardmore, Pa. It may be stated that every manufacturer present appeared to be thoroughly in earnest in his opposition to the Electric Vehicle Company's attempt to monopolise the petrol motor in America, and determined to stand by the Winton and Buffalo companies in their fight.

THE NEW LEYLAND STEAM WAGON.

A NUMBER of improvements and modifications have lately been made in the steam wagons built by the Lancashire Steam Motor Company, of Leyland, notably the adoption of coke in place of liquid fuel for the firing of the boiler, and the employment of an horizontal engine in place of the vertical. The accompanying illustration shows one of the latest productions of the company, a steam wagon capable of carrying loads up to four tons. The boiler is placed in front, as usual, and has 89 square feet of heating surface. It is fired from the driver's seat through a central shoot, and is constructed for a working pressure of 200 lb. per square inch. Water is fed to the boiler by means of a brass feed pump, placed under the engine frame. There is also a small Worthington steam pump under the driver's seat, which is used for pumping water into the boiler when the machine is standing. This pump can also be worked by hand in case it is required to fill the boiler when steam is down. Before entering the boiler the water passes through a heater which raises the temperature from say 50° to 180° Fahr. The coke bunkers are placed on either side of the boiler. The engine is hung under the centre of the frame in such a manner that the bed is, it is claimed, relieved of all the strain usually put upon it by the driving wheels. It is of the double-acting compound type of 20 h.p. It has metallic packing throughout, large



THE NEW LEYLAND STEAM WAGON.

wearing surfaces, and is fitted with link motion for reversing. The whole of the working parts run in a dust-proof oil bath. The gearing, which also runs in oil, is arranged to give two different changes of speed, one equal to five miles an hour with the engine running at 400 revolutions per minute, the other three miles per hour with the engine running at the same speed. A special cushion drive is used for transmitting the power from the compensating gear shaft to the rim of the road wheels, thus reducing the shock to the working parts when starting a heavy load. The axles are of girder section, the arms being of large diameter, while the wheels are made on the gun-carriage principle, the hubs being steel, bushed with bronze. The seat will accommodate three persons, although one man is sufficient to handle the machine. The platform is made with oak framing and teak bottom, well supported with ironwork. It is 12ft. long by 6ft. wide and rests on the main steel framing, being entirely free from the machinery. The platform can be removed after taking away the bolts that keep it in position, thus enabling other forms of body to be used. The main framework is made of channel steel. The whole of the machinery, boiler, and tanks are hung or rest on this frame, which is supported from the axles on long laminated steel springs. The steering is operated by means of worm and wheel gear, working in connection with pivoted axles on the Ackerman principle. The makers claim that the vehicle is capable of doing a journey of fifty miles in a day of twelve hours, loaded with four tons, providing that the

roads are in good condition and not a very hilly district, and that it will take this load up gradients of 1 in 7 on reasonable roads.

THE TRIALS OF THE TYRO.

WONDERFUL are the experiences of the novice in pig-sticking, duck hunting and mountaineering. Equally sensational can be the incidents associated with our own particular sport. Learning to drive a motor-car probably comes as near the heart disease limit in human doings as any one event of ordinary life. When Richard III. made his famous bid for a horse, the automobile was not. There are many sportsmen, probably, who cordially echo the cruel king's cry: "A horse!"

a horse!" anything whatever less cranky, cantankerous, crotchety, and with a more subdued enthusiasm for riding over everything but the road. It seems so easy while one watches the automobilist. The thing shoots along the road at a rattling pace, corners are turned with surprising ease, the apparatus comes gracefully to a standstill; in fact, it "gees, haws, and backs" with all the docility of a well-trained horse. When the owner takes it in hand for the first time, then it is truly "a horse of another colour," and certainly of a different—oh, how different—disposition. All the vices and irregularities of the sum total of equine perversities are as nothing compared to it.

After explaining the thing and illustrating the action of the starting lever, steering bar, reversing lever, and brake, by sundry dexterous turns of the wrist, the instructor changes places with the luckless beginner, and then the fun begins. Particularly if one is accustomed to horseback riding is the first trip on an automobile a strange and fitful experience. "This is easy," the new automobilist says to himself as, with the right hand on the steering bar, he pushes the starting lever a single notch forward. This only sends the machine at a very moderate pace. The road is straight and smooth, and everything goes easily. There is a feeling of exhilaration, and, with a thought of "I wonder who I know is looking," the new operator rashly pushes the lever forward as far it will go.

With a bound like that of a high-bred horse under the sudden sting of the whip, the machine bolts forward. The steer-

ing bar, which was so easy to handle at the slow speed, now seems to be endowed with life, instinct with some diabolical agency. It will never stand still. Instead of keeping straight ahead, the machine is continually wobbling, and woe to him who may be driving anything on that road. The perverse machine takes it all, with an absurd preference for the pavement. Then the instructor comes to the rescue and saves the venturesome amateur from an untimely death. With a change of heart amounting to a camp meeting conversion the machine, which was a moment before vicious, hard on the bit, stubborn and obstinate, lays aside all these vices and, coming back to a state of grace, darts along the road like an express train. While the new driver is drawing a breath of relief and wondering what could have possessed the machine before, it comes as a shock to hear the instructor saying: "You rather lost your head that time. Now, try it again, and keep the steering bar steady."

Holding the steering bar with a grip that almost dents the handle, the motor-car speeds on. No deviation this time; straight as an arrow the thing shoots. Down the road speeds the machine, when, all of a sudden, half a newspaper blows across the road. The new operator, with all his experience of horse-lack riding, needs no hints from the instructor as to what he should do in this emergency. Holding the starting lever firmly with his left hand—though what for, neither he nor any one else could say, as the machine is doing its best already—and the steering bar in his right, he deliberately turns his horse's—no; the automobile's—head toward the fearsome object. Almost instantly the machine becomes a bicycle, so sudden is the slew that the quick turn has caused. The instructor seizes the steering bar, and, by bringing it back to "straight ahead," averts an overturn by a hair. "Never had a horse shy like this," mutters the neophyte, as he takes the bar again.

All goes well for a time now. The machine is on third speed and acts very well. The third speed is not very slow, however, and before long the automobile arrives at a street where the tram-lines cross the road. Still thinking of the horse, and wishing to keep the thing from stumbling on the tramway, the new beginner slows up. Where, oh, where is that brake! After more or less shuffling, the foot finds it, and, with a forward pressure, releases the catch that holds it in position on the rack. Gently as possible the thing stops. The lines are crossed and no accident has happened.

The first half mile is now done without much pleasure. One's whole mind is centred on the management of the machine. The surrounding scenery is enveloped in a sort of haze. Little by little, as ground is covered and nothing untoward happens, the new operator begins to notice other things. That was a handsome house that was passed, he thinks to himself. One by one objects begin to impress themselves on the senses. Sometimes, like Toby, M.P., he fancies he sees a policeman who is out of sight before he can enter into conversation. The mist clears, and with a keen sense of pleasure and exhilaration, the next half mile is passed. Everything is going smoothly. The machine has been conquered, and the speed lever is pulled to the next notch. At a rattling pace the automobile now dashes on. Automobiles for ever. Horrors! Is that nurse going to trundle that perambulator across the street? Will she never look this way? Down brakes, quick! As the new driver painfully gathers himself together and sorts himself from the clinging gravel and mud that has stuck in artistic clusters on his clothes after he went flying over the dashboard, his criticisms of the sport of automobilism are not fit to print. If he is not cured, the automobile fever is in his blood and he will try again, each time with increasing pleasure. And the probability, nay, the veriest certainty, will be that he will feel the contagion of the sport that is now causing men to leave other pastimes to join in the exhilaration of going along the countryside without the help of the horse—a fine new invention for up-to-date persons. As a cure for bad nerves the automobile is A1.

At Leamington, on Monday, Ambrose Valentine, engineer, of Heath Terrace, was fined £1 for driving a motor-car without a front light.

THE CARCANO MOTOR-BICYCLE.

THE latest motor-bicycle to come under our notice is that which has recently been built to the designs of the Marquis Carcano and put on the market by the *Agencia Internazionali Automobilistica*, of Milan, Italy. A general view of the machine is given in Fig. 2, from which it will be seen that the motor *L* is placed in front of the main down tube of the frame and supported at *E* and *N*. The motor, of which a separate view is given in Fig. 1, is of the air-cooled type with electrical ignition. It has an external fly-wheel, a small pulley being fixed on the

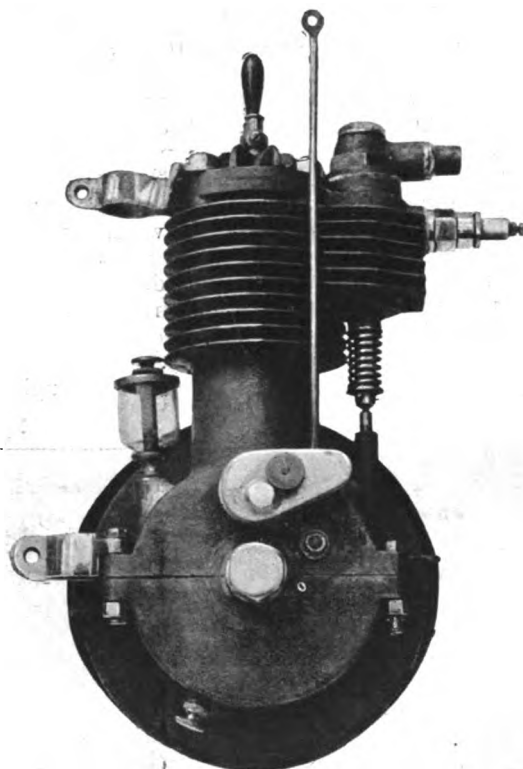


FIG. 1.—GENERAL VIEW OF CARCANO MOTOR.

opposite end of the crank shaft. The engine drives the machine by means of a strap working on a light rim attached to the rear wheel. The petrol tank and carburettor *B* has a capacity of two litres. The accumulators are located at *A*, and the induction coil at *G*, *Q* being the silencer. In the details sent us by the makers the horse-power of the engine is not stated nor is the weight of the machine complete. The motor, with its carburettor, battery, etc., is stated to weigh about 30 lbs. Pedals and chain-gear, combined with a free-wheel clutch, are provided to enable the engine to be started or assisted in mounting steep gradients.

THE Western Automobile Association, an organisation for automobilists, has been formed in Chicago.

IN Mr. R. A. COBB's letter on pneumatic tires and punctures in last week's *Journal* "a great loss of resistance" should have read "a great loss of resilience."

"THE INVENTOR'S ADVISER" is the title of the fifth edition of Mr. Reginald Haddan's work on patents, which is published by Messrs. Harrison and Sons. It deals with the commercial aspect of inventions, the British law of patents, foreign patents, trade marks and designs, and has several useful appendices.

AN electrical hotel omnibus has been lately constructed by the *Gesellschaft für Verkehrsunternehmen*, of Unter den Linden, Berlin, N.W., for the Kaiser Hotel, in that city. The vehicle has accommodation for ten passengers, in addition to the driver, and can run a distance of from 25 to 30 kilometres on one charge of the accumulators, which are located under the driver's seat. A full description of the *Verkehrsunternehmen* Company's vehicles was given in the issue of the *Motor-Car Journal* of September 22nd last.

PARIS EXHIBITION NOTES.

(FROM OUR OWN CORRESPONDENT.)

(Continued from page 428.)

THE display made by the Compagnie des Automobiles et Cycles "Hurtu," of Neuilly-sur-Seine, is a large and varied one, embracing as it does cycles, voiturettes and cars. First of all there is to be seen, right in centre of the stand, a 12 h.p. four-seated car of the "tonneau," or wagonette type. A horizontal two-cylinder motor is carried upon the fore part of the frame, in a very similar position to that adopted by MM. Turgan and Foy in the construction of their cars—that is to say, the two cylinders are placed end to end with the crank chamber between them. Unlike the smaller cars of "Hurtu" construction, tube ignition is employed. Inclined wheel steering is fitted, and the speed change lever is found to the right hand of the driver, that manipulating the forward and reverse gears being placed directly in front of him. Three pedals are provided, two acting upon the friction clutch, and the third upon the governor when it is desired to accelerate the speed of the motor. The car has a solid, substantial appearance, but it cannot be styled a graceful vehicle by any manner of means. Turning from it, we find a couple of carriages of the type so long associated with the name of "Hurtu."

The one is a four-seated back-to-back dog-cart, smartly upholstered in red leather, and carrying a 6 h.p. motor, while the other is also a four-seated carriage, but fitted with a 7 h.p. engine. In both instances the motor is attached to the rear part of the frame, and by reason of the method of balancing the constructors claim that no appreciable vibration is communicated to the car. A horizontal engine, it is water-cooled, and a couple of large tanks ensure the accomplishment of long journeys without the necessity of replenishing the supply of water. The ignition is electric, and the special coil used is said to communicate a spark of great intensity. In common with many motors of Benz origin the engine is started by means of a fly-wheel, which method is not free from objections on the score of cleanliness. The driving is effected by the medium of belts. From these medium-sized cars we come to the small fry, and in the voiturette class a couple of dainty little vehicles are to be seen. The double suspension and the direct transmission employed on these cars at once attract the attention, for both are special features of their construction. The motor used is the 3 h.p. water-cooled De Dion so much in favour with all constructors of voiturettes, and a better engine than which it is difficult to imagine. When desired, however, the water-cooled Aster can be fitted to the car. Three forward and one reverse speeds are provided, all intermediary variations being obtained by means of a friction clutch. A radiator is fitted, and a tank carrying sufficient petrol for a ninety-mile run is provided. The two cars shown are each designed to carry three persons, and weigh some 275 kilogs. each. The advent of this little car is a distinct gain to the ranks of the voiturettes, and the "Hurtu" firm are already doing excellent business with it.

The productions of M. H. Lepape, of Puteaux (Seine), are always known for their originality, and the single vehicle

exhibited at Champ de Mars is no exception to the rule. A two-seated carriage, with a small bracket seat for a child: the body of this car is entirely suspended from the frame by means of four Cee springs, thus securing for its occupants the entire absence of all vibration from the running of the engine. This latter is of 5 h.p., and is unprovided with either flanges or water-jacket, the cooling being effected by the fly-wheel. The carburettor, too, is of M. Lepape's design, and, unlike the generality of these instruments, it contains no float. Three speeds and reverse are provided, all being actuated by the same wheel, which is carried on the steering-wheel pillar. The motor is placed in the front part of the frame, and the transmission of the power is effected by leather belts.

For a long time past considerable attention has been directed to the productions of the Gardner-Serpollet Company, Rue Stendhal, Paris, and this interest has of late been greatly intensified by the Shah of Persia's experiments with, and purchase of, a couple of Serpollet carriages. Personally, I have heard—indeed, continue to hear—nothing but favourable criticisms passed upon the latest types of vehicles produced by the firm, and it is evident that the new Serpollet car is a distinct advance upon any steam carriage hitherto constructed. Of the three types of vehicles exhibited, the voiturette perhaps attracts the most attention, for steam-cars of so small a size and of so dainty an appearance are

indeed a rarity. It is built to carry two persons, but a small bracket-seat, or "strapontin," placed in front of the passenger, gives accommodation for a third voyager. The motor develops 5 h.p., and is placed in the centre of the frame, the boiler being carried behind. Sufficient oil and water are carried for a sixty-mile run, and the consumption of the former is at the rate of one litre for every three miles and three quarters covered by the car. A single speed is provided, and this attains

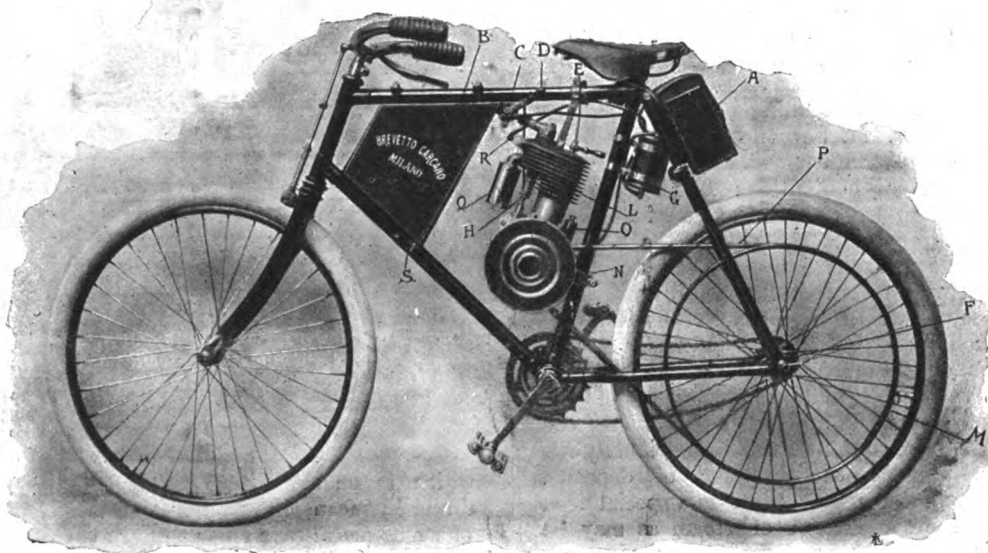


FIG. 2.—THE CARCANO MOTOR-BICYCLE. (See opposite page.)

twenty-five miles per hour upon level ground, and enables the car to ascend grades of 20 per cent. Practically the whole of the mechanism is mounted on a single plate attached to the frame by four bolts, which renders remarkably easy any inspection or repairs which may be found necessary. The boiler contains eighty metres of tubes. The steering is irreversible, and is actuated through the medium of a wheel. Upon the steering pillar are found a couple of small levers, the one acting upon the pumps, and varying the quantity of water and simultaneously the quantity of oil injected, and the other actuating the cam shaft and permitting, following its position, forward and reverse motions and stop. The two pedals appearing through the foot-boards operate respectively a brake of the Lemoine type and the admission of vapour from the boiler into the motor. The carriage work is by Kellner, and presents a very smart appearance. The two other vehicles are both provided with 8 h.p. motors, and carry some 120 metres of boiler tubes. The one car is a brougham affording accommodation for two persons in the interior and driver and footman outside. The third carriage is a four-seated phaeton. A few remarks relative to the organs of the Serpollet car may be of interest, and I would commence first of all with a brief description of the motor, which has been the object of the firm's principal efforts. It consists of four cylinders grouped *vis-à-vis* at an angle of 45 degrees, and each of these cylinders is absolutely like that of a petrol-motor.

By this means the ever-troublesome stuffing-boxes have been entirely suppressed, and with them the loss of power, which exists in the best constructed steam engines, and which on small motors assumes sensible proportions. The connecting rods are attached direct to the pistons, of which the steam tightness is secured by a series of three piston rings. The usual slide valves and fittings are also suppressed, the distribution being secured by means of valves actioned by a succession of cams keyed on to the commanding shaft. On starting the engine the shaft is forced to the end of its course, and it always happens that one at least, and often two valves are found in the position of admission; the third, or two others, as the case may be, being in the position of escapement. The reversing of the engine is obtained by an inverse admission secured by changing the position of the cams, instead of reversing the slide valve as usually done on steam motors. One of the features of the engine is the means employed for the variation of the force. This is achieved by the lateral displacement of the cam shaft and the corresponding variation in the length of time during which the valves are open, with a like increase or diminution in the amount of steam admitted to the cylinders. Turning to the generator, we find it to be of the instantaneous vaporisation type without any appreciable capacity. The circulation is forced, and when in running order it contains no reserve of steam or of water. At each instant, and corresponding to the requirements of the motor, there is admitted to the generator a certain quantity of water, which is converted instantly into steam. This is effected by the heat supplied from a series of Bunsen-like burners, employing ordinary lamp oil as fuel, and which can be set burning within six minutes from standing cold. In common with all builders of steam-cars, M. Serpollet claims for his generator that fouling is an impossibility, and puts forward the following reasons in support of his contention: 1. The considerable speed of the circulation prevents the formation of deposits. 2. The variation of the feed displaces continually the point of vaporisation where the deposits have a tendency to form. 3. The frequent cleansings, whether those automatically provoked by the play of the safety valve or those caused by the wide opening of this valve each time that the car is finished with, produce a violent return of steam and air which sweeps the interior surface of the tubes. 4. The condensation of the exhaust steam partially cleanses the feed water, and finally the drops of oil forced into the reservoir, and which occasionally are drawn into the tubes, prevent the adhesion of deposits. Connecting the generator and the motor there is a special feed apparatus, which varies the production of steam as may be desired. To effect this, not only is the quantity of water admitted to the boiler exactly regulated, but also the oil burned by the lamps, so that the diminution of heat is always followed by a corresponding diminution in the water supply. The connection of the pumps feeding respectively the burners and the boiler brings about this effect, which results in great economy of both oil and water. The arrangement of all controlling levers leaves nothing to be desired, and I am confident that ere many months will have passed one will see many Serpollet cars on the streets of Paris.

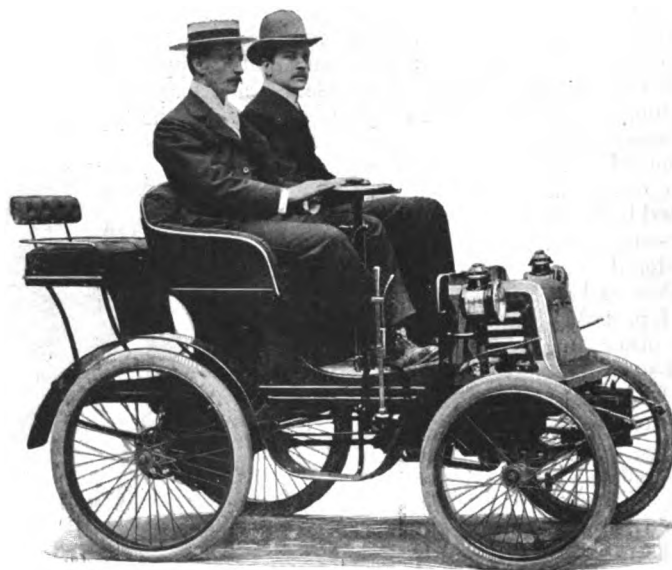
A smart little car, rather resembling a miniature Amédée Bollée in appearance, is exhibited by MM. Gillet, Forest & Co., Saint Cloud (Seine). Weighing 400 kilogrammes, this little vehicle is designed to carry three persons. The motor is of the single cylinder type and develops 5 h.p. No pump is used for the water circulation, and the transmission is direct. Electric or tube ignition is fitted as may be desired by the client. Three speeds and reverse are provided.

A curious little vehicle is exhibited by MM. Brouhot & Co., of Vierzon (Cher), and consists of a coupe built to carry a couple of persons inside, and a third on a dickey behind. The motor is of the two-cylinder horizontal type, and is placed right beneath the body of the car, where it probably finds itself as inaccessible as any motor could desire. The driving is done from the interior of the vehicle, and by reason of the evident inability of the conductor to see anything a little to the rear of him, this should prove an interesting operation in crowded streets. Other cars exist where the driving is effected from the

interior, so the Brouhot vehicle is not alone in this respect, but in no case can the management and the steering be really properly performed.

THE BAUDIER VOITURETTE.

REFERENCE has already been made in these columns to the neat voiturette recently put on the market by M. Georges Baudier, of Rue Garnier, Neuilly-sur-Seine, France. We are now able to publish an illustration of the little car, which takes the form of a "Spider"—that is to say, it has two seats in front and a light seat behind. The frame is built up of steel tubes and carries in front a $3\frac{1}{2}$ h.p. water-cooled De Dion or 5 h.p. Aster motor as desired, the water circulation being secured by means of a small pump. A radiator is fitted underneath the fore part of the car. The De Dion carburettor is used, and wheel-steering is usually fitted. The transmission,



which is on the lines of that adopted in the Renault cars, is direct by means of a friction clutch, and a special gear, the pinions of which are always engaged. In the car illustrated three speeds forward—ranging up to 40 kilometres an hour—and a reverse motion are available, the speed change gear being controlled by the lever at the right of the driver. Provision is made for starting the engine from the driver's seat, and ample brake power is provided. The wheels are of the cycle type, shod with pneumatic tyres. The petrol tank has a capacity of 15 litres and that for water 14 litres. The body can be readily detached from the frame, it being secured thereto by four bolts. A contact button placed on the steering gear enables the electric current to be cut off when desired. M. Baudier also constructs a lighter and cheaper car fitted with but two speeds.

AMONG the latest Berkshire patrons of the motor-car are Mr. Lloyd Baxendale, of Greenham Lodge, Newbury, and his brother, Mr. Frank Baxendale, who have got two wagonettes for use during their stay in the country.

THE Board of Boulevard Commissioners of Jersey City, U.S.A., has adopted an extensive series of rules governing the use of vehicles on the boulevard in that city. The speed limit is twelve miles an hour, and bells and lamps must be carried by all "bicycles, tricycles, auto and loco-motiles and similar vehicles."

IN Dowell's Rooms, Edinburgh, last week the works of the Madelvic Motor Carriage Company, now in liquidation, were offered for sale at the upset price of £7,000. The works, which are situated on two pieces of ground alongside the Granton branch of the Caledonian Railway at Granton, were purchased by Messrs. J. S. Galbraith and McCall, Glasgow, for a client.

THE CLEMENT-PANHARD VOITURETTE.

THE other day we had an opportunity of inspecting at Messrs. Friswell's dépôt on Holborn Viaduct, several examples of the Clement-Panhard voiturette. The little car, of which a general view is given in Fig. 1, is being made in France by Messrs. Clement, of Levallois-Perret to the designs of Commandant Krebs, of the Panhard-Levassor Company. It is propelled by means of a single-cylinder motor of $3\frac{1}{2}$ h.p. (Fig. 3) having an air-cooled cylinder, and water-jacketed combustion chamber, the water circulation being maintained without the use of a



FIG. 1. THE CLEMENT-PANHARD VOITURETTE.

pump. The ignition is by means of an incandescent tube or electrical as desired, whilst the carburettor is of the Phénix type. As will be seen from Fig. 2, the motor is located in the rear of the frame at a slight angle to the ground in such a way that all the valves, etc., are readily accessible at the back of the car. The engine is provided with a centrifugal governor, which is so arranged, when the speed becomes too great, as to close the admission valve. Three speeds forward and a reverse motion are available; the engine drives through a friction clutch, a short shaft in line with the motor-shaft. On the shaft are three pinions, which, while always rotating therewith, can be moved along it laterally so that any one of them can be brought into mesh with corresponding pinions on the differential shaft; from the latter the power is transmitted to the rear axle by the usual sprocket wheels and chains, means being provided for taking up any slack or wear in the

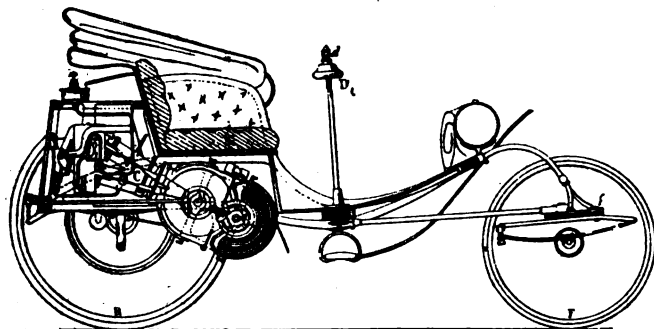


FIG. 2. SECTIONAL ELEVATION.

driving chains. Steering is controlled by an inclined wheel which actuates the two front wheels through a plain axle which turns on a central hub, these wheels being placed so far forward as to make the wheel-base long, thus ensuring steadiness in running at high speeds. Two brakes are provided, one operated by a foot

pedal and one by a hand-lever. The road wheels are of wood and are shod with pneumatic tires. The petrol and water storage tanks have a capacity sufficient for a continuous run of five hours, the maximum speed of the car being given as eighteen and a half miles per hour.

MOTOR-CAR TRIP.

IN THE WEST HIGHLANDS.

ALTHOUGH the West Highland "season" has reached its height, there are several weeks yet to be enjoyed on the west coast of the northern part of the kingdom. Just now the hotels at Oban and Fort William are pretty full, and many parties evidently intend touring on some of the roads in that district. As it is not improbable that some motorists would like to enjoy the beauties of that part of Scotland, the following hints are not inopportune.

Certainly the most appreciated approach to Oban from the south is by Ardrishaig. Reaching this early in the afternoon, the motorist would have plenty of time for a lazy ride—taking it easy to see the delightful scenery—over the good road through the pass of Melfort, along Loch Fochan, and after a stiff ascent enter Oban by means of a long descent.

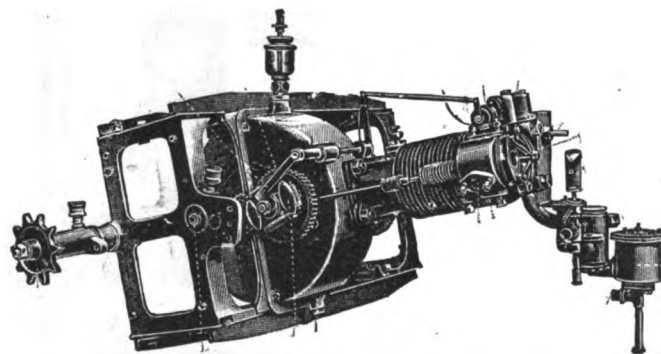


FIG. 3. VIEW OF CLEMENT-PANHARD MOTOR.

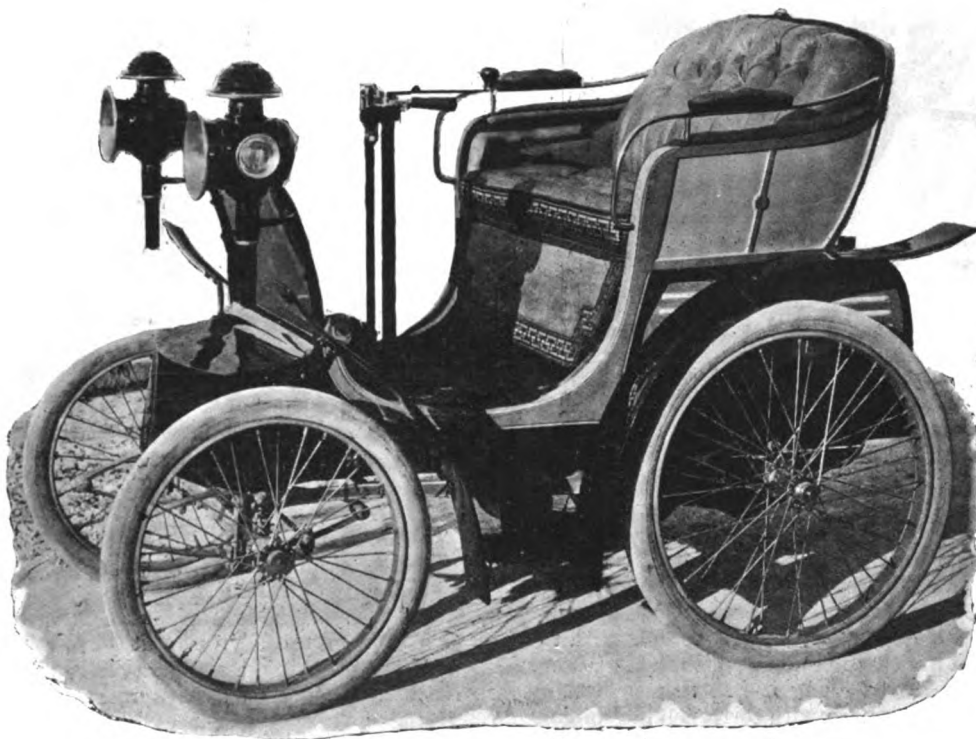
From Oban the road eastward along the shore of Loch Etive is in very good condition until the Pass of Brander is reached. There it becomes softer and is largely grass-grown, owing to the decline of coach traffic since the opening of the railway, but as Loch Awe is neared the surface improves considerably. Then from Dalmally to Tyndrum it is excessively trying. Fortunately the descent through Crianlarich is excellent. The road northwards from Oban is always rather troublesome, and is now still further disturbed in places by extra traffic incidental to a new railway extension to Ballachulish. The views, however, are charming, perhaps the best being that of the bay above Appin, with the ruined Castle Stalker perched on a tiny islet, though the view westwards across Loch Linnhe to the mountains of Morven from Ballachulish is also very fine.

The passage of Glencoe may be found rather difficult, and crossing over to the dreary moor of Rannoch somewhat lonely. The head of the glen is twelve miles from Ballachulish, and not half of this distance can be called bad surface. Passing the slate quarries and village of Ballachulish and the Macdonald Stone, the scene of the massacre, the car should be left by the edge of a lonely tarn and the passengers climb up some 800ft. to get the best view of the three grim sister guardians of the glen, noting on the way the deep and long slot called Ossian's Cave. In this way Glencoe will be seen in the easiest fashion. From Ballachulish Ferry to Fort William is hardly in such good condition as usual. From Fort William a fine, almost level, run eastwards along the shore of salt Loch Eil leads to Glenfinnan and Prince Charlie's monument, and afterwards the road is exceedingly beautiful though decidedly hilly. The railway extension does not tend to improve the condition of the road, and the same fate may overtake this one as has already played havoc with the Pass of Brander.

The Falls of Foyers are still worth visiting on occasions of flood, but only then, and as these are not the occasions usually chosen by automobilists for a ride—though in a terrible storm a correspondent of the *Manchester Guardian* lately noticed four macintoshed and luggage-laden cyclists in Glen Ogle—the sight may perhaps be omitted from the motorist's itinerary. The name is said to denote a "cloud of spray," which used to be visible rising from the dense wood, but now there is only a cloud of smoke rising from the aluminium works, which have harnessed the water power for their advantage.

THE COTE VOITURETTE.

WE are herewith enabled to give an illustration of the attractive little car lately put on the market by La Société des Automobiles et Moteurs Cote, of St. Dizier (Haute Marne), France. The motive power is supplied by a two-cylinder horizontal motor developing 3 e.h.p. Electrical ignition is adopted, as also a water circulation to the cylinders. The engine runs at a speed of 600 revolutions per minute, and is well balanced, there being one explosion or impulse at each revolution of the crank shaft. As regards the transmission mechanism no chains or belts are employed, the power of the engine being conveyed direct to the rear axle by spur wheels. Three speeds forward—8, 18, and 32 kilometres per hour—and a reverse motion are available. The change speed gear consists of a train of cogwheels and clutches, a feature being that the wheels are always in mesh with the corresponding pinions in the box on the rear axle. Provision is made whereby the engine can be started from the driver's seat. Ample provision is made in the way of brakes and lubricators, while all the control gear is mounted on the steering column. The wheels are of the cycle type shod with pneumatic tires. The Cote Company are also building a three-seated car. This is constructed on similar lines to the vehicle illustrated herewith as regards the general arrangement of the transmission gear, but is fitted with an engine developing 4.8 h.p.



THE COTE VOITURETTE.

THE Remington Automobile and Motor Company, recently incorporated, is establishing works at Ilion, New York, U.S.A. The company will manufacture petrol, steam and electric motor vehicles and also small launches.

THE Waltham Manufacturing Company, of Waltham, Mass., U.S.A., who have been making motor-tricycles and quadricycles for some time, have just introduced a voiturette. The car, which has been named the Orient Victoriette, is fitted with a $3\frac{1}{2}$ h.p. water-cooling Aster or De Dion motor. Although it is only intended for two persons, the front is formed into an auxiliary seat which can be used in an emergency, where it is desired to carry three or four people over suitable roads.

THE DEVELOPMENT OF THE MOTOR-CAR.*

(Concluded from page 433.)

THE present year may be said to be a crucial one in the development of the automobile into permanent lines of design of motors, running gear and bodies best adapted to each of the kinds of motive power. When you first sit in a motor-carriage and feel yourself being carried over the ground with no horses in front of you, it produces a pleasurable sensation. As you become more accustomed to it, the feeling grows to one of delight, and lastly you are completely "carried away" with it. You experience only half the joyous possibilities of a motor-carriage when riding as a passenger. The other half, we have learned, is the driving. When you have the steering-lever in your hand and can speed ahead at your own pleasure by simply pressing a button or lever; when you wish to lessen or increase the speed, or to make a quick run with a neighbour, then it is truly a new and delightful sensation. The vehicle of this type is so easily and safely controlled that one soon

acquires the feeling of perfect confidence in himself and the motor. You can stop so suddenly, turn so abruptly, or go backwards almost as quick as thought. Happy should be the owner of an automobile. While the over-enthusiastic journals and newspapers are harping on the passing of the horse, it may justly be claimed that an incompetent driver of horses may cause as much damage as one on an automobile, but as men have been driving horses for several thousand years it is fair to presume that the green hands in the business are fewer than those in the art of steering a motor-carriage. If we are about to

change to a new mode of locomotion, this is a good time to begin demanding a certain amount of skill and knowledge on the part of the man at the lever. The fee for examination in cities should be nominal, and the board of examiners should be made up of engineers and experts in such machinery. There is no reason why the licence feature should be any more of a hardship than it is for drivers of public vehicles. It is certainly desirable for the general public that none but competent men be allowed to manipulate the new vehicles, especially for the next few years, while the horse is becoming reconciled to the new order of things.

In providing for the limit of speed allowed to automobiles there is no reason why the regulations should be any more severe than those now in use to prevent fast driving with horses. Reckless speed—with horses, bicycles and automobiles alike—is chiefly a matter of place and time. A speed that is perfectly safe on an empty street might deserve arrest of the driver in a crowded park. An arbitrary limit of some kind must be set, but

*Abstract from introduction to Mr. Gardner D. Hiscox's work on "Horseless Vehicles, Automobiles, and Motor-Cycles." (London: Sampson Low, Marston and Co.)

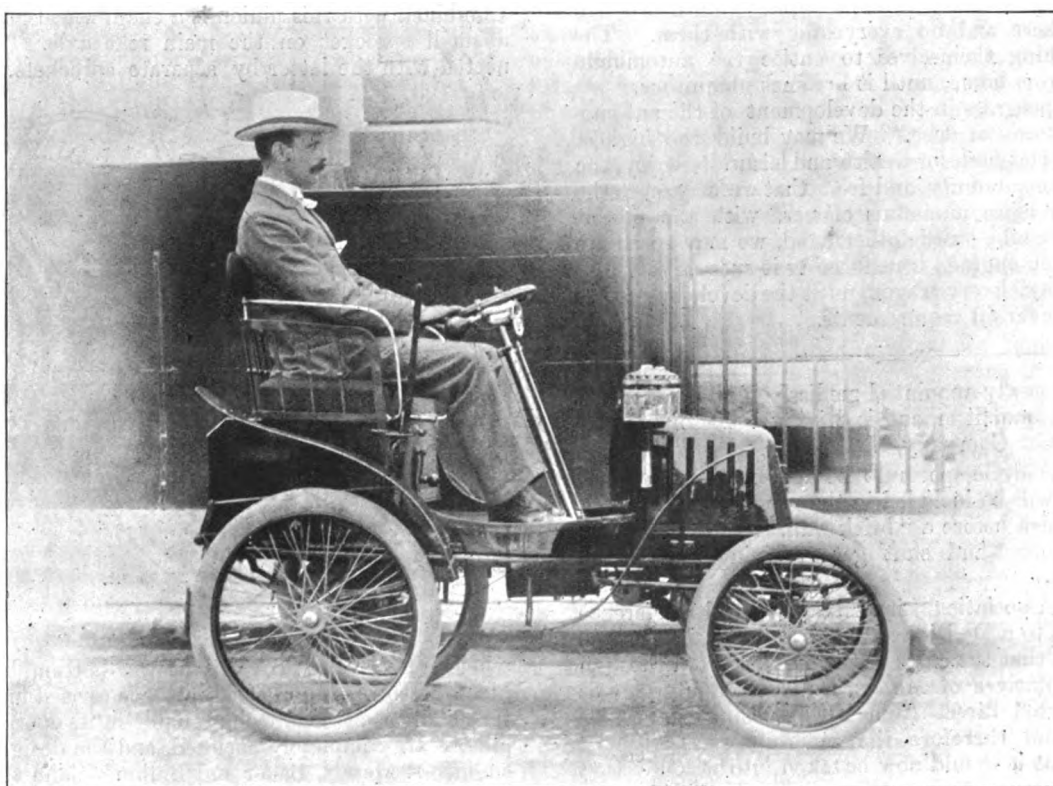
its enforcement, as in the case of bicycles, will have to be left largely to the discretion of police officers. The licensing of the drivers will be a far more effective check upon reckless speed, for one or two offences of this sort can be made the occasion of taking away a driver's licence. The ordinance new in force in Paris should be a useful model for the proposed measure in the cities of the United States.

The pleasure carriage is essentially an article of luxury, and it has required hundreds of years of use and the talents of the most skilled to bring it to its present perfect condition, and riders will demand of automobiles the same freedom from noise and the same ease of motion that they get with the horse-drawn vehicle. Cabs and other public conveyances, as well as vehicles for freight purposes, must be provided with positive, reliable power, one that is quick to respond to the calls made upon it, and one that will give the best results with the lightest possible weight; one, too, that is simple, effective and economical. Capital stands ready for *bona fide* investment in stages and trucks as well as in pleasure vehicles, just so soon as motor builders can guarantee their motors to do what is required of them.

point with the purchaser. If for recreation, freedom from the thought of complicated parts and movements and the vexation of finding defects while on the road are most necessary conditions in the design of the horseless carriage. Let the lovers of racing sport only hold the reins of the fast automobile and enjoy its dangers.

There is much improvement yet to be made in all the modes of generating and applying power to the motor machinery as well, also to the reduction of weight and parts without losing the required strength for the proper work of the vehicle.

In the design and construction of the automobile one thing has been apparently lost sight of that will be greatly missed, and that is storage space. Under the seat and back of same in the buggy of the doctor or the country parson there was room for a hamper of provisions for the picnic party, a grip of the traveller or some supplies for the needy. In the light runabout of the contractor or jobber the same space gave him accommodation for tools or samples, and in the carriage in general such space, out of the way of the occupant and always at hand, has been looked upon as a necessity. This space in the automobile is occupied by the



MR. M. CAPPELLETTI ON HIS "MAYFAIR" VOITURETTE.

Already the tendency at this stage in the progress of manufacture of automobiles of all kinds of motive power is to meet the desire of owners and operators of these vehicles for great power and fast speed. This should be guarded against as tending to encourage road racing, which is not desirable in a pleasure carriage and should be confined to models for racing on suitable tracks or speedways. No one thinks of driving a horse up a hill at full trot; a slow walk seems to satisfy most driving tourists. Then why should a motor-vehicle be over-loaded with machinery and itself made heavier to accomplish excessive speed either on the road or in hill climbing. This idea is especially pointed for family comfort on the road and for touring. Where is the pleasure of rushing through the country at break-neck speed with eyes riveted upon your machine gear and losing the scenic beauty of travel?

This is most applicable to the man of business who owns an automobile and wishes to derive relief from business cares and vexations by a pleasurable drive in a vehicle that gives confidence in its simplicity of running gear and ease of management. The cost is also in favour of simplicity of construction as well as a

driving mechanism, and when on a touring trip the baggage is necessarily piled upon the carriage in a manner that suggests a moving day. Space for grip or baggage is one of the things in order of improvement in automobile construction.

There is nothing of importance that we are waiting for to add to the automobile. No startling inventions are called for, and none probably are coming to solve the motor problem. All the mechanical essentials have been devised seemingly complete and ready at our hand. It is the combination and adaptation of well-known details that is needed to perfect the automobile mechanism, rather than pure invention. Many of the detailed parts have been brought into practical use within the past few years and are held under patents to the detriment of progress in automobile construction on the best lines of mechanical design.

The bicycle has throughout its marvelous development been preparing the way for a vastly greater vehicle than itself. The tubing, the wheels and tires, the ball bearings, the sprocket and chain, the steel for every part, and the numerous products of automatic machinery have contributed to the perfect action of this elegant and speedy adjunct to the human motor. Time and trial

with the modern means of manufacture will evidently bring weight and power to their respective limits in the later vehicle for strength and speed. The enthusiastic designer of automobiles may be led to ignore or forget precisely what is really needed, and purchasers may not realise exactly what they want. We want, perhaps, least of all for a pleasure carriage, a racing machine. Speed records will never establish permanently any any type of vehicle or motor.

The typical horse that has been such a valued helpmate of man is not the racehorse. Neither is the making of long runs over rough roads the thing alone to be kept in sight in designing the vehicle. Thousands of horses, especially around our cities, never go more than ten miles from home, and never see a piece of rough road. Let the roads, to some extent at least, be smooth for the vehicle, and let not all the concessions be made by it. Let us first try to produce serviceable, ever-ready and easily-managed automobile vehicles that will run upon good roads without costing too much, either at first or for repairs, and let us use them and find pleasure and comfort and convenience in them upon our good roads and for comparatively short runs, and when this service is fully established improvements will follow rapidly, until we will be able to go everywhere and do everything with them. The roads will be smoothing themselves to entice the automobile further and further from home, until it becomes ubiquitous.

We may expect progress in the development of the automobile in several directions at once. We may build the highest types of pleasure vehicles first, for wealth and leisure to enjoy, the racer for the sporting community, and from that we may meet the larger service of the more numerous classes, with the motor-bicycle and tricycle; while, on the other hand, we may speed up and lighten the traction engine, transforming it successively into the auto-truck and the delivery wagon, until the developing types shall meet and fully cover all requirements.

DR. MEECH, the newly-appointed medical officer of Halifax, is a new recruit to automobilism, and is driving a doctor's car by the Yorkshire Motor Car Company, Limited.

At the Uxbridge cycle sports to be held on the 5th inst., two motor-car events will be included in the programme. One a "bending race" to finish before a "brick wall," and the other an "obstacle race," to open and shut gates driving round the track.

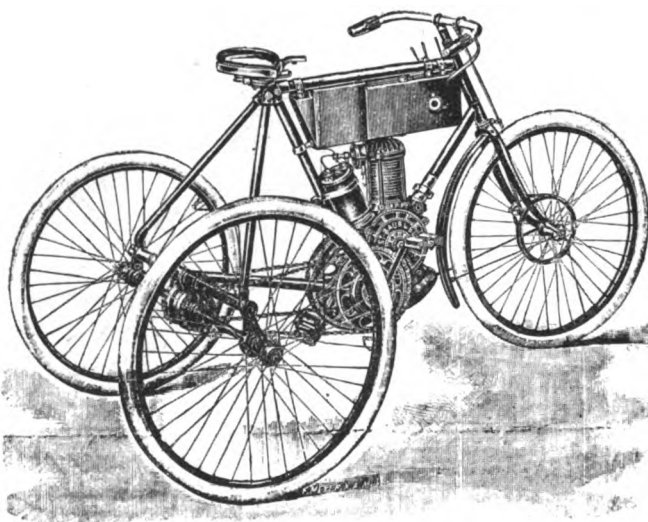
THE Automobile Association, Limited, write us with reference to the recent accident to a De Dion voiturette owing to the axle breaking, pointing out that the axles on the cars imported through the German representatives of Messrs. De Dion Bouton are as strong as those imported direct from France, being in fact De Dion-made articles, and therefore the same in every respect. They also consider that it should now be taken into account that there are thousands of these little cars on the roads, and that one or two accidents should not condemn them all.

THE jury has made the following awards in respect of the recent motor-car competition in Paris:—First category, cabs propelled by spirit motors, gold medal, Peugeot No. 6; silver medal, De Riancey, No. 15. Second category, electric cab, gold medal, Krieger cars, No. 7 and 9; Silver-gilt medal, Jeantaud, No. 14. Third category, delivery vans, propelled by spirit-motors, gold medal, Brouhot, No. 4; and silver-gilt medal, De Dietrich, No. 17. Fourth category, electric vans, gold medal, Krieger.

THE Postmaster General of Canada has, it is reported, ordered three Locomobile steam cars for use in the postal service. Several tests had previously been made to demonstrate the utility of the vehicles. In one case, on three successive days, a car, driven by one man, collected the letters from thirty-nine boxes over an area of twelve miles and took them to the post office in the average time of 1h. 10min. With horse-drawn vehicles two horses and two men were required, and their average time for the service occupied 2h. 45min. Another very severe test was a forty-six miles' run over a road that varied between clay, sand, and other mixtures so vile that a horse team cannot cover it much faster than at a walk. The motor-car traversed it at an average speed of twelve miles an hour.

THE BAUER AND BLUHM MOTOR-TRICYCLE.

THE other day we had an opportunity of inspecting a new motor-tricycle which has just been imported into this country, and of which an illustration is given herewith. The feature of the machine is the location of the motor, it being placed not behind the rear axle as usual, but within the main frame; in fact, it is so built as to be part and parcel of the frame. The engine itself is of the vertical air-cooled single cylinder type, and develops 2 h.p. The illustration shows it to be fitted with the ordinary electric ignition, but in the machine we examined a magneto-electrical device was used to generate the electric spark. The sparking can be varied by means of a lever on the handle-bar to the extent that the engine can be made to run at maximum speed or one fourth or one half of the same. As regards the driving mechanism, a small spur-wheel on the motor-shaft is in gear with a large pinion mounted on a sleeve on the bottom bracket-spindle. Combined with this pinion is a chain-wheel geared by a chain to a small sprocket on the main rear axle. The pedals are connected with the latter by separate sprockets and chain, a free-



wheel clutch being provided at the bottom bracket. The combined petrol tank and carburettor is carried on the top bar of the frame and is claimed to be reliable in its operation. The driving pinions are completely enclosed, and the designers—two German engineers, Messrs. Bauer and Bluhm—claim that the location of the motor causes no inconvenience to the rider. The machine was built by a large cycle-making concern in Nurembourg, and has been introduced into this country by Mr. W. Taylor, of 54, Earlsfield Road, Wandsworth Common, S.W. It is claimed to be much lighter than the motor-trikes so far built, and is stated to be capable of attaining a speed of 50 kilometres per hour.

THE Motor-Car Company of Shaftesbury Avenue, W.C., inform us that they are now able to supply users of Renault voiturettes with any parts of these little cars for renewal purposes.

THE Eadie Manufacturing Company, Limited, Redditch, advise us that they have now opened London offices at 44-47, Bishopsgate Street Without, E.C., under the charge of Mr. J. McIntosh, whom they have appointed London manager.

THE Auto-Car Supplies Company, Limited, has been registered, with a capital of £20,000, to acquire the business carried on by O. C. Selbach at 12, Southampton Row, W.C., with the benefit of a contract with the Aachener Stahlwaarenfabrik, but not including the Miami Agency nor the lease of 12, Southampton Row, nor the vendors' office, furniture, and effects, and to carry on the business of engineers, cycle, motor-car, and component part manufacturers, etc.

AUTOMOBILES IN RURAL DISTRICTS.



THE century which is now approaching its end has witnessed the creation and the development of the railway—the most efficient of all means of transportation. The extraordinary effect which the invention and extension of railways have had upon our economical and commercial development need not here be dwelt upon. The world is covered with a network of steel tracks; and the railway undeniably occupies the foremost place among all systems of transportation. Powerfully as our commercial life has been influenced by the steam-railroad, the ideal method of transportation has not been attained, and cannot be attained by the railway with its pretentious system of stations and tracks.

Our transportation facilities have been improved chiefly for the purpose of accommodating the largest possible number of persons or quantity of goods, and of carrying them to their destination in the shortest possible time. The steam-railway has, therefore, supplanted all other means of conveyance and even degraded the horse-drawn vehicle to the position of one of its auxiliaries. The centralisation of traffic has now almost reached the end of its career. In civilised countries there is no necessity for building new railroads; and the development of the lines already in existence is confined chiefly to the construction of branch and auxiliary lines running to districts not connected with the main system.

The enlargement and extension of existing roads show the limitations of the steam-railway. As the *Automobile Magazine* points out, the railroad rarely meets the requirements of flat regions. Owing to the very small traffic, even the narrow-gauge line cannot be profitably operated between small rural communities; nor can its time-tables be always adapted to the needs of places not remotely situated from one another. For adjacent villages and towns a smaller, less pretentious system of transportation is evidently required, which, though less efficient than the larger railroad, is better suited for the purpose of establishing a profitable means of conveyance. Beyond a doubt automobiles are the best vehicles for the limited traffic of the country. They are destined to connect rural communities, not only with the nearest railroad, but also with one another. In districts where there is temporarily considerable passenger and freight traffic automobiles will be particularly serviceable. Summer resorts, for example, which during the warm season of the year are much frequented, are well-nigh lifeless during the winter. The building of a railway to such places would be unprofitable, but a line of automobiles running to and from the nearest railway would meet all requirements, and would, moreover, be much cheaper.

Mechanical traction without rails is free from the disadvantages attending the use of tracks and does not necessarily entail a loss in speed. The automobile is therefore destined to play an important part in the economic development of prairie communities. In order to strengthen our argument by means of a concrete example, we have but to mention the great possibilities of the motor-car in the improvement of our rural postal service. The high speed which can be attained on good country roads would certainly bring about a quicker distribution of the mails and consequently greater efficiency in the postal service.

If automobiles are to fill the wants of country districts, it is evidently necessary that roads be built which will be adapted to the needs of the new means of communication. The highways must be as level as possible; the grades must be few and slight. The roads should be kept in such condition that the vehicles would not be jolted and subjected to violent strains. In the delicacy of its driving mechanism the motor-carriage differs widely from the animal-drawn vehicle; and for this reason alone good roads are a necessity.

Not until the highways have been considerably improved will the full efficiency of the automobile be recognised in country traffic. Any positive opinion on the automobile is therefore premature. With the present lack of facilities on some of our country roads, it is no wonder that the motor-carriage has not always fulfilled the expectations of its champions.

But the building of roads, continues the contemporary already quoted, especially adapted for automobiles is not all that is required. It will be a matter of the utmost importance to reserve for the motor-vehicle the road upon which it is to run, and to divert to other channels the animals and vehicles which may hamper it. Special paths have been opened for bicycles; and there is no reason why automobiles should not enjoy similar privileges. A division of automobiles into light and heavy vehicles would also be advisable. If there were divided roads for light and heavy automobiles, the problem of maintaining the highways in proper condition would be considerably simplified. The light, swift carriage could then speed along without being suddenly checked by a slow, heavy truck. The provision of sidewalks for pedestrians has been one of the means of preventing a congestion of the traffic of large cities. A further improvement could be made by classifying the vehicles according to weight and speed.

Such a division of vehicles is even now possible on our roads. To be sure there are avenues and streets which are too narrow to permit a separation of light and heavy vehicles. But something must be done, with the rapidly increasing number of automobiles, to prevent the blocking of the way by cumbersome wagons. The obstacles to be overcome in attaining the desired end are not insurmountable, especially when it is considered how the building of roads has been modified in the course of time. The old Roman roads, which extended over half of Europe, as well as the roads built during the Middle Ages, were constructed in straight lines. They extended over the highest mountains; no hill was too steep nor valley too deep. Nowadays roads are curved and bent so as to avoid all steep inclines. Mountains are ascended by serpentine routes. The change has been brought about by the constantly increasing use of draft animals. The substitution of the circuitous route for the direct roads of the Romans will find a parallel in the construction of automobile highways, which will fill the wants of the future means of transportation.

Improvements in road construction go hand in hand with improvements in the vehicles of trade. Every step in the development of road-building has been due primarily to better means of transportation. Highways are gradually adapted to the demands of transporting vehicles, and only when adequate roads have been provided can these vehicles develop their full efficiency.

A SUCCESSFUL motor-car trip from Rome to Vienna has just been made by Cav. Bargnoni, of Rome.

WE learn that Messrs. Mayhew and Sons, of the Flour Mills, Church Road, Battersea, have just ordered a steam motor-lorry.

THE British and Colonial Motor-Car Company, Limited, are now arranging to supply motor-tricycles on easy terms of £1 per week for a year.

THE city of Mexico is said to be well adapted for motor-vehicles; but, at present, hardly any are used for business, just a few being run by wealthy inhabitants for pleasure.

A TRADE report from Coventry says that the motor industry continues good, and is likely to be all the winter, as the demand for cars of the best type is expected to be considerable next summer.

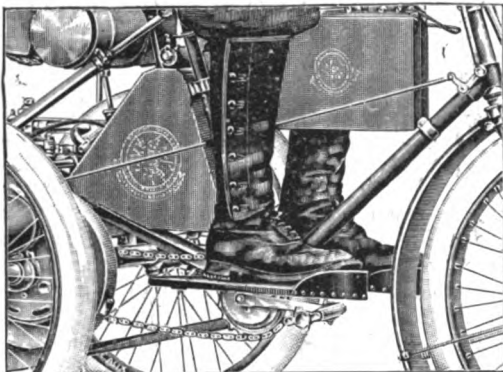
LA COMPAGNIE PARISIENNE DES VOITURES ELECTRIQUES (PROCEDES KRIEGER) is the name of a new company which has just been formed in Paris, with a capital of £80,000.

THE Nesseldorfer Wagenbau-Fabriks-Gesellschaft, of Nesseldorf, Austria, whose racing machine was illustrated in a recent issue, have just brought out a new four-seated car, fitted with a 9 h.p. motor.

WE have received a copy of the second edition of "Sketches of Engine and Machine Details," by Wallace Bentley, M.I.M.E. (Halifax: The Bentley Publishing Company). The work has been specially arranged for the use of engineers, draughtsmen, mechanics, and students, and that it is up to date is indicated by the fact that among the drawings given are several relating to the details of motor-cars.

FOOT RESTS FOR MOTOR-TRICYCLES.

UP to the present riders of motor-tricycles have been obliged to keep their feet in a position which is exceedingly tiring after a long journey. The accompanying illustration shows a type of foot rest which has been in use in France over eighteen months, and which is now being put on the English market by the United Motor Industries, Limited, of 64, Holborn Viaduct, E.C. It can be easily fitted to any



De Dion motor-tricycle in a few minutes. It is bolted round the frame at the bottom bracket, and, when not pedalling, can be turned down by the foot. A spring is fitted on each side so that it closes automatically when the feet are taken off. When the cranks are in the position as shown in the illustration the rest can be placed in the position required as foot rests. When it is necessary to pedal the rests can be lifted simultaneously by the feet.

La Locomotion Automobile reports that, acting on the advice of its doctor, the authorities of the Sanatorium at Allaud, Austria, have just ordered a 9 h.p. car for the conveyance of patients.

On the East Quay, Bridgwater, the Bridgwater Motor Company keeps a stock of petrol. The company has a large riding school capable of accommodating 200 motor-vehicles, to say nothing of a special pit and mechanics capable of effecting all kinds of repairs to motor-cars.

A COMMENCEMENT was made on the 15th ult. with the motor-car service between Aberdeen and Echt, N.B., referred to in a recent issue. The car, which left Market Street at eleven o'clock, could not accommodate all the passengers who desired to travel by it. The time-table of the new service is—Leave Aberdeen at 6 and 11 a.m. and 3.50 p.m. Leave Waterton 7.45 a.m. and 12.30 and 5.30 p.m.

A NEW two-seated steam car has just been completed by the Strathmore Automobile Company, of Boston, Mass. It weighs 1,400 pounds, and is driven by a steam motor rated at 6 h.p. It is intended primarily for city use, but is built with great strength and flexibility of frame, so that it can also be used for touring. A feature of the car is the elevated position of the rear seat. The boiler is hung fairly low, and the engine is apparently over the rear axle. The frame of the running gear is elevated considerably above the axles, and tubular braces extend to the outer ends of the front axle and to the bearings of the rear axle.

In addition to the large number of motor-tricycles that are being used for pleasure purposes in Paris, the commercial possibilities of the machines are being rapidly realised, and any number of the storekeepers are having attached, instead of the two-wheeled pleasure trailer, a delivery attachment which can easily carry five hundred pounds. The fact that while the business can be advertised on the delivery box, the trailer can be detached at night and the machine used as either a pleasure tricycle, or with a pleasure trailer attached to the rear, makes the combination a useful all round machine.

A COLLISION AND THE SEQUEL.

At the Bournemouth County Court, before his honour Judge Phillbrick, Q.C., a case was entered for hearing in which Mrs. Llewellyn, of Tarrant Keynstone, near Blandford, sued W. W. Warn, of Poole, for the sum of £5, claimed as damages arising out of a collision alleged to have been caused by defendant's motor-car. It was intimated that the case now stood over, by mutual consent, until October.

MOTOR-CAR PROSECUTIONS AT BOURNEMOUTH.

At the Bournemouth Police Court, on Friday last week, Henry Budden, Wm. Rushton, Frank Marriner (in the employ of Mr. Bell), Frank Leid (in the employ of Mr. J. S. Norman), and Edgar W. Collett, motor-car drivers, were summoned for excessive driving. Mr. H. S. Dickinson, who appeared for Rushton, Budden, and Marriner, asked that Rushton's case should be taken first. This the Bench agreed to, and on the defendant being charged, Mr. Dickinson handed in the summons and pointed out that the date of the alleged offence was not on it, and that, therefore, he did not know what date he had to answer to. The Clerk: You say you are misled? Mr. Dickinson: Absolutely. The Clerk said the only course was to adjourn the case. Mr. Dickinson said that in that case he must ask for expenses. It was grossly unfair to him, as he was bound to attend when summoned. The Clerk: You say that defendant was unaware of the date? Mr. Dickinson: Undoubtedly. You see we have no knowledge of the date. Superintendent Foster said the defendant was aware because the sergeant accosted him. He asked for the summons to be amended. It was decided to take the cases under the circumstances in the order the summonses were issued, and Henry Budden was called. The evidence of P.C. Baugh and Sergeant Thomas was that they took up stations at measured distances, the former at Stafford Road and the other opposite Fippard's Bakery. Baugh signalled when a car passed him, and Thomas with a stop watch took the time occupied between the points. The speed of the car was ten miles, four furlongs, and ten yards an hour. In reply to Mr. Dickinson, Baugh said he did not take much notice of the speeds, but he was of opinion it was dangerous in view of the heavy traffic. Sergeant Thomas said that the traffic was heavy, and in reply to Mr. Dickinson, said though he thought the speed was dangerous, he did not pull up the defendant, but let him go on. Mr. Dickinson, for the defence, said that he had been on a motor-car that day for the first time, but he was convinced that they could pull up within two yards or less, even going at a fast pace. With an ordinary carriage this could not be done, and what would be dangerous with it would not be so with a motor-car. As long as they were properly driven and did not exceed the twelve miles an hour as laid down by the Local Government Board, and were driven with proper precaution, he asked the Bench not to convict. He called the defendant, who said he had no recollection of the date, but had never had any complaint, nor had he endangered anyone. Going at twelve miles an hour he could pull up in about two lengths, and if at a less speed could do so quicker. He heard nothing about the complaint till the next day. Mr. Dickinson said the summons was not issued till August 20th. In reply to the Bench, defendant said there was no fixed time-table. Mr. Edward Arthur Bagot, a gentleman residing in Parkwood Road, who volunteered evidence for Mr. Bell, said he had ridden as often as any one on the cars, and on many occasions with Budden. He had always found him and the other drivers very careful. That very morning the car had been tested with a full load going down Boscombe Hill at twelve miles an hour, and the car was pulled up within two lengths, and on another time at a length and a-half. On the level the car pulled up within half a length. The roads were slippery with rain. The Bench convicted, the chairman saying there was little doubt the car was going faster than was perfectly safe considering the traffic, but he did not think it a serious case, and would only inflict a fine of 1s., and costs 12s. Frank Marriner was next charged. Mr. Dickinson said that the summons was not dated, and said he would agree to an adjournment if the costs were paid. Superintendent Foster said the defendant was told about it the following day. The Bench decided to adjourn the case till Wednesday next. Mr. Dickinson then said he would withdraw the objection if the Bench would not give him costs, but it was a monstrous thing. The evidence in this case was that the speed of the car was twelve miles six furlongs and 160 yards an hour. Marriner was fined 1s., and 11s. costs. The other cases were disposed of as follows:—Wm. Rushton, fined 1s. and 9s. costs; Francis Leid, 1s. and 9s. costs; Edgar W. Collett, 1s. and 9s. costs. Superintendent Foster stated that these prosecutions had been instituted in consequence of complaints from the inhabitants.

A STRANGE-LOOKING steam delivery wagon has lately been built by Mr. S. H. Barrett, of Springfield, Mass. One of the features of the car is the vestibule with door directly in front. The door has a glass window in a frame which can be closed by raising up, and thus protect the driver in bad weather. The boiler is of the tubular type, with an automatic fuel controller. The entire mechanism is fitted below the body of the vehicle, thus admitting of the use of any style or type of van body.

THE Motor-Car Journal.

VOL. II.]

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COMMENTS.

RECOGNISING the interest of the automobile section of the Paris Exhibition, the Rt. Hon. J. H. A. Macdonald, the Lord Justice Clerk of Scotland, has suggested the possibility of arranging an automobile trip for, say, a week, including four days in Paris. In the event of such an excursion being organised there would probably be some who do not own a car desirous of going, and they could combine to hire a good one for the journey. The time suggested is anywhere between the 15th inst. and the 8th prox., and the secretary of the Automobile Club will be glad to hear from any member willing to take part in such a pleasant little expedition. We may add that, according to Parisian correspondents, there is no run on the hotels just now and that it is quite easy to get accommodation.

The Motor Racing Track.

IN our issue of June 2nd we brought forward the idea of a great motor track, and in referring to the popular meet at the Ostend Motordrome (a track with a circumference of close on two miles) the *Daily Express* says it revives anew the discussion as to the feasibility of creating some such track in England. Continuing, our contemporary adds:—"Road racing in England is obviously impossible. A big track, however, if only the ground could be secured and the capital raised, would provide a means of indulging in a most exciting form of sport, both to competitors and spectators alike. Even at the Crystal Palace it is by no means unexciting to see motor-cycles at work, but on a track of great width and of such large circumference as to eliminate all danger at corners, even big cars might race at top speed with impunity. And it must be borne in mind that a competition of any kind which may be monotonous at medium speed becomes distinctly exhilarating when the speed exceeds the normal. If such a track ever comes to be made in England the public may rest assured that they will not find the proceedings dull."

A Rumour Revived.

A LONDON correspondent of a provincial paper says that the Home Secretary is considering restrictions to be imposed upon the rate at which motor-cars may travel on the highways. Some serious complaints have been made to the police, including one from a peer member of the Cabinet against a member of the House of Commons. Several such paragraphs have been going the round of the press, and it is highly probable that questions on the speed of motor-cars may be addressed to the Parliamentary candidates in some country constituencies at the general election. But we do not think there is anything but mere rumour in the idea.

A Political Tour by Motor-Car.

MEANWHILE some candidates are preparing to utilise the motor-car in their political campaigns, and Mr. A. Williamson, to whom we made reference last week, has just completed a political motor tour. This was through the constituency of North Ayrshire, and terminated on Saturday. The distance

covered was about 350 miles, approaching an average of sixty miles each day, a feat that would have been impossible had the ordinary means of locomotion been employed. Mr. Williamson on this occasion held no formal meetings with the electors, but in many of the towns impromptu meetings were got up. The main object of the trip was to find out the various interests of the constituency, and this he was able to do in a thorough manner by the rapid means of travel at his disposal enabling him to get in contact with the electors in every corner of the division.

A Disputed Insurance Claim.

WE have not yet heard the last of the accident to Mr. Rucker's car reported some time ago. It will be remembered that in avoiding a timber-laden wagon at a nasty part of the road, the motor-car was turned suddenly on a greasy surface. Side slip occurred, a tire was ripped off, and the car overturned, smashing the petrol tank, and causing the vehicle to catch fire. Mr. Rucker claimed damages to the extent of £150 from the Horse, Carriage and General Insurance Company, but this is being resisted on the ground, we believe, that the policy exempted claims on account of fire from its operation. Mr. Rucker's contention is that the accident was the cause of the damage, and that the fire was an effect, not the cause, of the accident. It is probable that the matter will come before the court.

The Storage of Petrol.

AT the Hove Petty Sessions two cases have been heard against local traders for keeping on their premises a larger quantity of petroleum spirit than three gallons without a licence. It was clear from the evidence that they thought they were acting within their legal rights in storing larger quantities, but that did not prevent fines and costs being inflicted. Traders cannot be too careful in this matter, and should take care they have a licence if they intend to supply the wants of motorists with regard to petrol.

The Madelvic Works.

THE well-known Madelvic Motor Works at Edinburgh have been purchased by Stirlings, Limited, of Hamilton, N.B. This purchase will probably arouse widespread interest, as the works are of considerable extent, and have, we believe, a motor track in addition to the ordinary equipment of an engineering works.

A Scotch Appointment.

AMONG the Scotchmen who are frequently touring in the northern part of the kingdom is Mr. John Love, of Kilmeny, Kirkcaldy, the late managing director of the Edinburgh Auto-Car Company. He is to be seen on one of the Motor Manufacturing Company's Iveagh phaetons, and having been appointed representative in Scotland of the makers of that vehicle, will be glad to give interested correspondents a trial trip at any time. This will be a convenience to northern readers who have not the opportunity of seeing the car at the Motor Manufacturing Company's show-rooms or works.

The Napier Car in France.

THE accompanying snapshots are interesting reminiscences of the recent visit of the 16 h.p. Napier car to France. The first was taken outside Lord Llangattock's house at Knightsbridge, and shows Lady Llangattock and the Hon. C. S. Rolls on the car. The second illustration was obtained on the way from Paris to Havre. Mr. Rolls was then driving, and while he was getting



some information with regard to the road Mr. S. F. Edge disappeared, ultimately reappearing with a supply of fruit with which to beguile the next stage of the journey. The second pair of photographs is associated with Mr. M. S. Napier, who is very seriously examining the car in Paris. This was in the early morning, soon after a water-pipe had broken, and it was only just daylight when the photo was taken. In the other view Mr. Napier is distinguished by the white handkerchief round his head, the car having been pulled up on the road between Havre and the French capital. In the last of the series Mr. Rolls is walking round the car to get up into the driver's seat.

Brakes Firing.

THE recent adventure to Lord Wolverton, arising from the firing of the brakes, has called renewed attention to this question. Many attempts have been made to get over the difficulty, and in the "Napier" car the brake drums are filled with water to prevent them heating to such an extent as to burn the brakes. Moreover, Mr. Edge informs us "if the



carriage had no brakes at all it is possible to stop it down hill by merely switching off the electric current to the engine, which at once transforms the engine into such a powerful brake that it will stop the car on the steepest hill quite independent of the band brakes."

A 50 h.p. Napier Motor-Car.

MR. S. F. EDGE, in a letter published in the correspondence columns of the *Horseless Age* of New York on the subject of the design of motor-cars, remarks that: "I have personally tried nearly every type of automobile, with the engines set in all kinds of positions, and I have come to the conclusion that ordinary engines set in the front of the car behind the front axle gives one the most convenient place for them. In front of the engine itself one has the radiators, then, just under the dash board, comes the flywheel, behind this comes one's arrangement of gearing, then comes the cross-shaft with the chain wheels on it, and then, away at the back, the rear wheels. The result of this is that, whilst you have a very expensive type of car to manufacture, you have an exceedingly effective one; everything is absolutely sealed against dirt or wet, and it makes no difference how filthy the roads are, you can run hour after hour without being affected in the slightest. As nearly as possible the car balances absolutely between the centres of the two wheels." In the same letter Mr. Edge makes the announcement that "We are building some 50 h.p. cars for the Gordon-Bennett Race for next year." The advent of these powerful vehicles will be awaited with interest.

Motors and Clean Streets.

WITH praiseworthy persistency, Mr. Shrapnell Smith continues to inform interested persons of the value of motor vehicles in connection with municipal work. Elsewhere we publish a paper he has just read at a conference at Salford, following which this resolution was adopted:—"That this Annual Conference of the Cleansing Superintendents of Great Britain, assembled in Salford this 30th day of August, 1900, is of opinion that efficient motor vehicles justify their adoption for street watering and dust removal, and this meeting urges municipal, urban, and other authorities to consider their adoption."

Motor Fire Engines.

Now that some of the more enterprising vestries have put on the streets motor-water-carts and motor-dust-carts, it is surely time, suggests a contemporary, that the fire brigade should turn their attention to the advantages offered by motor-fire-engines. It is undeniable that these would travel faster and that they would take less time to start for their destination than the ordinary engines. They could be so constructed as to enable them to be drawn by horses should the motor become suddenly deranged. A motor fire-escape could also be easily constituted, and such an appliance might lead to the saving of many lives. There is no doubt that the future will see many improvements as the result of motor power being applied.

From Edinburgh to York.

THE road from Edinburgh to York is one of the best main roads in the country, although the surface is rather bumpy in Musselburgh, Haddington, Berwick, and Alnwick, in the colliery district near Newcastle, and between Thirsk and York—as was evident during the 1,000-mile Trial. Those who contemplate invading England from the north by motor-car had better provide themselves with a copy of the "Great North Road" map, Part 2, which Messrs. Gall and Inglish have published. The plan of this series of maps is now so well known that further description is unnecessary; suffice it to say that the present map is quite up to the standard of its predecessors.

Attempt on a Record.

WE believe it is the intention of Mr. Charles Jarrott to attack the present motor-tricycle record on the Crystal Palace track. Provided the weather is not too unfavourable, the attempt to do forty miles inside the hour will probably be made one day next week.

Leaving Vehicles Unattended.

IN a case heard at the Ramsgate Police Court the chairman of the Bench said he hoped motor-cars would not be left in the road unattended. We hope that the hint to motorists will also be observed by the drivers of horse-drawn vehicles in Kent and elsewhere. In country districts it is quite common to find vehicles unattended by man or boy. Tradesmen delivering parcels at houses are in the habit of leaving their horses while taking goods to the house. Should a motor-car or a coach-and-four with a horn briskly playing come along the animal may get excited and bolt. Of course everybody but the negligent man in charge is blamed for frightening the horse. This happens every day, and as practically all these carts have a boy as well as a man in charge there is no reason why those who leave vehicles unattended should not be proceeded against, for instead of the boy looking after the horse he is generally attending to other customers.

Teams in the Road.

IN rural districts the same evil assumes another and even more awkward phase. Often when touring in country localities we have seen two or three teams of three and four horses each outside village inns. The drivers are refreshing themselves, and the horses, left alone, get into the middle of the road, or on the wrong side. When the motorist comes along and "teuf teuf" sounds out clearly there is a general scamper of the horses, a rush of the drivers from the inn, and considerable departure from the classic purity of the English language. When the drivers have done swearing at the horses they probably hurl obnoxious epithets at the unoffending and waiting motorist. Surely if the police were anxious to regulate traffic on the highway they would find a good outlet for their service in warning drivers against leaving teams unattended and taking proceedings where their warnings are disregarded.

Stones on the Highway.

WHILE referring to this topic we would refer to another objectionable feature of rural traffic in connection with which some county authorities are, we are glad to see, taking action. This is the habit of carters and others placing large stones, and even bricks, on the roadway behind the rear wheels of their wagons on reaching certain points on a hill. We do not condemn them for that, and motorists have often found such a course useful when touring; but what we do abhor is the thoughtlessness that leaves such stones lying about. There are already sufficient things on the roadway which might properly be swept away without adding huge stones and half bricks to the number. While at the Bear Hotel, Devizes, last week, we heard that the local police intend to take action in the matter, and the attention of the authorities in other counties should be called to the dangerous practice, a practice that threatens danger to every vehicle using the highway.

Porlock Hill Again.

THE last words we heard at the Plume of Feathers Hotel, Minehead, were from some huntsmen who were discussing the motor ride up Porlock Hill. Only those who have spent some time in the district can have an adequate idea of the interest aroused in automobilism by the recent successful trip up the steep gradient. Everyone talked of the achievement, and every little boy recognised the remarkable character of the feat. Several times they shouted as we passed, "There's the motor that went up Porlock." We spent several days in the neighbourhood of Minehead, and travelled about a good deal, meeting large numbers of horsemen going to and from the hunt. With persuasion on the part of the riders and caution on our own, no unpleasantness occurred. In many cases the horses were ridden by ladies, and then we invariably led the horses, the ladies always thanking us brightly, and not seeming to mind the experience at

all. Probably the ride up Porlock Hill had something to do with the feeling of confidence.

Minehead to Devizes.

OUR return to town was by way of Williton and Nether Stowey to Bridgewater, twenty-six miles—an undulating road showing glimpses of the bay—and through the Quantocks. Thence on a dismal road to Glastonbury, a distance of fifteen and a-quarter miles, where we had luncheon at the Old Pilgrim's Inn. From that ancient place we went, *via* Wells, Frome, and Trowbridge, to Devizes, where we made a stay at the "Bear." Our day's journey totalled 88 miles. Perhaps the most notable descent was that into and through Frome, from which we had a fairly stiff rise to continue the journey.

89 Miles to London.

A MOST inauspicious morning was that of the last day of our tour. Not only was there a chilliness in the air, but the rain fell in torrents. Shortly after nine a.m. the start was made, and we reached the "Bear" at Maidenhead a minute or two before one—having travelled sixty-three miles without a single stoppage. Shortly after we had crossed Marlborough Downs the rain stopped, and the roads, which had been in a sticky and greasy condition, became soft and heavy for the rest of the journey. After lunch the short run to London was soon concluded, and we had the pleasure of reaching our habitation after an absence of eight weeks, during which time we had not had a single wet day, excepting on Bank Holiday, when it rained up to 10.30 a.m., and afterwards blew with the force of a



MOTORISTS AT SEA.

gale. Even this inconvenience had its advantages, for in the afternoon we were able to drive to Gurnard's Head, Cornwall, where we photographed some very grand seas. Our M. M. C. Panhard was not always with us, but when it was, we had it in constant use, and daily excursions and trips were made. It was even used for the morning bathing trips. The car never gave us any trouble, and always ran smoothly and quiet, proving itself a reliable vehicle throughout the holiday.

Some Experiences.

OF experiences we had singularly few. The natives of Somerset and Devon—although their horses may have been troublesome—did not vent their displeasure on the motorist's head. But, alas! as soon as we had crossed the border into Wiltshire a different race of people was met. In one place a drover was leisurely walking behind two beasts that were proceeding along the road, grazing as they went. Suddenly to our astonishment he held up his hands and shouted "Stop, stop." Seeing no reason why we should do so we proceeded until we came alongside the man, who demanded to know why we did not stop when he held up his hands—surely a new rendering of the Act. On another occasion we were proceeding up a somewhat

steep hill on the second speed. A long way in front was a trap with three passengers. We sounded our horn, whereupon one of the men jumped out and frantically waved his hand for us to stop. We gradually crawled forward until we could hear what the man said. He kept on repeating, "Go back, go back." Needless to say we did nothing of the kind. The other two men were standing up in the trap, and we urged them to get out and hold the head of the horse. This they did at last, hanging round the horse's neck, while we proceeded on our way. The worst that we then heard was that they would report us—when and to whom they did not say!

An Incident on the Ascot Road.

ABOUT three months ago the Earl of Carnarvon's motor-car was being driven from Ascot to London when it met a vehicle drawn by a horse, which was either inadequately trained or had a driver who allowed it to get beyond bounds. An incident took place which was unpleasant for the horse and unsatisfactory to its owner. The latter decided to claim damages against the Earl, who has placed his case in the hands of Mr. T. W. Staplee Firth.

Touring in Cornwall.

MENTION on a previous page of the brake on the Napier car makes opportune the publication of a photograph of what is, we believe, the first finished Napier car. With this Mr. S. H. Pearce has been touring in Cornwall. He has been enjoying a long tour in that delightful county, and regards the roads as excellent for motor-driving—provided the car has sufficient power. It is little use taking a low-powered vehicle to Cornwall, if it is to be thoroughly explored. Unfortunately the nervousness of drivers of horses is as noticeable in Cornwall as elsewhere, and it is no uncommon thing for the drivers to get from their carts and hold the horses' heads, fuming all the while, and wondering why motor-cars should be permitted to use the roads at all.

Lost and Found.

A MOTOR-CAR is an attractive vehicle, though we should have imagined it to be a difficult article to steal. The other day someone removed a 6-h.p. Knightley Victoria Daimler car from the show-room of the Discount Motor-Car Co. in Clock Terrace, High Road, Cricklewood. Now, unless a man understands the working of a motor-car it is a rather strange article to take away, and that fact seems to have dawned upon the gentleman who assumed charge of this particular car, for it has since been found on the roadside at Bushey Heath with the front axle broken and other damages. Probably if the person who removed the car will again call at Cricklewood the manager will instruct him in its proper management and manipulation.

Motorists' Garments.

WE learn that some discussion is going on among American owners of automobiles as to the "correct" raiment in which they should appear on their vehicles. This is a matter that should be easily settled, if they will apply a little common sense to the matter. It was a debateable point in this country some time ago, and many automobilists adopted something between a yachting costume and one that would have done credit to Crusoe's man Friday. Now the peaked cap has gone, and a cloth-lined overall will probably take the place of the furry coats of two or three years ago. Comfort and good sense soon settle all such problems; so New Yorkers need not be alarmed at their supposed difficulties with regard to attire.

A New Winter Coat.

Now that the winter is approaching the provision of warm clothing will be a matter of concern to all motorists, and in this Messrs. Hoare and Sons, of High Holborn, E.C., are well to the fore with a very serviceable overcoat. This is of full length and size, and has nearly a dozen capacious pockets,

together with a small pocket for the watch on the outer sleeve. They have all been placed in the most convenient positions, and the trouble of stowing books, papers, etc., which has been a real one to motorists, is entirely obviated by the adoption of this coat. We have just obtained one in a dark grey cloth—one of the most suitable colours for winter riding—and this is stoutly lined, so that winds can blow and the wearer still keep warm. An ingenious arrangement for securing the warmth of the neck has been introduced, and altogether Messrs. Hoare and Sons are to be congratulated on the way in which they have thus sought to serve the motor-world. In coat-architecture their new garment for automobilists is certainly excellent in design and workmanship.

Mr. C. G. Wridgway.

OF the several well-known personalities in the motor-world who left this country for the United States early in January last, all except one have now returned to England. The exception is Mr. C. G. Wridgway, who appears to have settled down on the other side of the Atlantic, for, from the last issue to hand of the *Horseless Age*, we learn that the recently-formed De Dion-Bouton "Motorette" Company, of Brooklyn, New York, have secured him as their travelling representative. Mr. Wridgway will presently start from Albany and make a trip through the Mohawk Valley, visiting Troy, Schenectady, Utica, Syracuse, Rochester, Buffalo, Dunkirk, Erie, and Cleveland. From there he will go down through the carriage district of Ohio, and then either on to Chicago or back through Pennsylvania. It was on the racing track that Mr. Wridgway was best known in England, and his motor-tricycle riding at the Crystal Palace last year will long be remembered by those present. Apart from racing, however, he showed great business acumen, and we congratulate him on his new appointment, which should prove advantageous to both parties.

Helpful Work.

THE useful work of the Commons and Footpaths Preservation Society must commend itself to every automobilist as well as to pedestrians and riders generally. The annual report of the Kent and Surrey Committee of the Society which has just been issued is a capital record of work done, and of local activity at Haslemere, Guildford, Godalming, Horsham, Coulsdon, Reigate, Tonbridge, Charlton, and Chelsfield. The committee point out that the work of the society is permanent in character, for when once a footpath is established or an open space preserved in the ordinary course of events neither can be lost to the public. Those who assist the committee's efforts are therefore assisting a movement the results of which are of benefit for all time. In order that the work may be effectually carried out, the committee desire:—(a.) To enrol as many residents in Kent and Surrey as possible as members of the society. (b.) To enlist the services of riders or pedestrians who know any parts of the counties well, who will mark on sheets of the Ordnance map, supplied by the committee, the footpaths now open to the public, the roadside strips still unenclosed, and the commons. (c.) To enrol corresponding members who will be prepared to allow the secretary to ask them to obtain for him any information he may need in their neighbourhood, should questions arise as to enclosure of open land or obstruction of paths. (d.) To establish in all urban centres in Kent and Surrey local committees to whom any cases sent direct to the committee for advice and assistance may be referred.

Motor-Cars for Hot Weather.

COOL breezes during the past few weeks have caused us to almost forget the great heat of the days of July. In the hottest days a seat on a motor-car was, perhaps, the most enjoyable situation. A lady at Chartres, writing to an English friend, says that during the heat experienced at that place, the only resource to which they could fly was the motor, as its quick motion seemed to give them a little air. Not only was that the case, but by means of linen curtains and glass panels some protection was afforded from the dust.

The First Finished 8-h.p. Napier Car.



MR. S. H. PEARCE ON TOUR IN CORNWALL. (See opposite page.)

Photo by

[J. H. Coath, Liskea d.]

AN ADVOCATE OF ELECTRICAL VEHICLES.



MR. WHITNEY LYON, a prominent member of the Automobile Club of America, is an enthusiast over electric carriages. He has recently returned from France, where he has been studying automobilism, and although he found that the electric type of machine is not popular in that country, Mr. Lyon is as strong a champion of this type as ever. "France leads the world in speed machines," considers Mr. Lyons. "Immense road locomotives built at unlimited cost, and carrying enough petrol for an uninterrupted run of 300 or 400 miles, are all the rage at present. They are about as heavy as our road rollers and make as much noise as a threshing machine, but they certainly have speed. They cost as high as £3,000. They do not use electric carriages so much in Paris as in New York, but they will when they know them better. All the different types of machines have their own field, and I am willing to admit that at present the electric vehicle is not so suitable for a long-distance tour as is the petrol or steam carriage. Still, I think the field of the electric vehicle is enlarging. A year ago the best storage batteries would propel a carriage a little

over thirty-five miles without re-charging. Now an electric phaeton can go sixty miles, and the system of storage is being constantly improved. In time, the necessity for recharging will not limit the touring capabilities of the electric vehicle, because greater efficiency in the batteries will give them a longer radius for a single run, and as charging stations are being established everywhere, it will be easy to renew the motive force at convenient stopping places. I have never had any trouble with my carriage from the power giving out at a distance from a charging station.

"For town use there is nothing to compare with the electric machine. There is no odour, no boiler, no fire; it is quickly and easily operated and controlled, and is much superior in speed qualities to other types. I have driven about 6,000 miles in my car during the past year, and it has never broken down, and has never had to be towed home. The battery, which was supposed to lose 25 per cent. of its effectiveness by the end of the year, from wear and tear of the parts, has never been repaired, and has not deteriorated 5 per cent. from its former efficiency. The only care it has had is the refilling with sulphuric acid and water. During the year repairs have amounted to about 22dols., and the average cost of running it has been a little over 4dols. a month. Another great point in favour of the electric vehicle is its cleanliness."

THE CRÉANCHE PETROLEUM-SPIRIT MOTOR-CAR.

WE are able this week to illustrate still another of the many types of light motor-cars recently introduced in France. This is the Créanche of the Société des Voiturettes Créanche, 7, Rue Brunel, Paris. The car, which, as will be seen, takes the form of a three-seated phaeton, possesses



FIG. 1.—THE CRÉANCHE CAR.

one or two novel features, as will be gathered from the following brief description. The motor—a De Dion—is of 4 h.p., and is fitted with water-jacket and electric ignition. The diameter of the cylinder is 80 mm. and the stroke 95 mm.; two flywheels are provided. The engine is located on the fore part of the frame, and is mounted, together with the water and petrol tanks, the carburettor, and the silencer, on a sliding bed-plate, the object of which is referred to below. On the motor-shaft (see Fig. 2) is a pulley whose width is twice that of the belt which connects the motor-shaft to a counter-shaft, the latter carrying three pulleys. The two outer ones of the three are loose on the shaft; one is in rigid connection with a spur wheel,

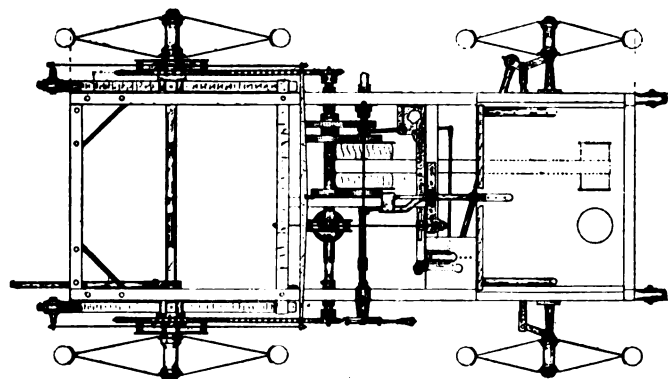


FIG. 2.—PLAN OF CRÉANCHE CAR.

while the other can be made rigid with either of two pinions. These three spur wheels are always in mesh with corresponding pinions on the differential shaft, the power being transmitted through the pulley on which the belt may be and its corresponding pinions. Three forward speeds—8, 16 and 32 kilometres per hour—as also a reverse motion, are provided. From the intermediate shaft to the rear road wheels the power is transmitted by the

usual duplicate sets of sprocket wheels and driving chains. To cut the motor out from the transmission-gear, in case of blocks in the traffic, etc., no friction clutch is employed, but advantage is taken of the method adopted of mounting the motor and its accessories on a sliding bed-plate; the latter can, by means of a lever within easy reach of the driver, be drawn a slight distance towards the driver, which has, of course, the effect of causing the driving belt to run slack. A reverse motion to the controlling lever pushes the motor away from the driver, and so tightens the belt. The frame of the car, which is built up of steel angles and wood, is rectangular in shape, and is suspended on the axles by plate springs. The wheels are of the cycle type, and are fitted with pneumatic tires, while the steering is controlled by a sloping hand-wheel. Ample brake power is provided, there being a band brake on the intermediary differential shaft and cord brakes acting on drums on the hubs of each of the rear road wheels. A detachable handle is provided for starting the motor while the vehicle, which is about 6½ ft. long, the width between the wheels being 3 ft. 7 in., can be fitted with a hood, if necessary.

THE SCHEELE ELECTRICAL MOTOR-WAGON.

WHAT is probably the heaviest electrical motor-wagon in Europe has lately been turned out from the works of Herr Heinrich Scheele, at Cologne, Germany. The vehicle, of which an illustration is given on page 457, is stated to be capable of carrying loads up to 5 tons at a speed of from 4 to 5 miles per hour and of climbing gradients of from 8 to 9 per cent. The wagon is driven by two 6-h.p. electric motors geared direct, one to each of the rear wheels. The electrical energy is supplied by a battery of 44 accumulators cells, one charge of which is said to be sufficient to run the wagon a distance of from 20 to 25 miles. The controller is adapted to give two speeds forward, one reverse motion, and electric brakes. Tire brakes acting on the rear wheels are also provided. The makers claim that proprietors of large industrial establishments equipped with electric generating plants will find electric wagons an economical method of freight transport.

THE Comtesse de Béarn has just ordered a Gardner-Serpollet steam-car of 8-h.p.

THE AUTOMOBILE MANUFACTURING COMPANY, LIMITED, of North Street, Manchester Square, London, W., are, we learn, about to open extensive show rooms in Long Acre, W.C., where both petrol and electric vehicles will be on view. They have already about a dozen Columbia electric cars on hand to which they are fitting their own batteries.

THE Waltham Manufacturing Company, of Waltham, Mass., U.S.A., have lately turned out their first motor-bicycle. Ridden by Champion, the French automobilist, a five-mile exhibition was given on a local track, a mile being covered in 1min. 26½sec., and five in 7min. 16½sec.—an average of 1min. 43sec., and 40sec. better than the tandem-paced American record. The bicycle weighs 120lb., has a 48-in. wheel-base, 1¼ in. tubing is used in the frame, and it carries a supply of oil for fifty miles. The engine is affixed to the lower-cross tube of the frame, and the machine is driven by a flat leather belt, working on a pulley on the end of the motor shaft, and engaging in a pulley or grooved periphery of a metal rim 4in. smaller in diameter than the wood rim of the rear wheel, to the left side of which it is secured. To tighten or loosen the belt, an idler or lever is provided, by means of which the belt may be also thrown entirely out of gear, thus permitting the bicycle to be propelled by the pedal power alone, a free-wheel, and a rear band brake being also employed. The bicycle which Champion used was fitted with a 3¼ h.p. Aster motor, but in marketing the machines, the Waltham Company will employ motors of different powers—high powers for racing purposes, lower powers for road use, but powerful enough to climb any hill that may be encountered.

PARIS EXHIBITION NOTES.

(FROM OUR OWN CORRESPONDENT.)

(Continued from page 444.)

SO complete a description of the "Rochet" vehicle has recently been given in the columns of the *Motor-Car Journal* that it is useless to enter into details, and I will therefore but briefly enumerate the types of automobiles which are to be found upon the company's stand at Champ de Mars. The largest car is one of 12 h.p., and built for four passengers, two being placed in front and two carried upon a dickey behind. Two 6 h.p. carriages come next on the list. Both are of the "tonneau," or wagonette, type, and each carries four persons. A tri-cycle and a quadricycle, both fitted with De Dion motors, complete the list of automobiles exhibited, and it is of special interest to remember that it was these two types of machines which accomplished such extraordinary performances in the exhibition "Concours de Moto-cycles," which took place from June 18th to 25th under the direction of the French Automobile Club. Upon that occasion the quadricycle, with two persons up, covered 800 kilometres at the expense of only twenty-nine litres of petrol. The tri-cycle completed exactly the same journey on a consumption of but twenty litres. Truly remarkable performances, and accomplished simply by means of the "Rochet" carburettor, for the motor used was the De Dion.

MM. Mildé et Cie., 60, Rue des Renaudes, Paris, exhibit three of their well-known electric cars. A victoria carrying both motor and accumulators suspended under the driver's seat, and a four-seated *vis-à-vis* car similarly disposed are the smaller vehicles, while the heavier class is represented by a large omnibus. It is more especially in the field of heavy electric vehicles that MM. Mildé et Cie are prominent, and one sees daily in Paris a number of their delivery vans at work.

One finds an old friend in the shape of M. Léon Bollée's three-wheeler, which, with a *voiturette*, are the sole productions shown by the famous constructor of Le Mans. It is really extraordinary what popularity this type of automobile had, and how quickly the craze for it died out. To-day one never sees one, and where they have disappeared to I am at a loss to know, unless side-slips have carried them all off.

M. Louis Gautier exhibits a frame carrying a large single-cylinder motor, and fitted with his patent transmission gear, by means of which all chains, belts, and intermediary gear are suppressed. A single lever commands the forward and reverse motions and the change of speeds, and looking at the frame one is struck by the ingenuity displayed in crowding so much machinery into so small a space. The ordinary purchaser of a motor-car would be terrified by the sight alone of such a collection of gear and wheels and things generally as are attached to this frame.

A provincial firm which is well to the front in the construction of motor-cycles and motors for light vehicles is that of MM. Chavanet, Gros, Pichard et Cie., of Saint Etienne (Loire). Their display at Champ de Mars is fairly extensive, and comprises a 2½ h.p. roadster tri-cycle, a 3½ h.p. racing tri-cycle, and a quadricycle fitted with a 3½ h.p. engine and provided with two speeds. All these machines carry the "Auto Moto," and there are in addition the following engines of that type exhibited:—Two 2½ h.p. and two 4½ h.p. air-cooled, and two 4½ h.p. water-cooled. A collection of well-made axles, bearings, hubs, and

other motor-cycle parts go to make up a really interesting exhibit.

MM. Felix Brosse et Cie., of 22, Rue Béranger, Paris, exhibit a neat little *voiturette*, but, unfortunately, in an unfinished condition, for no controlling levers whatever are to be found. It is designed to carry two persons; it is fitted with wheel steering and carries a small radiator right in front. Between this radiator and the splash-board, and protected by a screen, is a 3 h.p. De Dion. From an artistic point of view the screen is unquestionably an advantage, but it entirely shuts off the motor from the current of cool air which would otherwise play upon it. A motor-cycle with De Dion motor and a number of ordinary cycles are also shown by this firm.

The three vehicles exhibited by MM. Cambier et Cie., 139, Rue du Faubourg de Roubaix, Lille-St.-Maurice (Nord), are similar in one respect—they are all covered in. There is a two-seated *coupé* with a single seat in front for the driver, exactly similar to the car constructed by the Daimler some three years ago. Then there is a back-to-back dog-cart, the front seat of which is protected by a wooden hood, and, finally, there is a comfortable-looking omnibus. One misses from this stand an example of the Cambier small car, for it is a smart little vehicle. It carries, too, an air-cooled, single-cylinder, horizontal motor developing between 5 and 6 h.p., in itself somewhat of a rarity.

MM. Paillet, Caron et Cie., 48, Rue Saint-Ferdinand, Paris,

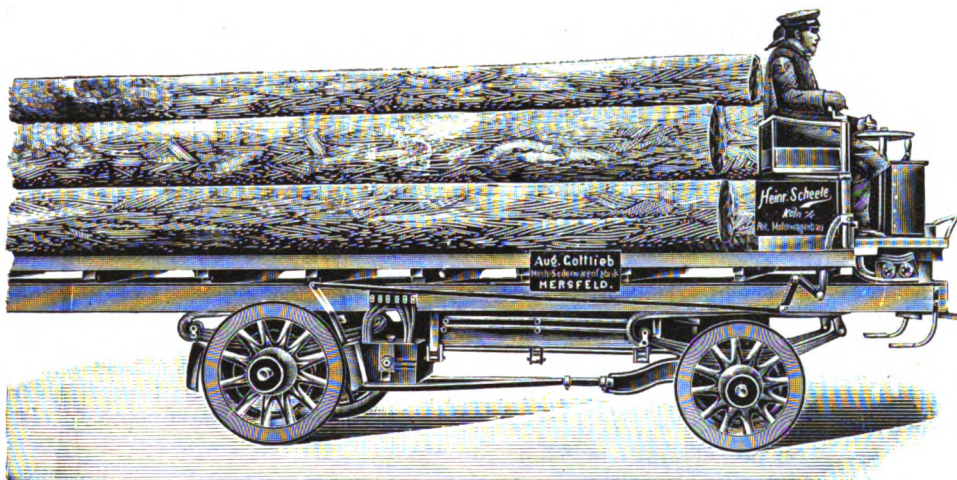
show a neat *voiturette*, carrying in front one of their 5 h.p. air-cooled motors. This engine has a couple of cylinders, and its force is transmitted direct by bevel pinions, to the entire exclusion of belting, chains, etc. Three speeds and reverse are provided. The price is £240. The firm also exhibit a tri-cycle fitted with one of their 3 h.p. single cylinder motors.

On the stand of the Société Parisienne, 10, Avenue de la Grande Armée, are

to be found three of the well-known Victoria Combinations, which present no new features. A novelty, however, is the parcel delivery quadricycle, built on very similar lines to the carriage. The driver is placed in front, with an ordinary bicycle-steering handle-bar and all controlling levers before him. The goods are packed in a box behind, and the general arrangement is well thought out and designed. Cycles make up the rest of this company's exhibit.

Visitors to the automobile section who delight in seeing vehicles which have accomplished exceptional performances, should make a point of inspecting the Renault car upon which MM. Schrader and Oury made a business tour of 5,000 kilometres in France between April 18th and June 20th of this year. It is fitted with a 3 h.p. Aster motor, water-cooled, and in spite of its long journey presents a wonderfully healthy appearance.

A provincial firm which makes an excellent display, as far as displays go in a space so confined as that at Champ de Mars, is MM. Rochet and Schneider, Chemin Feuillat, Lyons, and whose Paris representative is M. Victor Mathieu, 22, Rue Taithout. Three vehicles are displayed, a couple of the type already so well known, and a third built on Mors-like lines, which give one the impression of great speed. Provided with two seats and a dickey behind, this racing carriage carries its 14 h.p. four-cylinder motor in front and its controlling levers at the driver's right hand. The two other vehicles are both four-seated, the one carrying two seats



THE SCHEELE ELECTRICAL WAGON (See opposite page.)

projecting in advance, while the other provides a seat facing the driver for a couple of passengers. Both these cars are fitted with 8 h.p. motors carried on the rear part of the frame. The makers claim that their vehicles are the only ones completely complying with the French police regulations, which is perfectly possible, for automobile constructors do not materially differ from their fellow countrymen, and only follow the laws and regulations of their native land as far as it suits them. As prices go in France these Rochet-Schneider cars are not dear, costing as they do £380.

M. Jules Tourey, 66, Rue de Sevres, Paris, exhibits a single car of the Delahaye type of vehicle. It is designed to carry four passengers, and is fitted with a two-cylinder motor developing 8 h.p. The weight complete is 800 kilogrammes, and one is at once struck by the attachment of the shielded pneumatic tires, known as the Ferré Hélène, to the front wheels. The rear wheels carry Michelins. A hood is attached to the rear seat, and the green leather upholstery is nicely finished. The price is £432. M. Jules Tourey also constructs a 3 h.p. voiturette weighing 240 kilogrammes. The size of this little vehicle is 1m. 800 in length, by 1m. 280 in width. A couple of speeds, 12 and 26 kilometres per hour, are provided, and the price is £154.

MM. Goujon Frères, 23, Rue Borghèse, Neuilly (Seine), show a car designed to carry four persons placed *vis-à-vis*. A single cylinder horizontal motor is carried on the rear part of the frame, and the transmission is effected by cog-gearing. Three forward and one reverse speeds are fitted, and the car complete weighs about 650 kilogrammes. This carriage gives me the impression to be lacking in wheel-base, and it is also too high.

A well-constructed frame secures a prominent place among the exhibits of the Compagnie Française des Cycles et Automobiles, 7, Rue Darboy, Paris. It is built up of drawn steel tubes, and a special feature is the use of expansible pulleys for the gradual gearing of the motor to the car. The motor is carried in the middle of the frame and develops 6 h.p. It is of the single cylinder horizontal type, and is water-cooled. Three forward speeds and a reverse are provided. The complete car, as built upon this frame, is also shown. It carries a seat for two persons in front, and a dickey is attached to the back. The driver finds all controlling levers carried upon the pillar of the steering wheel in front of him. One of the company's 6 h.p. single-cylinder motors also finds a place upon the stand, and the remainder of the exhibition is made up of cycles.

The single voiturette shown by MM. H. Brulé et Cie., 31, Rue Boinod, Paris, is a four-seated *vis-à-vis* car provided with a 6-h.p. engine attached to the rear part of the frame. This motor is of the horizontal two-cylinder type, and the cranks are angled at 180 deg. Electric ignition is employed, and a special carburettor is conveniently placed for the driver to vary the explosive mixture. A speciality of MM. Brulé is the large 20 h.p. omnibus, of which, however, lack of space prevents the exhibition. The motor employed consists of two ordinary and one expansion cylinders, the latter being placed between the two others. Four speeds and reverse gear are provided, the drive being made through the medium of a friction clutch. The passengers are carried in the interior of the vehicle.

Among other exhibitors of small cars and motor-cycles I may quote the following names, the exhibits of whom, although excellent in themselves, present no features calling for special attention. In the majority of instances the de Dion motor is employed to supply the motive power, and the makers have devoted all their attention to the question of transmitting its power in the most effective and economical manner. These firms are:—M. P. Sage, 57, rue Emerian, Paris; La Société Phébus, 30, Avenue de la Grande Armée, Paris; MM. E. Chenard and H. Walcker, 7, rue de Normandie, Asnières (Seine); Agence Industrielle d'Automobile and G. Fouillaron, both of 54, Avenue de Villiers, Levallois (Seine); A. Cohendet, 166, quai Jemnapes, Paris; MM. Marot, Gardon et Cie., 37, rue Brunel, Paris, and La Société Française, Marque Diamant, 11, rue Brunel, Paris. La Maison Parisienne, 71, Avenue de la Grande Armée, and La Société Française d'Automobiles, 41, Quai de Suresnes, Suresnes (Seine), exhibit Benz and Gaillardet motors respectively.

The exhibition at Champ de Mars shows one nothing strikingly

new with the single exception of the Ader car constructed by La Société Industrielle des Téléphones, a description of which was given on page 392 of this journal. In this respect the show but resembles its immediate predecessors, for neither at the Salon du Cycle held in December last, nor at the Automobile Club's exhibition of June, 1899, was there any novelty which could command serious attention. It is the old and well-known types of motors which continue to hold sway—modified and improved, of course, but still motors of the types whose names they bear. The revolutionising engine has not yet appeared upon the scene, and would appear to be as far off as ever. The majority of new motors which do appear usually follow closely upon the lines of one or other of the recognised types, and, generally speaking, the most striking difference is the elimination of the older engine's good qualities from the new design. The old-established firms, who have already got a good motor and car, effect numbers of minor improvements, which, although small in themselves, are of great importance in building up a harmonious whole. To anyone who has had an intimate acquaintance with one or other of the leading types of automobiles for any considerable length of time, it is of immense interest to compare the present-day vehicle with that of former times. One recollects the troubles experienced with such and such a part, and an inspection of the modern car shows the little modification or addition which entirely overcomes the difficulty. So simple in itself is the change, and yet so effective. And there are dozens of these alterations which the keen automobilist notes. Then, too, there are the modifications of design, both of frame and of body, which do so much to increase the beauty of the vehicle and the security and comfort of the passengers. All this is to be seen at Champ de Mars, but of real novelties there is an absolute dearth. And now to Vincennes.

A PROSPEROUS undertaker in Florida talks of adding a motor hearse and carriages to his business requisites.

A NEW company has just been formed at Levallois-Perret, Paris, with a capital of £8,800, to be known as L'Equipage Electrique (Société de Location de Voitures Electriques).

MESSRS. HEWETSONS, LIMITED, of Dean Street, Soho, have now arranged to fit a third speed, when desired, to all their cars. The charge to fit the Crypto to old cars, we understand, is fifteen pounds.

SEVERAL motorists were returning to town along the St. Albans road on Sunday. One of our staff cycling that way passed a merry party in a large Benz dog cart, Mr. Cappellen on a motor-tricycle, and a couple of wayfarers on a De Dion voiturette.

PROBATE of the will of Mr. William Wright, of Saxelby Park, Leicester, and of Wollaton, Nottingham, J.P., a director of the Daimler Motor Company, Ltd., who died on the 14th May last, aged 61 years, has been granted to his widow, Mrs. Mary Jane Wright, and his son, C. W. Wright, of Edwalton, and W. D. G. Brown, of Kenilworth, Warwick. The late Mr. William Wright's estate has been valued at £222,974 17s. 7d. gross, including personality of the net value of £187,004 2s. 7d.

AUTOMOBILING has become so popular in Westchester County, of the State of New York, U.S.A., that a number of wealthy men have decided to organise a club which will be composed of automobilists in New York, Westchester and Connecticut. A meeting to make preliminary arrangements was held recently. The name of the club will not be decided upon until the next meeting, when officers will be elected. It was stated that one of the principal purposes of the new club will be to provide supply stations along the Albany post road, Boston post road, the new macadamised boulevards now being constructed through The Bronx, the Hudson River valleys and other cross country roads leading to the Ardsley Casino, Westchester County Club and Knollwood County Club. At these stations petrol and other material will be kept for petrol and steam cars, and arrangements will also be made for charging electric vehicles.

CORRESPONDENCE.

A MOTOR-CAR DRIVING SCHOOL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I believe it would greatly further the enthusiasm that is growing in the public if enterprising manufacturers would combine to run a school where intending purchasers could go through a course of instruction similar to horse riding schools, and where a liberal display of up-to-date motor-cars could always be seen and tried.

A similar place to Tattersall's or Baker Street Bazaar would, I believe, be a great financial success. The now all prevalent hesitation regarding purchasing would then be speedily removed and confidence established. I shall be glad to hear what your readers think of the suggestion.

Yours truly,

DANDO HARPER.

18, Tufnell Park Road, London, N.
September 3rd, 1900.

THE ENGLISH MOTOR CLUB'S RUN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With regard to the English Motor Club's run to Luton and Bedford on Saturday, announced in the *Motor-Car Journal* of even date, will you inform me, through your columns (as the matter is of interest to others as well as the writer), the place and time of starting, as the notice appears to be incomplete without these particulars.

Yours truly,
W. G.

St. John's Wood, N.W., September 1st, 1900.

[Owing to the traffic out of London, and the fact that the participants in the meet will have variously powered cars, it has been thought advisable that the rendezvous should be beyond the metropolis. Those who go will, therefore, make their way to Luton by whatever route they prefer, reaching Mr. Hart's house in the Windmill Road, Luton, from whence the organised run to Bedford will commence, between 4 and 5 p.m.—Ed., *M. C. J.*]

MOTOR-VEHICLES AT BOGNOR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been staying a few days at this breezy little town of Bognor. It is growing rapidly in favour as a health resort, and motor-cars are not altogether unknown here. Several of the residents in the neighbourhood own cars, and during the past few days two "quads" have been seen in the town.

During the summer months there should be a good opening here for a few public service wagonettes. The roads are level with good service, and a number of very interesting excursions can be made, which would doubtless be appreciated by the visitors as a welcome change from the monotony of pier and beach.

Hoping some of your business readers will think over my suggestion with a view to something being done another season,

Yours truly,

A VISITOR.

Bognor, September 5th, 1900.

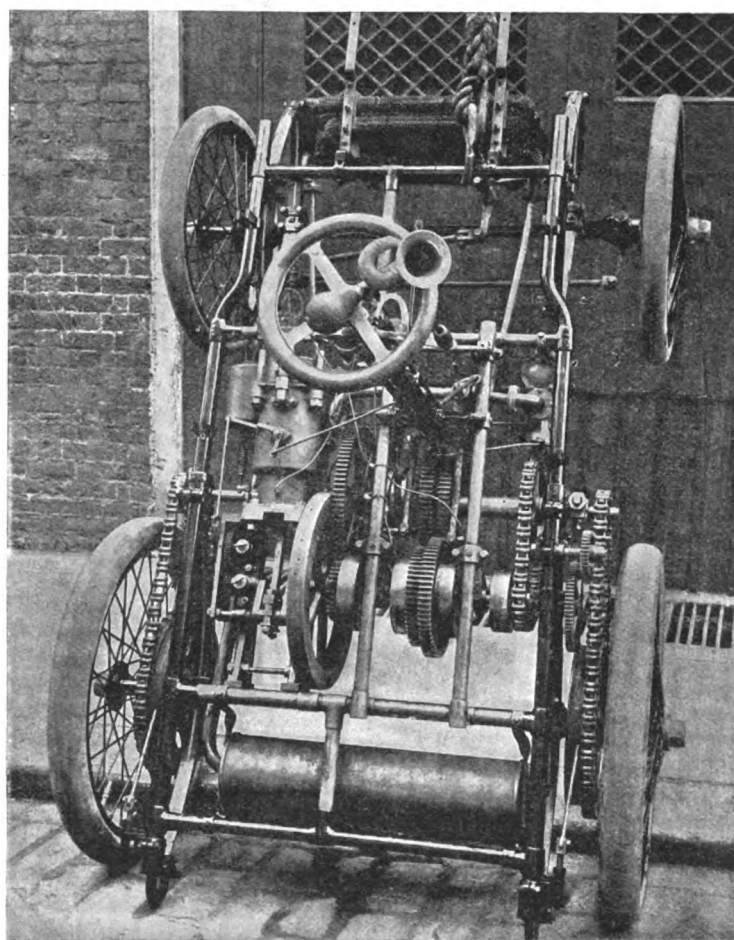
FOUR electric carriages have begun regular trips through Central Park, New York, to Riverside Drive, and up the drive to Claremont. The vehicles carry twelve passengers and make the round trip in an hour.

The Automobile Rapid Delivery Company has been organised in Detroit, U.S.A., with a capital of £5,000. It is the intention of the company to carry on a parcel delivery system at first, but a passenger service will be established later on. Six cars have been purchased, and an electric vehicle, with a capacity of nine passengers, for tally-ho rides, will also be put into service shortly.

MESSRS. SCHLESINGER AND MAYER, of Chicago, have put in service a number of electric omnibuses between their store in State and Madison Streets and the Chicago and North-Western Railway dépôt. Three 'buses are already running, and seven more will be put on as soon as they are ready. This is the first service of the kind in Chicago, the vehicles belonging to the Illinois Electric Vehicle Transportation Company.

THE "S.S." MOTOR-CAR.

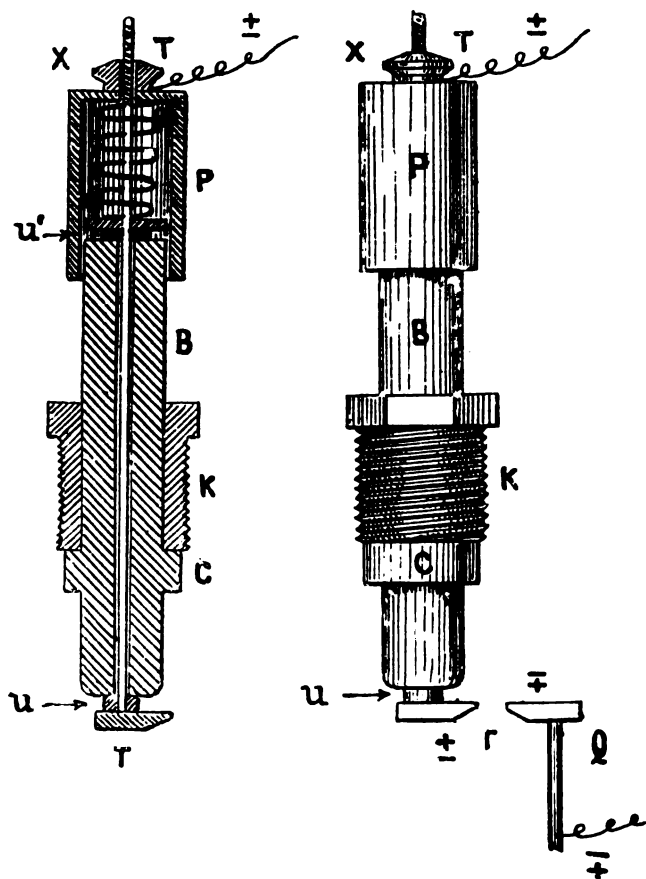
THE accompanying illustration shows the frame of the new car which is being put on the market by the S.S. Motor Co., of 59, Holborn Viaduct, London, E.C. The motive power is provided by a 5½-h.p. single-cylinder horizontal engine, fitted with electric ignition, using the De Dion plug; the cylinder is water cooled, the circulation being maintained by a centrifugal pump actuated by friction on the fly-wheel of the motor. The valves are of relatively large size, as is also, it will be noticed, the exhaust box or silencer, which is located at the rear of the frame. The carburettor is of the Le Blon jet type. As regards the transmission, three speeds forward—six, twelve, and twenty miles per hour—and a reverse motion are available. From the motor shaft the power is transmitted to a countershaft by spur wheels, the teeth of which are always in mesh. The pinions on the countershaft are rigidly keyed, while those on the engine shaft are free to revolve over separate friction



clutches. On the engine being started, the engine shaft and the clutches fixed thereto revolve inside the gear wheels, but upon any one clutch being expanded the gear wheel instantly becomes a part of the main shaft and the car is started. This, of course, brings all the gear wheels into motion, so that in changing speeds the operation is done with the gear wheels running in mesh. The same principle is applied in the reverse motion, but a chain is substituted for gearing. Wheel steering is fitted, while the engine is started by a handle at the side. The petrol tank has a capacity of a little over four gallons, said to be sufficient for an eighty miles run under adverse conditions. Eight gallons of water are carried. Ample brake power is provided, while the road-wheels are of the cycle type shod with pneumatic tires. The motor and transmission gear are mounted on a standard frame to which any type of carriage body can be fitted to seat either two, three, or four persons. The S.S. Co. inform us that every detail in the car has been thoroughly tested and subjected to long trial before being finally put on the market and they claim that with a full load of four persons the vehicle will easily ascend a gradient of one in six.

THE DULAIT-BARAS SPARKING PLUG.

THE accompanying illustration shows a new sparking plug which has lately been devised by two French engineers, Messrs. Dulait and Baras. It is composed of a tube of porcelain or other heat-resisting and insulating material, having a shoulder C, which, by the threaded collar K, is forced to a gas-tight joint in the side of the valve-box. Inside the tube is a stem T, having a head at one end and a screw-thread cut on the other. Usually this stem is set in plaster or something similar, so that it and the tube form a solid piece. Then, when it is heated, it expands lengthwise more than the porcelain, and consequently detaches itself and causes a leak. If it is attempted to screw it tighter when hot, to stop the leak, it is under strain



when cold, and either stretches or breaks the porcelain. It is the purpose of this new plug, states *La France Automobile*, to obviate this difficulty; and to this end the head of the stem T has a copper washer u interposed between it and the end of the porcelain tube, forming a gas-tight joint. The stem is loose in the tube and is somewhat longer than the latter. Threaded on the end is a cap P, with a lock-nut X; and inside the cap a stiff helical spring is interposed in compression between the cap and the end of the tube. By this means the head of the stem is always drawn tightly against the end of the tube, and the spring can be adjusted by screwing the cap P up or down. A washer u' of amianthus, covered by a metallic washer, aids in maintaining the gas-tightness of the stem in the tube.

MR. CHARLES WALKER, a civil engineer, of South Elmsall, has been fined 7s. 6d. and 14s. 6d. costs, at the Rotherham West Riding Police Court for having had a motor without a light at Swinton on August 20th.

THE number of firms in the cycle trade in the London districts interesting themselves in the motor-car business is steadily increasing. Among the latest is Messrs. Donald and Company, of the Ravenscourt Works, 61, Goldhawk Road, Shepherd's Bush, who are not only keeping a stock of petroleum spirit, but are also stocking motor-car and cycle accessories.

HORSES AND MOTOR-CARS.

THE fact that so many automobilists of repute are horse-men of renown should have secured for those who motor some consideration on the part of the public. Those who drive motor-cars are not enemies of the horse, and those who are endeavouring to perfect vehicles for heavy traction are really the best friends of animals, for they are seeking to relieve him of many burdens and worries.

But one can hardly open a newspaper without seeing some accident or other attributed to our means of locomotion, while should a horse shy or be misled into an accident he is given only a short and mild-mannered paragraph. This has several times been referred to in these columns, but it cannot be too often pointed out that many motor-car accidents are not motor-car accidents at all. They are caused by the horse and by the horse alone. It is all very well to say that motor-cars are such peculiar fantastic contrivances that any ordinary quadruped is frightened, but the same remark applies, with lengthened extent, to electric tramcars. At Southport, the other day, a pony which had long been accustomed to the electric cars that ply in that town shied at the light on one of them. Although the driver pulled up as quickly as possible the pony was knocked on the head and killed. Would it have been fair to ascribe that casualty to the electric car?

The truth is that accidents that happen within the range of the motor-car are due to one of two causes—excitable horses and nervous drivers. The latter cause, perhaps, more accidents than the former. They hear the "teuf, teuf" of the motor-car in the distance and prepare to get nervous; they fancy it is coming their way and rein up their horse, nearly dragging him into the nearest ditch. The advent of the car thus heralded to the intelligent quadruped, small wonder is it that when the mechanical vehicle does come along the horse rears and starts with all the energy of a ballet dancer playing for an encore. And if in the midst of all these gyrations the driver is thrown into the road the motor-car is blamed—though probably it is in the next street by the time such event occurs.

This is the age of societies and organisations. Let us have an association to teach ordinary courage and a little pluck to some of the nervous people who frighten the horses they drive.

Humanity generally will welcome the universal adoption of the motor-car, giving a means of locomotion a reliability that does not obtain in the case of horses. They have their moods and tempers; heat and storms affect their health, but the motor-car is always ready for service, and if sometimes it does turn a somersault or a tire gives way such incidents only give zest to the sport. It is the love of adventure, the chance of righting one's vehicle after a little upset, and such-like things, that have made sportsmen take to motoring as they have done.

Seriously, it must be confessed that the majority of the accidents that have taken place when motor-cars have been in the proximity of horses have been due to the careless disregard of ordinary disciplinary measures. If, instead of turning horses up side lanes or getting down and leading them past motor-vehicles the drivers would boldly drive them by, the difficulty would soon be got over and much worry and annoyance saved. That is the only satisfactory way of training horses. To set a horse in the centre of half-a-dozen throbbing automobiles letting him imagine that a score of iron animals are in pain is not indicative of much regard for the horse's intelligence. He must meet the automobile on the road, treat it as he would a cable tramcar, a traction engine, or a road-sweeper, and then little fear need be felt.

Horse owners must recognise that the automobile is going forward, and provincial journalists may be equally well assured of the fact. The days of ridicule are passing away; the strength of the once existing prejudices is waning, and the sooner everyone recognises that the horse and his driver are often to blame, and not the motor-car, when accidents take place the more accurate will be the character of public information.

"WHYBROW."

HERE AND THERE.

BY LOLLIIUS.

LITTLE is doing at the Automobile Club, most of the members being away on their holidays. They will soon be returning, however, for the dinner at the Trocadero, when the prizes in connection with the 1,000 Miles Trial will be awarded. At present these are on view in Whitehall Court, and a capital display they make.

LORD CARNARVON'S delight in motoring is well known, as the residents of Newbury and other Berkshire towns will tell you. Apparently he intends to discard ordinary railway travel, for it is reported that he will go by road instead of by rail to all the principal race meetings. In this way his lordship will secure a wider view of the country than is afforded from the train—an advantage that can only be realised by those who have had experience of both means of getting about. In the train your outlook is woefully circumscribed; from the motor-car all the surrounding country is opened out as in a book.

I HAVE just been chatting with the rector of a country village about two and a-half miles from Huntingdon—a quiet old country town in which, I believe, Mr. D. Murkett is the only man ready to look after the wants of automobilists. Dissatisfied with the ordinary and rather uncertain horse-drawn service to and from his place, he wanted something better and tried an ordinary tri-cycle—feeling rather too old to venture on a bicycle. Now he has grown tired of that, and is on the look-out for a small compact motor-vehicle to carry himself and luggage as well as a friend. But he does not want to have to employ a man to look after the machine; and yet is not, himself, inclined to engineering ways, and dreads having to approach a new study at his time of life.

AFTER telling him to try, I pointed to the great philosophers who had taken up a new language when beyond the age at which ordinary men were thinking of funeral arrangements, and generally urged him to recognise that the management of a motor-car might be easier than the study of theology. He sighed, and said it might, but was not converted. Still a good many motorists go Huntingdon way—and it may be that the next time I see the worthy rector he will be on a neat little motor-car. I hope he has not yet begun to subscribe to the *Motor-Car Journal*, as "The Trials of a Tyro" last week may cause him to reserve his money for awhile.

WITH Rudyard Kipling as a resident and Mr. S. F. Edge as a visitor the other week Rottingdean should have an interest for motorists. The author has a German Daimler which, when I saw it a few days ago, had a decidedly sombre appearance. There is no need to say anything about Mr. Edge's machine—now so well known. Although I was staying at Brighton at the time, I did not know he was so near until I read about his stay in the *Brighton Gazette*, which is edited by Mr. Towner, a really good friend of motorists, whose oratory was one of the notable features of the Motor-Car Club's dinner at the Hotel Metropole last November.

WHATEVER people may say of other places, I prefer the Thames Valley for motoring. Its sylvan delights are unlimited, and nothing can be more entrancing than to whizz along a dusty road for a few miles and then find oneself by the side of the river, with its cooling breezes. On its banks are some business connections reminding one of the ordinary world. The other day at Maidenhead I heard about the enterprise of a local firm interested in motor-cars and their ways, which had actually taken half a column of space in the local newspaper to advocate the claims of automobilism.

HEADING the advertisement as Motor Talk, the announcement was made that Messrs. A. W. Heybourn and Co. had run their motor-quadricle over 1,200 miles with "no accidents,

nothing but unqualified satisfaction." The running cost, oil, etc., was £3, or with depreciation of tires, minor renewals, etc., £6. Arguing that the cost of the keep of a horse and groom was anything from 30s. to 50s. a week, for which drives of about 120 miles could be enjoyed, Messrs. Heybourn and Co. show the advantages of the motor-quadricle by saying that that distance could thus be done in a day at a cost of from 5s. to 10s. for petrol. Such economical riding for two people should satisfy the greatest apostle of thrift in the pleasantest of pleasant boroughs by Father Thames.

FAMILIAR as automobiles are in Maidenhead, they are even better known in Windsor. Among recent converts to the motor-car in and around the Royal borough are Lord Edward Spencer Churchill, Mrs. Berens, and the Baroness Campbell, while the Duke of Newcastle was there last week on his Locomobile steam car, which has already carried him on many pleasant tours. His preference for the steam car is notable.

WHILE chronicling these items of social interest utility, may be given my diary by mention of an excellent place for the repair of vehicles, should difficulties occur in the neighbourhood.



This is the establishment of Messrs. J. Fullbrook and Co, at Slough, on the London and Bath road. Mr. Fullbrook is an enthusiastic motorist, and may be seen, in the accompanying illustration, aboard his car. He is putting parts in stock for replacement—a branch of trade in which good business is likely to be done in many places in the future.

I HEAR that Captain Langrishe intends to dispose—if he has not already done so—of his 8 h.p. Peugeot, and also his 2½ h.p. De Dion trike. Applying the principle that horses are valuable because of the races they have won, I would mention that both these machines enabled their owner to win contests at the Ranelagh and Sheen House Gymkhanas.

IRISH noblemen seem to be taking to automobilism with great enthusiasm, the latest to join the ranks being Lord Louth, of Louth Hall, Ardee. He purchased a motor-tricycle from the Dublin branch of the Cycle and Motor Company, and after about ten minutes' tuition, according to one of my Irish correspondents, went eighteen miles without assistance. Since then he has had many trips in the congested streets of Dublin and seems thoroughly enamoured of his new possession.

THE Electrical Vehicle Company of New York have sent us a copy of the new catalogue which they have recently issued. It is beautifully executed, with pen and ink sketches of their factory, famous pieces of architecture and landscape, combined with half-tone illustrations of the many types of Columbia vehicles built by the company, the details of each one being given below the engraving.

A COMPRESSED AIR MOTOR-WAGON.

UP to the present time the ideal motor for hauling heavy weights is still the steam engine, but lately a new competitor has been brought forward in the shape of a compressed air motor-wagon, of which an illustration is given herewith. It has been constructed by Messrs. Molas, Lamielle and Tessier, of Paris, and has recently attracted considerable attention by reason of the relative simplicity of arrangement of its manœuvring devices and the limited amount of space occupied by the motive apparatus.

In this vehicle the air-storage reservoirs employed consist of hammered steel tubes of 8-inch external diameter. The heating is done directly by petrol instead of by steam from a boiler, as in the Mekarski system, the manufacturers being of the opinion that, since a direct heating of the air permits it to be raised to a temperature much higher than that which could be obtained by means of heating by steam, they obtain also a greater increase of volume, and, consequently, of work that compensates for the heating during expansion obtained with the above-named system.

The stove, burners and petrol reservoir used for heating have here but a light weight as compared with the arrangement in which a boiler is employed. The air reservoirs are eleven in number and are distributed in two groups, one of six forming the "battery," and the other of five constituting the "reserve." The capacity of these groups is, respectively, 11 and 7.5 cubic feet,



FIG. 1. GENERAL VIEW OF WAGON.

or, altogether, 18.5 cubic feet. With a charging pressure of 4,290 lb. to the square inch, the weight of air stored up, at a temperature of 13 deg. C., is 1,100 by 2.7 by 638, equals 392,370 lb. Before its admission to the cylinders of the motor, the air passes into a steel worm of .28-inch internal diameter, of 14-inch thickness, and of a length of 19.7 feet, which raises its temperature to a figure that varies with the discharge of air and the intensity of the burners that heat the worm. The temperature may thus reach 150 deg. C. The air afterwards passes into an expander, manœuvred by the driver, which lowers its pressure by about from 11 lb. to 4 lb., according to the difficulties of the road, the load, and the speed. It is in this way that changes of speed are effected—by admitting the compressed air at higher or lower pressure into the cylinders through the valve, so that from 1 h.p. to 35 h.p. can be delivered at the driving axle, corresponding for a load of two tons, to a varying speed on the level of from one to ten kilometres ($\frac{5}{8}$ to $6\frac{1}{4}$ miles) an hour. This expansion of the air gives rise to a lowering of the temperature, in order to raise which the air thus expanded is made to pass into a second worm concentric with the first and heated by the same burners. When the air makes its exit from this second worm its temperature may be as high as 250 deg. It is claimed that this double heating is

capable of more than doubling the volume, and, consequently, the work of the air stored up. This air is then admitted to the cylinders through an expansion distribution with a special change of speed. The admission takes place upon only one of the faces of each piston, and the motor is thus a single acting one. But the cylinders are four in number, and cast in pairs, and the connecting rods (jointed directly to the pistons) actuate the same shaft, the cranks of which are set at an angle of 180 deg. per group, and at 90 deg. from one group to the other. The motor thus has the same power as a two-cylinder double-acting engine. The arrangement, it is claimed, offers numerous advantages, and permits especially of suppressing the shocks at the joints of the connecting rods that occur in double-acting engines at the time of the change of direction of the piston; of doing away with piston-rod stuffing-boxes, which it is often difficult to keep tight, and which absorb a certain amount of work in friction; of removing and putting in place a connecting rod and its piston without having to dismount a cylinder bottom.

The distribution is effected by means of cams and valves. The opening of the latter takes place very rapidly. Their closing, on the contrary, occurs gradually, and is hastened or retarded through the shifting of the reversing lever, according to the admission that is desired. The minimum admission employed is 10 per cent., but this may be increased to 60 per cent. for starting. The exhaust and the compression are fixed, and have a duration of 20 per cent. of the stroke of the pistons. There is no special cut-off of fluid between the expander and the cylinder admission valves. These latter open wide for all admissions between 10 and 60 per cent. of the forward and backward running of the engine.

The burners, which are three in number, are arranged beneath the worms in an iron-plate jacket 10.75 in. in diameter and 12 in. in height, surmounted by a chimney which conducts the gases of combustion to the top of the roof of the vehicle. The burners are supplied by a petrol reservoir of a capacity of about five gallons, in which an air pressure of from 45 to 70 lbs. to the square inch is created. The pipe that leads the petrol to the burners may be partially closed by a screw plug. Through such arrangements it is possible for the driver of the wagon to proportion the intensity of the heating to the output of air, so as to obtain a temperature that is always sensibly the same. The quantity of petrol consumed by the burners is said to be about 15 oz. per hour of running.

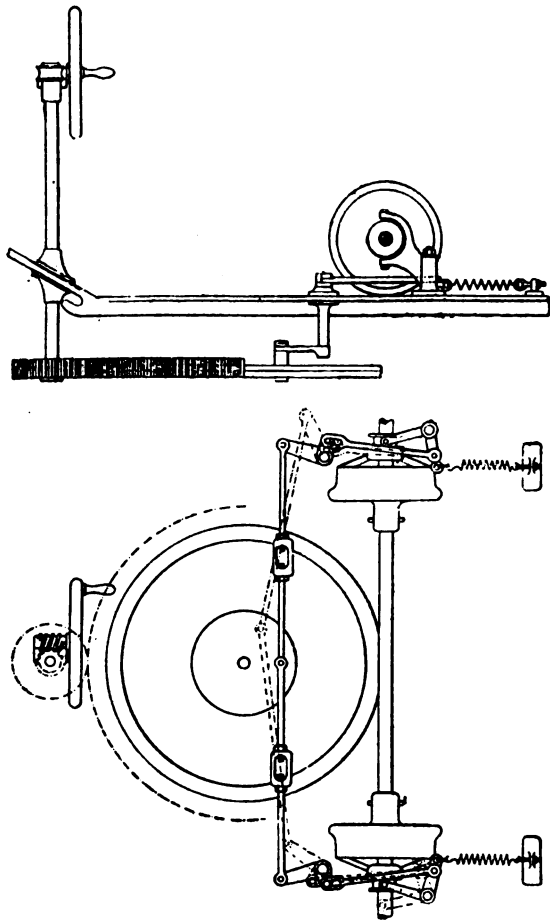
The motor rests upon the floor of the carriage, beneath the seat occupied by the driver, who can thus examine it while it is running. Its rotary velocity for a speed of five miles an hour made by the vehicle is 200 revolutions per minute. The transmission is effected by means of chains which connect two sprockets, keyed at the extremities of the driving-shaft, with two toothed wheels of six times larger diameter fixed through bolts to the spokes of the hind wheels. The power of the motor upon the crank-shaft is 20 horse at a velocity of 300 revolutions, and at a pressure of 285 lb.

The differential consists of two friction cones fixed near the extremities of the driving-shaft and actuated by the steering apparatus, Figs. 2 and 3. The control of these cones is such that, in a turning about, the adhesion of the one that is situated at the side of the internal wheel diminishes in such a way as to permit of a certain amount of sliding of the cone in its socket, and, consequently, of a retardation in the revolution of the corresponding wheel; while the adhesion of the cone situated at the side of the wheel that is to traverse the wide radius increases, so that no sliding in its socket can occur, despite the greater resistance of the wheel that is moving ahead. The pivoting can thus be effected upon a driving wheel that is rendered absolutely immovable, from the view-point of revolution, and, consequently, in a circle having as a radius the distance of such wheel from the opposite wheel of the front axle, and that, too, in running forward as well as backward.

The steering is done by means of a hand wheel keyed upon the axis of an endless screw, which gears with a toothed wheel keyed upon the shaft of the reversing gearing situated beneath the vehicle. An indicator placed before the driver exactly reproduces the changes in direction of the axis of the

vehicle's path, and thus permits him to keep in a straight line. The intermediate screw lengthens the manœuvring, but renders it sure, stable and gentle. Such an arrangement, however, offers advantages only for heavy vehicles designed for running always at a low speed. Finally, it may be mentioned that the accumulators are placed longitudinally under the floor of the vehicle in two superposed rows, and are connected by easily accessible couplings placed in the rear. Movable panels permit of an inspection and of a tightening of the joints and couplings.

The whole of the compressed air is practically available for driving purposes, and the holders can be recharged during loading up, in the dinner hour, or after the day's work during cleaning down. With a compressing plant of 5 h.p. (gas engine) costing £300, the production of 100 kilogrammes of compressed air is said to cost 8s., and every succeeding 100 kilogrammes, if the plant is worked continuously, 4s. Four hundred pounds of com-



FIGS. 2 AND 3. ELEVATION AND PLAN OF DIFFERENTIAL GEAR.

pressed air will, it is claimed, transport 20 tons of goods for 30 miles on one of these vans. The rate of transport per ton-kilometre amounts to a little over 2½d. for 50 kilometres, and is under 2d. for 100. One of these vehicles will, it is claimed, do the work of six horses and two vans, carrying 1½ tons each and with a radius of delivery of 25 kilometres (15½ miles), the goods handled by which cost per ton-kilometre about 6½d. (10½d. per ton-mile).

A PHILADELPHIA undertaker is stated to have an automobile funeral wagon in successful use, and intends to add five more.

THE Painesville Automobile Company, organised some time ago at Painesville, Ohio, U.S.A., to operate an automobile 'bus line between that town and surrounding villages, is in the market for several vehicles of large passenger carrying capacity. Early last spring the company contracted with a New York concern for a sample vehicle which was to be delivered during June, but after repeated promises of delivery the vehicle seems farther from completion than at the start, with the result that the contract has been cancelled.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)



At Brescia.

THURSDAY last witnessed the opening day of the Brescia meet, which has been so eagerly looked forward to by Italian automobilists. A well-organised exhibition of vehicles is being held in the splendid hall of Crocera Saint Lucas and short distance races are being decided daily. To-morrow a six kilometre event will be run off over a rectangular route from Bagnolo Mella to Saint Zeno Naviglio, and Monday will witness the most important race of the meeting. This will be decided over a route of 223 kilometres, from Brescia by way of Cremona, Mantua and Verona back to Brescia. Some £240 worth of prizes will be competed for during the meet, and all the crack Italian *chauffeurs* as well as several strangers will be seen racing.



A Racer Fined.

It will be remembered that in the Bordeaux-Périgueux-Bordeaux race of June 4th last, Antony, one of the hot favourites, did not finish, but that he fully intended to be in at the death was conclusively proved some few days ago at the Angoulême police court, where the local justice of the peace condemned him to pay a fine of five francs for refusing to stop when ordered to by the town police. A like offence in Paris would have cost M. Debray, for such is Antony's real name, probably ten times the amount of this fine and a few days of imprisonment besides, so he cannot complain as to the severity of the sentence. But even in Paris the sentences passed upon offending *chauffeurs* are moderating, as, indeed, is the whole campaign against the automobile, and before long cases in the courts will be as rare as of yore.



Belgian Customs.

THE secretary of the Automobile Club of France informs members, in a recently issued circular letter, that they can now pass their motor-vehicles through the Belgian Customs without any other formality than the presentation of a sort of pass called a "triptyque." This measure has been brought about by the goodwill of the Belgian Minister of Finance and an understanding with the "A.C.B." The pass is procurable at the club-house, 6, Place de la Concorde, Paris, upon depositing a sum equal to 12 per cent. of the value of the car, which amount is refunded upon the return of the automobilist to France. Similar arrangements are in course of negotiation with other countries, and, although members of the English Automobile Club do not apparently indulge in automobile travelling on the Continent to any extent, it is to be hoped that the Club will secure the same privileges, for later on the desire for extended tours will undoubtedly increase, and then the facility of entering a foreign country under such easy conditions will be a perfect boon. A circular tour in Europe is at present a trial and tribulation so far as the formalities of the several Customs are concerned, and many people are undoubtedly deterred from making such trips by this reason.



Military Motor-Cars in Germany.

ON the day that the Count of Waldersee took leave of the Emperor of Germany at Cassel, prior to his departure for China, an elegant four-seated motor-car was inspected by the Emperor. The vehicle is intended for the use of the officers of the Magdeburg garrison, and is to be employed in conveying them to and from the manœuvring grounds at Libourg.



THE local authorities at Rochester, N.Y., are considering a speed ordinance similar to that proposed in Syracuse. The speed for all motor-vehicles is limited to eight miles an hour, which is reduced to six within a radius of one-half mile from the city's centre.

ELECTRIC IGNITION TROUBLES.



MOTOR-CYCLES and motor-cars frequently fall into the hands of those who are unacquainted with electrical matters, and to such persons the ignition frequently gives serious trouble, serious because the novice is at a loss to remedy the same. It is, to say the least, quite annoying for the automobilist who has just paid a substantial consideration to some exultant farmer for horse-hauling his vehicle to the shop of one who knows, to have that worthy run his fingers over the vehicle, tighten a screw, and then to start off as though nothing had happened. In the course of an article in the *New York Automobile*, a writer states that he has seen this situation materialise more than once, and therefore ventures to offer the following rules, which, though highly elementary, are invaluable to those who do not know them. A sparking device fails through one of three causes: Open circuit, short circuit, or dead battery. An open circuit is a discontinuity in the electric circuit. It may be due to (a) a broken wire; (b) a loose screw; (c) a bad joint; all joints should be tight metal to metal contacts; (d) contact on the engine failing to touch. Broken wires are quite deceptive at times. They may appear continuous while being merely held together by the outside wrapping. Similarly a defective joint will not disclose its nature till stripped and examined. A well soldered joint removes much uncertainty. Loose screws are the most frequent troubles, as the jar of the vehicle invites them. The wires connecting the batteries together are just as important as those leading from the cells.

The first thing to do when the ignition fails to work properly is to see that all the screws are tight. Next examine all the moving contacts and make sure that they are operative. After these are found secure broken wires or bad joints may be sought. A short circuit is a spurious path for the current other than through the engine contacts. It deflects so much current from them that they fail to operate. For instance, suppose the two wires leading to the contacts become bared and crossed before they arrive there. It is unlikely in that case that any current worth mentioning would appear at the contacts. A similar result would obtain if both wires were bared and pressed against the ironwork of the frame. In many vehicles one wire is permanently attached to the frame, and the operation of the device depends solely on the insulation of the other. To avoid short circuits keep the wires insulated from the frame and from each other. In hunting short circuits suspect every spot where the insulation appears defective. Dead batteries obviously cannot give current for sparking purposes. Short circuits and long usage are mainly responsible for dead cells.

THE newly-formed Pennsylvania Automobile Club held a successful run recently from Philadelphia to Willow Grove via Chestnut Hill.

A NEW two-seated electric car has lately been constructed by Mr. D. L. Davis, superintendent of the Salem Electric Light Company of Salem, O., U.S.A. Its trial trip has been made, and we are told it proved most satisfactory in its workings. In the construction some new ideas have been adopted. The car has a wheel base of 54 inches, and, owing to its different construction from other vehicles, its body is small, and lower than customary, and the batteries of 40 cells are below the axle line. The wheels are of the cycle type, shod with pneumatic tires. Two springs only are used—one on either side of the body and directly beneath the passengers. The power is supplied by two 1 h.p. electric motors, which are connected with the front wheels, working independently of each other. The vehicle is also steered by the front wheels, which swing on pins close to the inside of the wheels, carrying the motors back and forth with them, the connection being made with brass contact plates which allow for the swing of the wheels. The framework is of tubing, which is carried from the body up to the top of the front axle, and through this tubing is carried the wiring from the batteries to the motors. The brake is stationary, the wheels being drawn up to the shoe when the brake is applied. The reversing lever also applies the brake.

SOME ACTUAL WORKING COSTS OF MOTORS FOR STREET WATERING AND DUST REMOVAL.*



By E. SHRAPNELL SMITH.

AT the Birmingham Congress of the Sanitary Institute, two years ago, I read a paper entitled "Some Sanitary and Allied Advantages Attending the Introduction and Use of Motor-Vehicles," and at your own Congress at Glasgow last year I read a second entitled "The Application of Mechanical Power to Street Cleansing." On each of these occasions I was rewarded by a unanimous resolution in favour of the adoption of self-propelled vehicles in place of animal haulage, and one may, perhaps, be excused for inquiring as to the *raison d'être* of a third paper. Two replies suggest themselves in explanation. The first is that, the motor-vehicle industry being a new one, fresh data will probably have accumulated in an interval of twelve months. The second is that a few more facts will not fail to have their effect in deciding authorities who are at present in doubt. These contentions are certainly sound, for the experiences of the last twelve months are most important and in close agreement with previous estimates; in fact, it would have been a source of subsequent regret to me had I neglected this opportunity of speaking for the movement whose good I have at heart. And here I may venture to remind you that I have no connection with any firm manufacturing motors, my position as hon. secretary of the L.S.P.T.A. being contingent upon perfect freedom. Consequently, I feel that you will have confidence in my views and in the absence of bias or prejudice from any opinions I may express.

I shall refer at once to the Chiswick results. The Surveyor, Mr. Arthur Ramsden, recently gave the automobile world a shock by publishing a report, in the form of a summary, which I give *in extenso* :—

SUTTON COURT,

CHISWICK, 15th May, 1900.

COMPARATIVE STATEMENT OF COST OF COLLECTION OF DUST BY STEAM MOTOR VANS, HORSE VANS, AND CARTS, FROM 5TH MAY, 1899, TO 3RD MAY, 1900.

STEAM MOTOR VANS.			
Weight collected :		Motor drivers' wages ...	£147 10 0
Tons. Cwts. Qrs.		Cost of collection—	
2,261 12 0		Labour at 1s. 6d. per ton ...	169 12 5
		Oils, &c. ...	33 2 8
		Coal ...	88 13 5
		Repairs ...	190 10 6
		T. Bills ...	15 7 7
		Interest and repayment of loan ...	82 11 9
			£727 8 4

Equal to an average of 6.43 shillings per ton.
Total amount expended on repairs to steam vans since June, 1897, when purchased, is £324 8s. 9d. Taking this year's proportion at £110, the total cost of repairs in above statement would be reduced by £80 10s. 6d., which is equal to a less cost per ton of ... 71 shillings

5.72 "

HORSE VANS.			
Weight collected :		Cost of collection—	
Tons. Cwts. Qrs.		Labour at 1s. 6d. per ton ...	£156 7 4
2,084 17 3		Hire of horses and men, 568 days at 8s. ...	227 4 0
		Interest and repayment on loan ...	14 5 0
		Allow for repairs, painting, etc. ...	15 0 0
			£412 16 4

Equal to an average of 3.96 shillings per ton.

HORSES AND CARTS.			
Weight collected :		Cost of collection—	
Tons. Cwts. Qrs.		Labour at 1s. 6d. per ton ...	£146 5 9
1,950 9 2		Hire of horses and men, 593 days at 8s. 6d. ...	252 0 6
		Allow for repairs, painting, etc. ...	10 0 0
			£408 6 3

Equal to an average of 4.18 shillings per ton.

* From a paper read at the Annual Meeting of the Association of Cleansing Superintendents of Great Britain at Salford, on the 30th ult.

These data look very bad for the motor, but they are no criterion of the results that have been obtained since the two motors were purchased in June, 1897. Further, they are incomplete, even for the period embraced, without an explanatory statement respecting local circumstances. Mr. Ramsden, who is a firm believer in the economy of mechanical cleansing, has supplied me with facts which place an entirely different complexion upon what, at first sight, admits of nothing but a construction adverse to the motor. I have collated these facts in tabular form :—

Year Ending March 31st.	Estimated.		Cost of Dusting.
	Population.	Houses.	
1895	23,982	4,796	£1,400
1896	24,582	4,916	£1,654
1897	25,000	5,000	£1,545
1898	25,972	5,195	£1,253
1899	26,772	5,354	£1,410
1900	27,772	5,554	£1,809

The first motor began work on August 14th, and the second on November 6th, 1897. The horse contractors' tender for the year ending March, 31st, 1898, was £1,900, whereas the actual expenditure was only £1,253. Thus the motors, for which £350 each was paid, effected a saving of nearly their prime cost in the first six months of their employment. At the end of this period, the Surveyor referred to the motors as follows in his annual report:—"I am very pleased to say that they have in every respect answered what I foreshadowed in my last year's report. Owing to the rapid growth of the parish, coupled with a large decrease in the number of empty houses, the amount of dust to be removed has increased considerably, and I should strongly recommend the purchase of another steam tip-wagon, which could be used as a slop cart, dust cart, or water cart." Now, since the horse contractors' tender for the year ending March 31st, 1898, was £1,900, it is pretty certain that it would not have been reduced for subsequent years, when provender and other stores had advanced in cost. Three years' work at this rate would have amounted to £5,700, whilst the recorded cost has been £4,472.

Will anybody quarrel with a departure that has reduced the cost of dusting by £1,228 in thirty months, notwithstanding a mean annual growth of the district by 185 houses? But this does not dispose of the high costs of the motors during the last year. I have made careful enquiry into the falling off, and have come to the conclusion that the motors are now worked at not more than about half their capacity even for the single shift during which they are out. The mileage is only seven per day, and not more than three loads are collected. Further, there appears to be steady obstruction by horse interests in the Council, whereby orders for repairs are delayed, and the motors obliged to spend days, and even weeks, in enforced idleness. In addition, the motor performs services which are not included in the statement of dust collection. These are, particularly carrying five to six-ton loads of slop on Sundays and on other occasions, a matter which will soon add say 100 tons to the weight stated in the published results. Again, until a few months ago the motors had to run over about 300 yards of an uneven sleeper track leading to the tip, which seriously strained the connections and mechanism whilst it saved the Council 2s. 6d. per ton for barging. Lastly, the two motors are of the earliest type, now relatively obsolete, and I cannot comprehend the parsimony of the Chiswick U.D.C. in not getting rid of them and purchasing two modern ones, such as that now at work for the Strand Board of Works, with which I deal later.

I had hoped to refer at some length to the costs of working at Liverpool and Chelsea. Mr. John A. Brodie, the City Engineer of Liverpool, has been using a vehicle, built by the Lancashire Steam Motor Company, Ltd., Leyland, for eighteen months, but has so far given it work upon the conveyance of

four-ton loads of tramway material and other heavy stores. The working has proved satisfactory and highly economical, but has no reference to watering or dusting. Mr. T. W. E. Higgins, Surveyor to the Chelsea Vestry, has had a Thornycroft motor at work for six months. This was purchased from the makers at a reduced figure, on account of its not being a new vehicle, and was fitted with watering and dusting bodies, but Mr. Higgins, like Mr. Brodie, has found the motor so useful for carting four-ton loads of stores, flagging, cement, etc., that, whilst it has at times done the work of four vans in watering the King's Road, Chelsea, no dusting has been done. Partly in consequence of this splitting up of the work, and for other reasons, Mr. Higgins informs me that he is not publishing any figures at present. The Chelsea Vestry have also ordered two motors from the Lancashire Steam Motor Company, one of which was delivered two weeks ago, whilst the other is nearly ready for delivery.

I am indebted to Mr. Arthur Ventris, Engineer and Surveyor to the Strand Board of Works, for detailed information upon the working of the Board's Thornycroft motor between February 5th and August 4th of this year. The records are divided into three periods, viz. :—

First.—Motor on hire from February 5th to March 31st, say eight weeks, used in dust collection only.

The motor was then sent to the makers' works, where it remained for the month of April for overhaul, painting, and the construction of new tipping and watering bodies. It was then purchased complete, with two bodies, for £750.

Second.—Motor working from May 1st to June 18th, say seven weeks; used in dust collection only.

Third.—Motor working from June 19th to August 4th, say seven weeks; used in dust collection between 6 a.m. and 11 a.m., in street watering between 11 a.m. and 6 p.m., and in flooding the streets (preparatory to the flushing by fire hose) between 11 p.m. and 5 a.m.

The performance obtained has been as follows :—

Period.	Work.	Weight of Dust Collected and Tipped.		Watering.		Flooding.	
		Total.	Weekly Average	Days.	Loads.	Days.	Loads.
First	{Dusting—6 a.m. to 6 p.m.}	252	31.5	—	—	—	—
Second	{Ditto.	363	52.0	—	—	—	—
Third	{Dusting, Water- ing, Flooding, Two Shifts.}	189	27.0	25	225	37	777

It will be observed that better work resulted during the second period than was the case when the motor was on trial. This is due partly to increased experience in handling, and partly to the regular use of a trailing dust-van on one run per day. But the third period is the most interesting, and I pride myself that Mr. Ventris has followed the suggestion contained in my paper read at Glasgow last year. The motor is at work day and night, though the fires are drawn at 6 p.m. and re-lighted at 11 p.m., the duties being divided between two drivers. At present, it is found necessary to have an assistant with the watering-tank body in the day time when the traffic is heavy, to work the levers controlling the water delivery, but Mr. Ventris thinks this extra man may be superfluous if a van is fitted with foot levers. The water tank has a capacity of 700 gallons.

Passing now to a comparison with horse work, Mr. Ventris points out that he has discontinued the work of three single dust carts, horses and drivers, and finds that the work is done better and more speedily. The house dust, which is collected for the most part between 6 a.m. and 10 a.m., is very light, and the weight does not convey a correct idea of the labour in collection. I may say that the yearly average for the Strand district, exclusive of street and market sweepings, is 1,265 tons per mile of street per annum, whilst the bulk is 4,216 cubic

yards. This gives an average weight of only 6wt. per cubic yard. The average morning run of the motor in this collecting is sixteen miles. In addition to this replacement, Mr. Ventris has discontinued the use of two water-vans, horses and drivers, that were previously engaged in flooding the streets prior to the flushing by fire-hose at night.

The reduction of cost thus obtained is, per annum :—

Hire of five horses and harness (feeding and stabling done by contractors), at £65 per horse	£325	0	0
Dust vans are owned by Board, and used for other purposes	0	0	0
Hire of two water vans, at £16	32	0	0
Three drivers of dust vans, at £71 10s.	214	10	0
Two drivers of water vans, at £84 10s.	169	0	0
Oiling and repairing three dust vans, at £8	24	0	0
Third-party insurance on five vans	7	10	0

Total reduction in cost per annum ... £772 0 0

The expenditure in respect of the motor has been—

First Period.—Hire for eight weeks at £7 10s. per week, for day work only, inclusive of all charges.

Second and Third Periods.—These aggregate a clear three months. The appended table, supplied by Mr. Ventris, is in proportion, and may be relied upon as being the outcome of experience.

ESTIMATED ANNUAL EXPENDITURE.

Interest and return of capital, spread over ten years, say	£82	6	0
Fuel—36 cwt. per week, at 32s. per ton, say	150	0	0
Wages—Two drivers at 37s. per week	192	8	0
Attendant to work levers of water van on day shift, at 25s.	65	0	0
Repairs—Thornycroft's guarantee	75	0	0
Lubrication and waste	20	0	0
Boiler insurance on £2,000	3	4	0
Third-party insurance	10	10	0

Total cost per annum ... £598 8 0

The saving per annum is, therefore, £173 12s. per motor, when the capabilities of the mechanical vehicles are properly utilised, and the operations organised upon such excellent lines as one finds in the Strand district. Steam is the only power within the range of practical politics, and solid fuel, i.e., coke or coal, is more economical than oil fuel. Prospective users must not be afraid of the high prime cost, for motors give results commensurate with the initial outlay.

I have every confidence in urging the adoption of motors for use in operations similar to those so admirably carried on in the Strand district. The warnings I would give are :—

(a) Concentrate sufficient dustmen upon the motor to permit of its large capacity being taken advantage of.

(b) Arrange for all repairs to be made promptly, and for periodic tightening of the wheels in a hydraulic tyre-setting machine.

(c) Work the motor two shifts per day.

A STAR car is owned by a resident in Minehead and is in daily use.

SAN FRANCISCO had an automobile division in the Fourth of July parade. This is the first parade the Californians have been treated to and the display of motor-cars was considered quite creditable.

A TWELVE-SEATED wagonette has lately been built by the Electric Vehicle Company, New York, for use by public service companies in New York, Boston, and Chicago. The motive power is electricity, and the vehicle has a capacity of twenty-five miles on one charge of the battery at a maximum speed of ten miles an hour.

THE Chicago Automobile Club is the name finally fixed upon for the motor-vehicle organisation in Chicago. It is estimated that there are about fifty private parties owning or controlling automobiles in Chicago, and about half of these are charter members of the club. On the occasion of the first club run sixteen vehicles turned out. Meeting in front of the Auditorium Hotel on Michigan Boulevard, the members drove north to the Lake Shore Drive and Lincoln Park, and on to the Bismarck Garden, afterwards dining together in Chicago.

FURIOUS DRIVING CASES.



At Great Yarmouth Police Court, on Friday last week, Edwin Chiel of 15A, Baker-street, London, was summoned for furiously driving a motor-car.—Detective-Sergt. Moore said on Monday, about one o'clock, he was on the Drive, where he saw the defendant driving a four-wheel motor-vehicle in the direction of the Aquarium. He was going at the rate of 10 to 12 miles per hour. There was a large number of people about at the time. Upon being stopped, defendant said he thought he could drive 12 miles an hour. He had driven thousands of miles, and could pull up the car within two yards.—Defendant said the legal limit was twelve miles an hour, and he should not think of endangering the lives of his passengers.—The Clerk explained that under no circumstances could he drive more than 12 miles per hour, but the Local Government Board regulations further laid down that he could not drive at any speed greater than was reasonable and proper, so as not to endanger the life of any person.—Sergt. Mason corroborated Detective Moore's evidence. He considered that the defendant was driving at a dangerous rate. A few Sundays ago he cautioned the defendant, who was then driving a three-wheeled motor-vehicle at a terrific rate.—Defendant said he had never before been in trouble with the police. He had driven motors and cycles for years. With all motor-cycles the pedals were stationary, and they appeared to be travelling very rapidly. He had the machine under proper control, and could pull it up in its own length. He extended invitations to the magistrates or any officer of the court to take a seat in the vehicle, and see for themselves the power a skilful driver had over such machines.—Defendant was fined 20s., including costs.

At Bridlington Petty Sessions last week, O. Hey, Mannington, was fined £1 and costs for driving a motor-car through the streets on the 11th ult. at such a rate as to be dangerous to the public safety.—P.S. Richardson proved that the defendant was driving through the crowded main streets at a rate of from 12 to 15 miles an hour.—Defendant said he was not going more than six miles an hour.

THE STORAGE OF PETROLEUM.



At the Hove Petty Sessions on Monday, Frederick John Foulger, Church-road, cycle and motor agent, was summoned for keeping on his premises a larger quantity of petrol than three gallons without a licence, at Hove, on August 15th. Mr. R. Foulger, of the defendant firm, appeared, and pleaded guilty. George Presslie, an officer under the Petroleum Act, proved finding four ten-gallon drums of petrol in a room at the back of the defendant's shop on August 15th, and that he purchased samples of it. It was a dangerous oil, very volatile, and defendant had no licence. Mr. Foulger said the firm were under the impression that they did not require a licence for any quantity under sixty gallons, and, on finding out their mistake, they at once applied for a licence. Witness produced a printed pamphlet bearing out his statement as to the sixty gallons, but it was pointed out that the advice that a licence was not required for a smaller quantity was contradicted in another part of the book. A fine of 20s. and costs was imposed.

CHARLES GARBUTT GODDARD, George-street, was summoned for a similar offence at Hove, on August 23rd. In this case the Inspector said the defendant had forty gallons on his premises. The previous day he received fifty-four gallons. It was a dangerous oil. Defendant admitted having the oil on the premises, but pleaded ignorance of the law on the question of storage. He followed the book referred to in the last case, and thought he was perfectly safe. He spoke to the Inspector on the subject of a licence before he visited the premises. A fine of 20s. and costs was also inflicted in this case.

LEAVING A CAR UNATTENDED.



PERCY FRANK MADGE was summoned at the Ramsgate Police Court for being the driver of a carriage, and leaving the same for thirty minutes so as to obstruct the free passage, at Minster, on Sunday, August 12th. He pleaded "not guilty." Corporal Acton said he was on duty at High Street, Minster, when he saw the motor-car standing by the roadside. There were a number of vehicles drawn up on one side of the road, but the motor-car was on the other side. He asked the ostler of the inn, outside which the car was standing, if he knew to whom it belonged, and found that it was the defendant, who came out and asked if it was in the way, and drew attention to the other vehicles. In cross-examination witness said there was plenty of room for other vehicles to pass, but there was not room for a brake and a carriage to pass at one time. A Mr. Beerling, a brake proprietor of Margate, said at 4.30 or 4.35 p.m. on the 12th August he arrived with his brake at Minster. In consequence of the motor-car being in the way he could not unload without causing an obstruction, so he obtained permission to unload in Mr. Goulders' yard. Defendant said he did leave the motor-car on that side of the road, for he was afraid his engine might frighten some of the horses. He also thought if he took the car into the stables it might frighten the horses there, as even the sight of a motor would frighten some horses. He went into the tea gardens with his wife. After the magistrates had deliberated for some time in private the Chairman said: The Bench are not unanimous in their decision. They do not think there was proof of obstruction sufficient to convict, but they hope in future motor-cars will not be left in the road unattended. The summons was dismissed.

THE Motor-Car Journal.

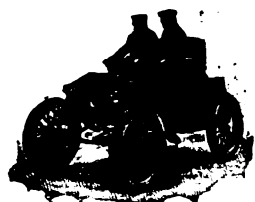
VOL. II.]

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COMMENTS.



THE Prince of Wales has evidently caught the automobile fever, and is determined to become acquainted with the various forms of motor-carriages. He has just been enjoying some delightful rides on a steam vehicle, and, according to some accounts, has been urging M. Serpollet, who drove, to the topmost speed. Reports of thirty miles an hour with the Prince aboard would probably cause consternation among the English constabulary. The vehicles on which the Prince was driven from Homburg to Langen-Swalbach and back (a distance of eighty miles) was a Serpollet steam car. On the following day His Royal Highness (who donned the goggles to avoid the inconvenience of the dusty road) went to Frankfurt, and has evidently been well satisfied with his adventure. Mr. Gardiner, who is associated with M. Serpollet in his undertaking, suggested the trips to the Prince, whose automobile education is advancing rapidly.

The Kaiser's Car.

A REPORT of the motor talk between the Emperor of Germany and the Prince of Wales should be interesting reading, for both are in the first flush of the happiness of possession. The Kaiser's car is from the Daimler Works at Cannstatt, and cost £1,800—if rumour speaks truly. It has been accommodated in one of the buildings attached to the Royal palace at Potsdam. The car has seating accommodation for four persons, weighs 32 cwt., and has a very high rate of speed. What will happen in Germany should the Emperor be seen going beyond the recognised legal limit? We doubt whether any of the German police would be found in his way, especially if the road had many turnings.

Accident at Eastbourne.

It is to be hoped that visitors to Eastbourne will not be unnecessarily alarmed by the motor-car accident which has happened near that pleasant place. A party of ladies and gentlemen were returning from a visit to Hurstmonceaux Castle. All went well until they were proceeding down Wartling Hill on the way to Hailsham, when the driver in avoiding a dog in the middle of the road ran into a bank. The result was that the car overturned, and three or four of the passengers were badly hurt. Dogs are a fruitful source of annoyance to motorists on the road, and have been the cause of many accidents. But we would emphasise the fact that such an accident should not be urged against automobilism.

A Service at Barry.

MR. T. G. GOULD, of the Windsor Hotel, Barry Dock, proposes to run a large motor-car from his hotel to Barry Island and back at a charge of 3d. for the single journey. The Licensing Committee of the Barry District Council have had a trip on the vehicle, and should no objection be made by the

owners of the horse-drawn brakes in the district the car will shortly ply for hire. It should prove of great service to the locality.

Five to One.

NOT often is the ordinary business meeting of a company made the occasion for such levity as that shown by Major-General Fellows at the gathering of the Motor Traction Company the other day. So convinced is he that the concern will be in liquidation in two years that he offered to bet five to one upon that event. Equally sure of the major-general's error one of the directors accepted the hazard, and both parties are now prepared to wait till the next century is two years old so that time may decide the issue.

Road Improvement.

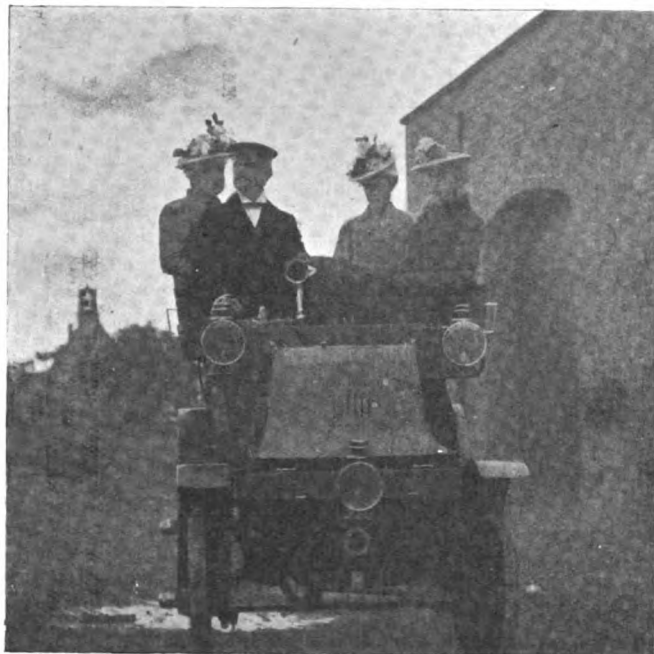
FOLLOWING the paper by Professor Hele-Shaw at the British Association, which is reported in another column, Mr. J. Brown gave a description of the viagraph, an instrument for testing the unevenness of road surfaces. It is practically a "straight edge" to be drawn along the surface of the road. A wheel rises and falls with the irregularities of the surface, and automatically actuates a pencil making a profile of the road surface on a paper strip. In the discussion Major-General Webber spoke upon the importance of the subject to military authorities, and Sir William Preece, speaking of the effect of speed on traction resistance, said that the resistance rapidly diminished with increasing speed, and the ascent of a hill was expedited with less work if one did one's utmost to get up the hill quickly. Mr. Worby Beaumont discussed the condition of road surfaces in connection with the question of traction, and complained that so many local authorities adopted a penny wise and pound foolish policy in regard to the making and maintenance of roadways. Local authorities did not sufficiently realise the economic value of paying attention to small repairs. Mr. Beaumont suggested that it would be an economical national expenditure if a hundred millions were laid out on the general improvement of the common roads of the country, particularly in cutting down hills and in filling up hollows. Professor Hele-Shaw, in his reply, said he had calculated that there were a hundred thousand miles of highways in this country, and thought if roads were improved and the speed of traction doubled many millions might be saved annually.

Competent Repairers.

THE difficulty of obtaining really satisfactory repairs to motor-vehicles is keenly felt in many districts. Engineers and others profess to be able to put things right, but, unfortunately, many so-called repairers have little practical acquaintance with the automobile. To ensure proper attention to their machines when in need of adjustment, etc., the De Dion-Bouton Syndicate, Limited, is appointing official repairers for their motor-cycles, voiturettes, and cars. From these spare parts will also be obtainable. Provided every care is taken to ensure that only really competent persons are put on the list, this should be a useful enterprise.

Bournemouth Motors, Limited.

WE should imagine that one of the best managed public services in the kingdom is that at Bournemouth. The smartness of the drivers is only equalled by the clearliness and brightness of the vehicles. The service is a regular and constant one; nine waggonettes are in use, and twelve thousand passengers are carried every week. The garage is a commodious one, and well equipped with tools for repairing work. Our photo



shows one of the cars with Mr. Bell, managing director of the concern, at the helm.

A Week End Trip.

LONDON to Bournemouth (a distance of 109 miles) via Ripley Road, Guildford, Farnham, Alton, Winchester, Southampton, and Lyndhurst, is an ideal day's run, especially with the roads in their present fine, although dusty, condition. Our party last Saturday started early, breakfasting at Guildford, lunching at the "Dolphin," Southampton, and reaching our destination at four o'clock in the afternoon. The road between Alton and Winchester was looking its best, and the way over Windmill Hill, between woods of wild cherry trees, sloe, hawthorn, and alder bushes, all laden with berries; hazels, with nuts; coloured brambles, with ripening fruit; eating and horse chestnuts, towering above the rowan trees, with their gracefully hanging red berries, was delightful. The scene was completed by the waving carpet of bracken and bushes so thick in the background. The roads in the New Forest are at their best just now, and the trees are commencing to shed their leaves and put on their autumn plumage.

Return to Town.

SUNDAY was spent quietly resting at Bournemouth, and the return journey to town was commenced about nine o'clock on the next day. Excepting stoppages at Christchurch, to see the Priory, Winchester, and Alton (a town where we had luncheon, and where we shall not stop again), London was reached without incident at six o'clock. Round about Winchester there was a veritable plague of fluff from the thistles and dandelions, the air being white with the "pussy cats" as if it was snowing. Of cars on the road on the downward journey we met a Benz, three passengers and luggage; a tricycle, with trailer, carrying two heavy men and luggage packed behind; and three De Dion voiturettes. On the return journey we did not meet a single motor-vehicle.

Our M.M.C. Panhard.

OUR English Panhard is affording us great satisfaction. It has been in constant use for some weeks for touring, and we find it gives an almost regular average of sixteen miles per hour. The only stoppages on the Bournemouth journey were for our own convenience. The car is as silent and easy running as one as we have ever ridden on, and we are pleased to record this testimony to the excellence of the latest type of vehicle furnished by the Motor Manufacturing Company.

Lafayette, the Necromancer.

THIS gentleman is not only a clever conjurer, but he is certainly a past master in the art of obtaining publicity. Scarcely a paper can be picked up that does not mention his silver-bodied car, which he avers can travel at a mile a minute. Returning from Bournemouth, and passing up Shaftesbury Avenue, the gentleman referred to was just then leaving the Hippodrome on his Locomobile steam-car, with a passenger by his side and his dog on a seat in front. Seeing our car he followed us up Shaftesbury Avenue, down Gower Street, and round to our residence. Although he was steaming pretty hard and Gower Street was fairly clear of traffic, he did not catch us up until our car had landed us at our destination; and we do not claim that our car travels a mile a minute.

Motor Fire-Engines.

ALTHOUGH New York and Paris have adopted motor fire-engines, the fire brigade authorities of London and our other large towns do not seem so encouraging in their views of the new movement. On each engine employed by the Metropolitan Fire Brigade three tons is carried. Speed is an absolute necessity, and so far nothing combining both qualities has yet been shown in English motor-work. What the authorities require is a motor fire-engine that will carry weight, travel at a great speed, and also do the pumping when the fire is reached. There is a splendid chance for the constructor of such a vehicle. Meanwhile we hear that Mr. C. T. Crowden, of Leamington, is converting a 360 gallon steam fire engine which is at present drawn by horses into a self propeller, using steam to supply the propelling apparatus from the existing boiler.

Nervous Councillors in Essex.

WHY are the councillors of Chelmsford so nervous with regard to motor vehicles? Really they ought to be given a ride on cars and treated to an application of petrol by way of soothing syrup. The other day the motor vehicle owners of Minneapolis treated the County Commissioners to a country run. Thirteen vehicles made the start, going to Wayzata, on the shore of Minnetonka Lake. On their return dinner was served, after which came an informal discussion on the subject of good roads and the need of them in the country around Minneapolis took place. Something of the same kind will have to be done for the Chelmsford Town Council, whose fears are distressing indeed. They instructed their town clerk to write to the chief constable of the county with regard to the speed of motor-cars, and he replied that it would be useless to take proceedings unless it could be clearly proved that some person's safety had been endangered. This has not satisfied the Town Council, and further correspondence is to be conducted with the chief constable on the subject. Why cannot the Chelmsford councillors be content with the power to take proceedings when dangerous driving is indulged in—and not seek to irritate and annoy under ordinary conditions?

Racing in Italy.

THE most important of the series of automobile races at Brescia, Italy, was decided on Monday last, under most unfavourable conditions, for the roads were in a positively dangerous state by reason of the recent downpours of rain. The distance covered was 223 kilometres (140 miles), and the route a

circular one from Brescia and back by way of Crémone, Mantone and Vérone. The race was completely marred by the fatal accident which occurred to Caffarati Attilis, one of the competitors in the motor-cycle category, and which came about at a nasty corner, where the road surface was particularly slippery. After a terrible side-slip the machine turned over, and the unfortunate rider was thrown violently against a tree, and suffered a concussion of the brain, from which he shortly afterwards succumbed. The official results were as follows:—Motor-bicycles.—1, Masserati, in 7h. 20min. Motor-tricycles.—1, Soucin, in 3h. 52min.; 2, Noury, 4h. 23min.; 3, Gasté, 4h. 55min.; 4, Sanguinette, 7h. 49min. Motor-quadracycles.—1, Monti, 6h. 15min.; 2, Benedetti, 6h. 57min. Voiturettes.—1, Nagliati, 4h. 9min.; 2, Frascini, in 5h. 52min.; 3, Isalta, in 5h. 55min. Cars (two-seated).—1, Franchetti, 4h. 9min.; 2, Lancia, 5h. 7min.; 3, Tometti, 6h. 12min.; 4, Marchand, 6h. 33min. In all fifty-eight competitors put in an appearance at the starting post.

Motor-Car Upkeep.

MANY are the silly statements circulated with regard to the cost of keeping a motor-car, and varied are the sums actually spent by those who own cars. The subject has been discussed in the *Field*, which calculates £35 for a set of tires, which will last for 6,000 to 8,000 miles with ordinary care. Fuel and lubrication is said to be a halfpenny per mile in most cases. Allowing twice that amount the cost of riding 6,000 miles is £25. Then comes the wear and tear of the transmission gear. Now it is true that in some cars this is not equal to the requirements of the case, and may need renewing at the end of a season but if only made sufficiently strong at the outset the gear should be equal to 30,000 miles of driving. The owner of a car worth, say, £800, would probably engage a skilled mechanic to relieve him of all worry in connection with the keeping of the car in order, and the *Field* puts down a wage of £3 a week as the biggest item in the building up of the expense. Occasional repairs and the cost of batteries, if electric ignition be employed, have also to be considered. So far from motoring being a "pastime for millionaires" alone, says our contemporary, it may be asserted with perfect safety that many existing automobilists manage to keep a car in running order with no more help than that of a boy. They give, say, from £200 to £400 for the car, and so far as the cost of running goes, it does not by any means follow that they cover so great a distance as six thousand miles a year. This is far in excess of what a horse and brougham would be expected to accomplish. To make a fair comparison, the cost of automobile driving should be measured only against the distance which a horse-drawn vehicle of similar size would cover in the year, and the use of the car would then come out considerably cheaper than that of the conventional mode of locomotion.

In Lovely Devon.

REVERTING to recent tours in Devonshire, the following distances may be useful to automobilists who intend to spend a few days in the land of Lorna Doone. From Bridgwater, Watchet is 17½ miles, Minehead, 28½ miles, Porlock, 32½ miles, and Lynmouth, 44½ miles. From Bridgwater to Barnstaple is another interesting run. Thence to Bideford, with its memories of Kingsley, is 9½ miles, and a trip can also be made, via Westward Ho, to a place associated with Mr. Rudyard Kipling's latest work. The whole district is rich with interest and the roads are capital for motoring.

A Necessary Distinction.

A CRAWLEY correspondent sends us a cutting from the contributions of some sapient scribbler to the local paper. This gentleman declares that "motor-cars are becoming an absolute nuisance on the roads"—just as though they would be in place in a drawing-room or on a pier pavilion—and then says that

"many hundreds of them run through Crawley, poisoning the atmosphere and frightening horses and pedestrians alike." To remedy this it is suggested that the police should be "a little less lenient towards motorists." Such vapourings are becoming trite and commonplace. Our contemporary should tell its scribbler that if motor-cars are a nuisance they are becoming quite as necessary as newspapers, and that if they poison the atmosphere that is a matter for the officers of health and not the minions of the law. The distinction between pollution of the atmosphere and frightening nervous old ladies should be clearly stated even in casual gleanings.

The Motor-Car Journal Challenge Cup.

THE accompanying illustration depicts the *Motor-Car Journal* Challenge Cup, lately presented by the proprietors of this paper to the Automobile Club of Great Britain and Ireland as a perpetual trophy for a five-miles race for touring motor-cycles. The cup is of solid silver, and, as will be seen, is handsomely chased. It was first competed for on June 30th last on



the track at the Crystal Palace, when three competitors started in a five-miles scratch race, the winner being Mr. A. E. J. Steele on a Simpson-Strickland tricycle, his time for the five miles being 11 min. 2½ secs.

The Maintenance of Highways.

It appears from a Parliamentary return just issued that during the year ended March 31st, 1899, the expenditure of the several highway authorities in England and Wales, exclusive of loans, amounted to £2,188,422, and the loans raised by the highway authorities during the year amounted to £29,721, all of which was borrowed by Rural District Councils. The expenditure on the repair of roads other than main roads in the year 1888-89 was £1,218,181, the mileage of the roads being 99,953 miles, while in 1898-99, although the mileage of these highways had decreased to 96,573 miles, the expenditure thereon had increased to £1,632,070. The mileage of main roads in rural districts repaired by the County Councils themselves increased yearly from the date when the Local Government Act, 1888, came into operation, until the year 1895-96, when the repair of certain main roads previously repaired by some County Councils was undertaken by Rural District Councils. The aggregate length of the roads under the supervision of Rural District Councils, Highway Boards, and Surveyors of Highways during the year 1898-99 was 103,747 miles, comprising, according to the returns furnished by those authorities, 7,174 miles of main roads not repaired by the County Councils themselves, and 96,573 miles of district roads (ordinary highways).

Automobile Racing in America.

AN automobile race meeting was held at Newport, U.S.A., the popular rendezvous of American society, on Thursday, the 6th, when it was estimated that at least 15,000 persons were present. In the first race, the electric vehicle class, Mrs. Hermann Oelrichs' car, in charge of Mr. S. Leroy, had a walk-over, there being no competitors. For the five-mile tricycle race, Mr. Harold Vanderbilt entered a De Dion and Bouton machine, driven by a professional, and won in 10min. 30sec. Mr. J. Boiselote was second, in 11min. 40sec. In the five-mile race for electric vehicles, Mr. A. L. Riker, of Elizabethport, beat Mr. Spencer E. Crane, of Boston, by 8sec. Time, 10min. 44sec. Mr. John Jacob Astor, with a steam vehicle, contested the next race, but was beaten by more than half a mile by S. T. Davis, a professional on a racing machine. Time, 10min. 48sec. In a five-mile race between Mr. W. K. Vanderbilt, junr., and Mr. David Wolfe Bishop, Mr. Vanderbilt, who drove his German Daimler, won easily. The time was: Mr. Vanderbilt, 8min. 53½sec.; Mr. Bishop, 9min. 30sec. The closing event was the championship 5-mile race between the winners of all classes, and was extremely exciting. Mr. Vanderbilt won in 8min. 54sec. Mr. Kenneth Skinner, on a tricycle, was second in 9min. 22sec., and Mr. A. L. Riker, on an electric vehicle, was third in 10min. 20sec.

A Move in Norfolk.

MOTOR-CARS and their riders have been the subject of discussion at the Norfolk County Council, the matter having been introduced by Mr. G. Stracey on behalf of the Taverham Bench of Magistrates. In the course of his speech he declared that motorists "all appeared to be dressed alike in indiarubber coats and spectacles," and suggested that all cars should be numbered. Support to his contention was given by Lord Wodehouse, Lord Cranworth and Mr. H. Broadhurst, M.P., the latter of whom called automobilists wild people and asserted that they were becoming intolerable. Mr. Broadhurst having given his opinion of motorists, it would be interesting to have the motorists' opinion of Mr. Broadhurst.

The Duty on Motor-Cars.

MOTOR-CARS of between one and two tons weight have to pay two guineas as a local taxation duty, and those of more than two tons weight have to pay three guineas annually, in addition to the ordinary carriage tax. According to a return just issued by the Local Government Board, the total sum received on this account during the year ended March 31st last was £469 7s., a sum which represents 223 vehicles of the smaller weight or 149 of the larger. Of course, the amount was divided among vehicles of both classes. In the London county area £158 11s. was paid in duty, Hampshire coming next with £31 10s. In twenty-seven of the sixty-two administrative counties no duty was paid, so that the average revenue in each of the other twenty-seven was £13 1s. 4d. The county borough drawing the most money from motors was Newcastle-on-Tyne, the amount being £45 3s.; and Brighton and Leicester tie for second place with £18 18s. each. In fifty-two out of the sixty-four municipalities no tax was paid, and the average receipts in each of the remaining twelve were, therefore, £9 14s. 11d. In the whole of Wales only £10 10s. was collected—all in the counties of Cardigan and Glamorgan.

Sports at Vincennes.

IN spite of the counter attraction offered by the Fête des Fleurs at Champ de Mars, a goodly crowd journeyed out to Vincennes on Thursday, the 6th instant, when the usual weekly race meeting was held, and they were rewarded by witnessing some capital sport. Following the custom adopted in connection with these Thursday meetings, the programme was diversified in the extreme, and several items were of quite an

extraordinary nature. Among them I may cite, writes our Paris correspondent, a stilt race, a barrel rolling race for the championship of the world, a hoop trundling race for bicyclists, and a match between two stilt walkers and the legless champion, Hasslinger. Automobilists were principally interested in a couple of events for both of which eleven competitors had sent in their names. The first of these was a ribbon race for voiturettes, which resulted as follows:—First heat: 1, Wrard, 3m. 23sec.; 2, Ricard. Second heat: 1, Denesle, 3m. 29sec.; 2, Sancho. Final: Ricard, 4m. 35sec.; 2, Denesle. The distance was 1,400 mètres. The second event was an ordinary race over a course of 2,400 mètres, and two categories were provided, the final being decided between the leaders of each class over a distance of 4,800 mètres. Wrard, Montier, and Vinet were the placed men in the class for 3 h.p. motors, and in the category reserved for the larger engines Denesle, Marcel, and Ricard finished in the order named. Denesle gained the final, followed home by Wrard, Montier, and Marcel. These Thursday fêtes really afford capital amusement, and they are doing much to brighten up the unfortunate Vincennes annex.

Motor Dust-Vans in Chelsea.

DURING the past week a copy of the Forty-fourth Report of the Vestry of the Parish of Chelsea has come to hand, and glancing through it we came across a reference to the motor dust-vans recently acquired by the Vestry on the recommendation of Mr. Thos. W. E. Higgins, A.M.I.C.E., the surveyor. In his report this gentleman remarks: "The Chelsea Vestry has probably completed its last whole year of administration, but that year will always be remembered as the one in which a much needed improvement in methods of cartage was initiated by them. Ever since the autumn of 1895, when it was announced that Sir David Salamons would organise an exhibition of horseless carriages at Tunbridge Wells, I have taken the greatest interest in the new means of locomotion which was evidently about to establish itself upon a firm footing (if that may be said of a form of traffic which dispenses with horses' hoofs) before the close of the century. At that time I made inquiries and obtained sketches and estimates, but after considering them carefully did not feel justified in bringing them before the Vestry. The next year I made further inquiries, and in November, 1897, the Vestry instructed me to make investigations and report fully to them. I reported in March, 1898, and from that time to February last I was from time to time making various investigations and reports, with the result that on February 13th the Vestry ordered two new motor-vehicles to my specification from the Lancashire Steam Motor Company, of Leyland, Lancs., and one vehicle from the Thornycroft Steam Wagon Company, which had been in use for some little time but which had been overhauled, and was having a watering body fitted to it. Before the end of the Vestry's year this vehicle had been delivered and was working in Chelsea." Mr. Higgins adds, with pardonable pride, that "this was the first motor-vehicle for municipal purposes bought by any local authority within the metropolis."

Automobile Accommodation.

AN account of a new residence for a wealthy American in St. Paul, Minn., refers to an automobile and bicycle room on the basement floor, from which an asphalt drive leads to the street. The apartment is to be fitted with a work bench, and the cement floor will have a sink in the centre, so that the vehicles can be thoroughly washed and the water readily passed away. The idea, although chronicled in large type in our American contemporaries, is by no means new, and the Hon. Evelyn Ellis has, as we illustrated in a recent issue, most complete automobile accommodation, while at his Knightsbridge residence the Hon. C. S. Rolls has a combined motor-carriage house and workshop. The time will probably come when every country house of any importance will have its convenience for automobiles—not only those of the owner, but also those of friends who may be staying on a visit.

The Marot - Gardon Voiturette.



FIG. 1.—GENERAL VIEW OF CAR. (See page 472.)

MOTOR-CAR TRIP.

FARNHAM TO BATH.

THE following account of a run by Mr. John Henry Knight on his Benz car is of interest to motorists as indicating a capital trip, and of use to the public in giving practical information as to the cost of touring in this way. Mr. Knight was accompanied by his two eldest sons.

Leaving Barfield on a Wednesday at 10 a.m. we ran (says Mr. Knight), without stopping, to a few miles north of Basingstoke, where, to obtain a supply of cooling water, we ran into the village of Sherbourne St. John. This caused a slight delay. The roads in this district not being always provided with sign-posts, we had frequently to stop and inquire the way. Newbury was reached about 1.30. After lunch we ran through Savernake Forest to Marlborough, where a stop was made to visit the College, and for tea. We then ran on to Calne, stopping to inspect the curious mound or earthen pyramid known as Silbury Hill. Starting from Calne next morning, a run of 1 hour 55 minutes covered the 18½ miles into Bath. This part of the road is very hilly, and the straggling suburbs of Bath and two or three villages had to be passed through at a comparatively slow pace. The day was spent in seeing the sights of Bath, and in the evening we ran back to our quarters of the previous night, the Lansdowne Arms Hotel, at Calne. Next morning we left the main road to visit Avebury, to inspect the Druidical circle and quaint old Saxon church; then through Marlborough, and up an extremely long hill to Savernake Forest, which the road book states is one mile in length and rises 250 feet. Up this the car went in nine minutes, then a run over a splendid road to Newbury, where some time was spent in looking round the town and refreshing man and car. Then along the valley of the Kennet, passing Thatcham and Theale, to Reading, and with two or three stops to oil the car we reached home soon after seven o'clock, having run 176½ miles in the three days.

On the journey 6½ gallons of petrol were used; that is one gallon to 25½ miles, and as a gallon of petrol can be bought for one shilling and threepence, the cost works out as 3.5ths of a penny per mile. Of course when petrol is purchased in out of the way places in small quantities, eighteenpence is often charged for it. To make a run like this of an average of nearly 60 miles a day, the car must be carefully looked after; when a stoppage is made bearings should be felt to see if any are heating, lubricators must be filled and examined to see if they are working properly, and several other things that the motor-car man will soon find out for himself must be done. Half an hour or three-quarters of an hour must be spent in looking over the car, cleaning the engine, and filling lubricators, before the start is made in the morning.

No sane man would go for a driving tour without seeing that his horse was properly fed and cared for when the day's work was done; and it is the same with the motor car. Treat the car well and it will do its work well. I may add that on this run there was no attempt to cover long distances in the day; our trip was for pleasure, not record breaking.

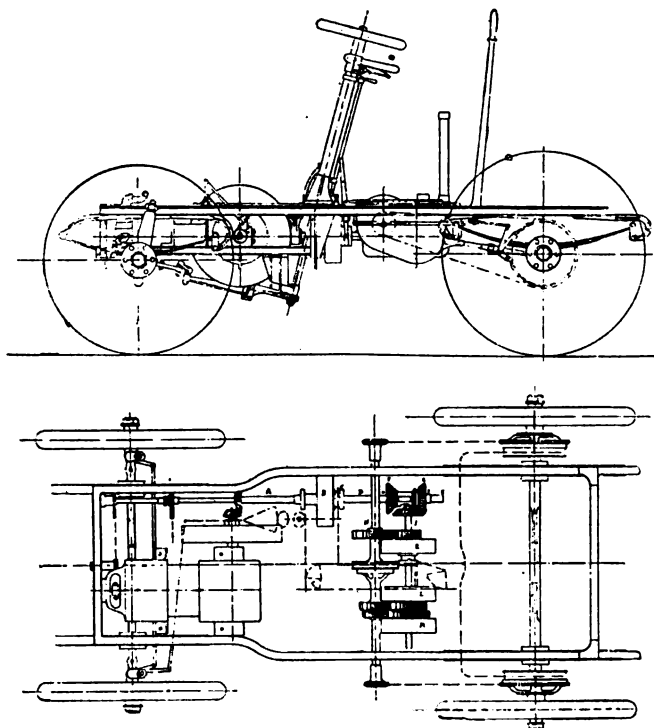
MR. D. M. WEIGEL, writing from Springvale Terrace, Hammersmith, W., asks us to mention that he has disposed of his holding in the Automobile Association, Limited, to Dr. Lehweß, and has now no connection with the firm.

A MEETING of motor-cyclists was lately held in Boston, U.S.A., when a club was formed under the name of the Associated American Motor-Cyclists.

WITH reference to the electrical cars which the Automobile Manufacturing Company, Limited, have on hand, mentioned in our last issue, Mr. W. C. Bersey, the managing director, writes us that these are not Columbia but Cleveland vehicles, for which they have the sole rights in the United Kingdom. It will be remembered that we published a description of this type of car in our issue of July 28th last.

THE MAROT-GARDON VOITURETTE.

THE attractive-looking car illustrated in Fig. 1 (page 471) is stated by the makers to be intended to meet the demand for a vehicle intermediate between the high-priced cars built by the large firms in France, and the light and often fragile voitu-
rettes. The motor is of the horizontal, water-cooled, double-cylinder petrol type. The bore of the cylinders is 3.4 inches and the stroke 4.8 inches, the normal speed being 700 revolutions per min. The rating of the motor is 4½ h.p., but it is claimed that on the brake they will develop from 4.7 to 4.9 h.p. The ignition is of the regular electrical type, and can be varied at will. A little switch in the circuit is placed on the steering hand-wheel, and permits the operator to stop the sparking instantly. The carburettor used with this motor is of the constant level type. The levers for advancing the ignition, and for regulating the carburation, are located just below the steering hand-wheel, as will be seen from Fig. 2. A special rotary pump is employed for circulating the water. It consists of a chamber in which two meshing spur gears rotate. The water enters at one side of the chamber, and is carried along by the teeth of the gears



FIGS. 2 AND 3.—ELEVATION AND PLAN OF FRAME OF MAROT-GARDON VOITURETTE.

around the surface of the chamber, emerging at the side opposite to that at which it entered. The little pump, which weighs only 7½ lb., is driven by a chain at 800 revolutions per minute, and it will lift the water 24 in. As will be seen, a radiating coil is fitted around the bonnet over the engine in the fore part of the vehicle.

Coming now to the transmission mechanism, it may here be stated that three forward speeds—five, nine, and twenty-two miles per hour—as also a reverse motion, are available. A plan of the complete frame is given in Fig. 3, from which it will be seen that the motor is located in the fore part of the same. The motor shaft is geared to a side shaft *A* by bevel gear. The shaft *A* transmits the power to a Megy friction clutch *B*, the shifted sleeve of which is operated by a foot lever. The friction clutch lever is so connected to the brake lever that when the latter is operated, the clutch disengages automatically. The shaft *D* ends in a squared portion *E*, on which slides a double bevel pinion, used for reversing the motion of the vehicle. The shaft *J*, which receives its motion through the bevel pinions *F* or *G*, carries three friction clutches, *K*, *L*, and *M*. Each of these clutches has attached to it a spur gear, which engages with

a corresponding spur gear on the differential shaft *N*. At the middle of this shaft will be noticed the combined differential gear and brake drum (Fig. 5), and at the ends the sprocket wheels which transmit the power by chains to the rear wheels. It will be noticed that there are three disconnecting couplings in series between the engine and the wheels, viz., the friction clutch *B*, the double bevel gear *F*, *G*, and the friction clutches *K*, *L* and

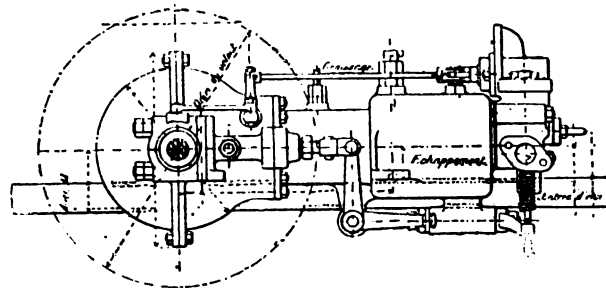


FIG. 4.—ELEVATION OF MAROT-GARDON MOTOR.

M. As a special advantage of the friction clutch speed change, it is claimed that when going at full speed, and throwing in the low-speed gear, the motor can be made to act as a very powerful brake. All the gears and clutches are enclosed in a casing, provided with doors to permit easy access and inspection. The operation of the friction clutches is effected by means of a rack and a gear sector.

The Megy friction clutch *B* deserves special mention. It consists of an outer drum to which the gear is fastened, and which ordinarily turns loose on the shaft, an inner expandable ring, and a casting keyed and pinned to the shaft. The expandable ring carries two lever supports in which are hinged single-arm levers, with fulcrum on opposite ends of a pin passing through the casting. At the extremity of the levers pins pass through them, which act as guides for coiled springs. These springs are contained in hollow cylinders open at one end, and slide in a drilled hole in the casting. A tapered pin forced between these cylinders will act on the levers through the intermediary of the springs, thus expanding the ring and making it grip the outer drum.

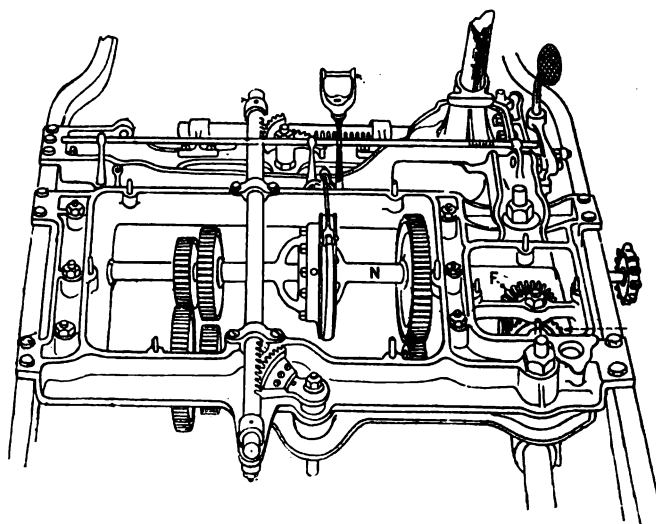


FIG. 5.—VIEW OF VARIABLE-SPEED GEAR—MAROT-GARDON VOITURETTE.

The steering gear is operated by means of a hand-wheel fastened to an inclined steering rod. This rod is provided at its lower extremity with a pinion engaging with a gear sector on one arm of a double-armed lever. The other arm of this lever is joined to the lever of the steering spindle by means of a connecting rod or link.

The frame is of V-iron, assembled in such a manner that the longitudinal pieces form a flush joint with the transverse pieces, the whole being rivetted together by means of elbows of sheet

steel. The frame is suspended by four semi-elliptic springs. Distance rods are attached to the rear axle and to the gear box. The distance between the rear axle and the differential shaft is, therefore, not altered by the tension of the chains, but remains always the same. A feature of the pivots of the steering spindles is that they slant rearwards, for which it is claimed that corners may be turned at high speed within a diameter of 25 feet. Ample brake power is provided, while wooden wheels shod with pneumatic tires are fitted. The car is made by the Etablissements Marot-Gardon, of Paris, for whom Messrs. Wm. H. M. Burgess, Limited, 21, Charterhouse Street, London, E.C., are the agents in this country.

MOTOR-CAR TRACK RACING AT OSTEND.

(From Our Own Correspondent.)

SATURDAY, September 1st, was the date selected for the inaugural automobile meet on the Ostend Motodrome, but so deplorable was the weather that the organisers found it necessary to postpone the racing until the following Monday afternoon. Even then the various events were decided under atmospheric conditions far from pleasant, the wind in particular being very violent. But, in spite of these circumstances, upwards of six thousand spectators assembled upon the Wellington racecourse to witness the competitions, and their courage was rewarded by witnessing some exciting racing. The course is 2,700 mètres in length, and the starts and finishes were effected directly in front of the grand stand. From the starting point the competitors had a straight run of 850 mètres before entering the first bend, which continued for 600 mètres, the succeeding corners being equally easy, and calling for no diminution of speed. The track is perfectly level, and has a grass surface, which proved particularly binding after the rain of the previous days, in spite of the attention given to render it firm and hard. As will be seen from the figures quoted below, no speedy performances were made, the nature of the surface destroying all possibility of the accomplishment of really fast times, for, in addition to its binding nature, the track was very defective, ruts, clods of turf, and patches of broken ground rendering the attainment of high speeds a matter of difficulty.

But all the same the meet proved a great success and clearly demonstrated that automobile racing on a large track will attract the public. The faults and failings of this initial effort are mere details which can be readily rectified, and the more important questions have been satisfactorily answered by the Ostend experiment. The public followed all the phases of the various events with the liveliest interest, and were as vastly amused at the numerous breakdowns of the competing vehicles as they were impressed by the great speeds shown by the mounts of Beconnais and Levegh. The organisers of the meet were Baron Van Loo, the Marquis de Nieulant, and M. Le Bon, and their programme was an excellent one in every respect. First on the list came *La Course Nationale*, open to Belgian voiturettes not exceeding 500 kilogrammes in weight. The distance was five laps, or 13,500 mètres, and the number of starters five. At the very start of the race the leather driving belt of M. Marting's car came off, but a rapid readjustment enabled that competitor to quickly start in pursuit of his rivals, whom he eventually caught and passed. His time for the complete distance was 23min. 30sec., and he was followed home by Vasseur, de Benkelaer and Peschard in the order named. Maughan did not finish. Then came the turn of the motor-cyclists, and for this event, over a distance of 19,500 mètres, Beconnais, Marcellin, Gasté, Fournier, Demester, Lodé, Rigal, Bertin, Lopard, and Courbe turned out. Rigal was soon finished with, and the superior speed of Beconnais' machine quickly carried him to the front, which position he retained until but 500 mètres from the winning post, when a stupid accident deprived him of the victory almost within his grasp. Gasté, Marcellin, Fournier, and Demester had meanwhile been struggling desperately for the second place, which Marcellin ultimately secured. The final result was—1, Marcellin, in 21min. 8½sec.; 2, Demester; 3, Fournier; 4,

Gasté. With the termination of this race the way was cleared for the international voiturette event of five laps, or 13,500 mètres. The weight limit was fixed at 400 kilogrammes. The favourite was Marcellin, and from the start this *chauffeur* went right away from his rivals. But after covering some 5,000 mètres his left back wheel came away from the axle, and although replaced with all speed Marcellin could only secure the fourth place in the list of prize winners. The winner was found in Oury in 19min. 27sec., Van Langendonck and Marting being respectively second and third. The last item on the programme was the twelve lap race reserved for big cars, and great interest was manifested in the *rencontre* of Levegh's Mors racer and Jenatzy's car, which holds the record for the kilomètre with flying start. It may be remembered that this record was achieved upon June 17th last, the Sunday following the Gordon Bennet Cup races, and that the time then accomplished was 38½sec., representing a speed of 94 kilometres (59 miles) per hour. Unfortunately at Ostend Jenatzy's racer proved obstreperous from the start, and he was ultimately compelled to abandon. Carillois-Renaux, who was also driving a high-powered car, found himself in a similar plight, and all the other competitors, excepting Levegh, experienced troubles. The latter, therefore, won easily in 38min. 48½sec., his nearest rival, Phillipe, being then some 13,500 mètres behind. The third man was Broc, and Crawhez finished fourth.

It is doubtful whether, even with special preparation, the ordinary race-course can be rendered fit for automobile racing, but on a track reserved for the sport one would see some grand struggles. As regards size, I fancy that a track of two miles to the lap would be found to be about the thing, for larger than this much of the racing would be lost to the spectators, while a smaller course would necessitate considerable banking at the corners and would produce confusion in one's efforts to follow the fortunes of an event. Much would have to be carefully considered and the regulations elaborately prepared before racing of this description could be indulged in under perfect conditions, but with the success of the experiment at Ostend I think that serious attention will be given to the question, and that one may expect great developments in this direction in the future.

CORRESPONDENCE.

A MOTOR-CAR DRIVING SCHOOL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—May I inform your correspondent, Mr. Harper, through your columns, that a school such as he suggests will be re-opened on October 1st, after the summer holidays, at the appended address. Intending motorists will then be able to go through a course of driving, first in the school and then on the road. The school has a floor space of 4,000 square feet. Petrol will be obtainable, spare parts carried, and repairs effected.

Yours truly,

AUGUSTINE J. NEVILLE.

21, Abingdon Villas, Kensington,
September 10th, 1900.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With regard to Mr. Dando Harper's letter in your last issue, I may point out that he has, within a stone's throw, what he requires—i.e., Tufnell Park Track and Grounds, which are used for the purpose by the Gordon Cycle and Motor Company, of Holloway.

Yours truly,

H. JOHNSON.

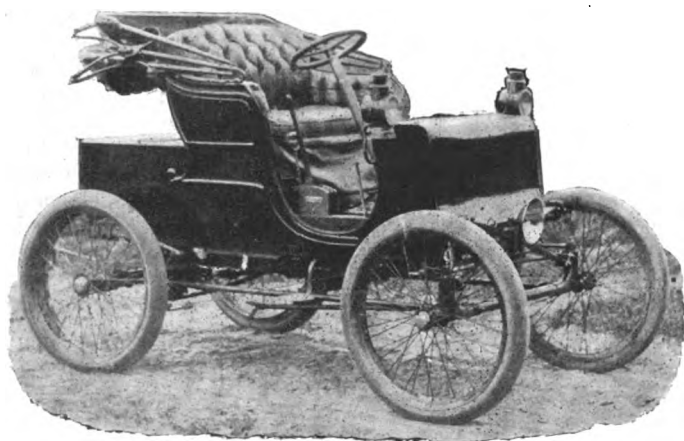
1, Dyer's Buildings, Holborn, E.C.,
September 11th, 1900.

IN London the lessening in the number of horses that exhibit fright at passing a motor-carriage is very noticeable, according to the *Court Journal*.

CONGRATULATIONS to Mr. Percy Richardson, the London manager of the Daimler Motor Company, Limited, on his marriage, which, we understand, took place in Dublin on Wednesday last.

THE PACKARD PETROLEUM-SPIRIT-MOTOR-CAR.

AFTER a thorough course of preliminary experiments, the New York and Ohio Co., of Warren, Ohio, U.S.A., who are well known as the makers of the "Packard" incandescent lamps and transformers, lately brought out a new petrol vehicle embodying some interesting features. The car, which takes the form of a four-seated dog-cart, is solidly built, to endure high speeds on rough roads. The road wheels are both 34 in. in diameter, with 3-in. pneumatic tires. This diameter of wheel was preferred to a smaller one, as it is claimed to improve the running and steering qualities of the vehicle; and as front and rear wheels are alike, the rear tires can, if desired, be put on the front wheels when too far worn to be of further service for traction. The gauge is 4 ft. 8½ in.; the frame is of seamless steel tubing, made flexible by ball joints, so that any wheel can rise independently of the rest. Double elliptic springs support the body at the rear, and a reversed elliptic spring carries the front end. The engine is of the horizontal, single cylinder, four-cycle type, with a high compression for full load and a throttling control. The motor is designed to run at a normal maximum of 800 revolutions, and at this speed, with a full charge, it will give 9 h.p. on the brake. A spring transmission is interspersed between the engine and the gear shaft,



which prevents binding in the bearings and relieves the wheels of the "kick" of the explosion. Electrical ignition is adopted. A gear and chain drive is used. The reverse is a slow speed, giving, with varied speeds of the engine, from six to ten miles an hour. The hill-climbing gear is approximately the same speed. The high or working speed gives a range of from seven to twenty miles or over per hour, dependent upon the speed of the engine. The latter is controlled through a pedal operated by the right foot of the driver. The two forward speeds, the reverse and the brake, are controlled by a single lever at the right of the driver. Any one of these operations can be performed by the lever instantly, it not being necessary to pass through the intermediate functions. Thus, if the brake has been applied and it is desired to put on the high speed at once, it is not necessary to pass through the slow speed, which, if the carriage was running, would make a very unpleasant, if not dangerous, check to the speed. Steering is done by a lever held by the left hand. In addition to the hand brake, a powerful foot brake acting on the rear axle is fitted. Arrangements are provided whereby the distance between the centres of the chain wheels is maintained constant, irrespective of the relative motion of the carriage and the rear axle.

The New York and Ohio Company have furnished us with a photo reproduced herewith showing their latest production. The appearance and general design of the vehicle are the same as the standard Packard car. The special vehicle illustrated is, however, more powerful and adapted for higher speeds, having in fact been designed to compete with the high priced French cars. A single-cylinder engine which will indicate 12 h.p. on the brake at its maximum normal speed of 800 revolutions per minute is used. Four speeds ahead—varying from six to thirty or more miles per

hour—and two speeds backwards are available. As in the standard car there are no idle gears in operation when the vehicle is running on the higher speeds. The speed in running is controlled by throttling the engine. The sparking, which is of the high-tension type, is automatically controlled, a sensitive automatic governor adjusting the spark so that the explosion takes place at exactly the proper point in the stroke for the speed at which the motor is running. The car is fitted with a new rim brake, an auxiliary brake rim being fitted on the inside of the rims of the rear wheels on which large brake shoes are applied. This is said to be exceedingly effective, durable, and absolutely safe arrangement, even if the rear axle, differential, and chain should all give way. The usual band brake on the forward counter-shaft is also provided, and this is operated by a single hand-controlling lever. The rim brakes are operated by an auxiliary foot lever. Inclined wheel steering is fitted, the makers considering this essential for a high-speed machine, although probably not necessary for motor-cars designed to run not over twenty miles per hour. All bearings and oil cups are supplied with oil from a single reservoir, and enough oil and petrol can be carried in the tanks for a run of 150 to 200 miles. The machine is provided with a detachable dos-a-dos rear seat, and is amply strong and powerful to carry four or five passengers. The wheels are all 36 in. in diameter, and are provided with 4 in. pneumatic tires. The frame is ball-jointed throughout, and is accordingly extremely flexible, being designed to stand maintained high speeds on rough roads. The Packard cars are given a thorough test before they leave the factory. The rear or driving wheels of the vehicle under test are supported on a pair of endless belts running over pulleys on two parallel shafts. One of these shafts is provided with a brake pulley, by means of which any desired load can be applied. A tachometer is attached to the engine, indicating at all times the exact speed, and while on this tester numerous indicator cards are taken from each engine. The car is run under varying loads and speeds for one or two days on this testing machine, and is then with a skeleton body taken out for a further and final test on the road. Thus when the finished body of the car is fitted all the mechanism has been thoroughly tested, and is in perfect running order.

A MOTOR-QUADRICYCLE has just been shipped to South Africa by the Waltham Manufacturing Company, of Waltham, Mass., U.S.A.

LONDON correspondents of leading provincial journals are acknowledging that motor vehicles are becoming more and more common in metropolitan thoroughfares. "Looking back no further than three years ago one is impressed," says the *Manchester Evening News*, "by the very notable increase in the number of smart motor carriages to be seen on the streets of London. Two other facts are also apparent—first, that these equipages are handsomer and less noisy than the first examples seen; secondly, that a goodly proportion are driven by ladies. At first the motor was looked on as a somewhat vulgar innovation, but it is now to be seen in the most exclusive neighbourhoods, and its votaries include many arbiters of good form."

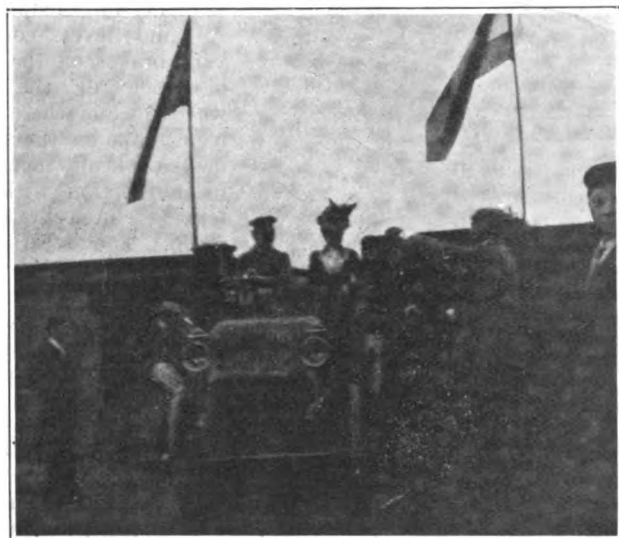
EARL RUSSELL has read with great surprise and indignation the convictions at Bow-street against automobilists for causing an obstruction by leaving their motor-cars standing in the street. These are reported on page 482 of the current issue. No doubt, says the Earl, it would be impossible in London to allow an accumulation of waiting carriages in narrow and busy thoroughfares, but do we ever hear of the owner of a landau being summoned while it waits for half an hour outside a door in Grosvenor-square, or of a cabman being summoned for obstruction if he stands in Arundel-street while his fare sees a solicitor? I am astounded that the magistrate should have made no comment on the unreasonableness of the summons. It would appear that both he and the police fail to realise that motor-cars are declared by law to be carriages, and as such are entitled under Highways Acts and Traffic Regulations to exactly the same treatment as any other private carriage.

TO BEDFORD AND BACK.

THE ENGLISH MOTOR CLUB'S RUN.

THE social instinct is strong in automobilists, and although last Saturday's run of the English Motor Club was the scene of strife between motoring canines, it was a very pleasant gathering for all the human beings participating therein. There was no organised start—probably a concession to the "last man," who will always appear just when the rest have got away. All who intended to journey to Bedford were invited to go to Luton and share in the hospitality of Mr. E. W. Hart at Windmill Road, arriving there between four and five o'clock in the afternoon. Such a course proved very acceptable, and, thanks to the kindly consideration of Mr. Hart and his brothers and the several charming ladies who assisted in entertaining the guests, those who got early to the rendezvous were inclined to linger—even when towards 6.30 p.m. the signal was given for the cars to be got ready for the second stage of the trip.

The first to arrive were Mr. J. C. Hill and his party on a Hurtu. Then followed in quick succession a goodly number of cars and motor-cycles, until we were able to count twenty-five vehicles of all kinds. The host's little son was riding about in his electric Sherinette, and Mr. Hart's Panhard was also *en évidence*. Dr. Roberts came over from St. Albans, Mr. and Mrs.

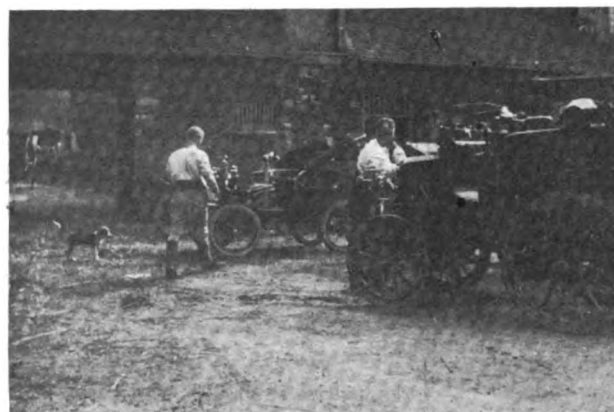


ARRIVING AT WINDMILL ROAD, LUTON.

Edge and the dog came along on the famous Napier car, Mr. C. Jarrott had travelled on a De Dion voiturette, as had also Mr. Roger Fuller. Mr. Holtzafel and Mr. Campbell were among the others who came on cars. A motor-tricycle with a basket chair trailing behind occasioned some notice, and then the arrival of Mr. F. F. Wellington on his 8 h.p. Panhard claimed all attention. Unluckily for the snapshotist, the light was growing weak, or we might have illumined these pages with a picture of how a Panhard car kicks out behind to the destruction of any gates or bars that may be closed against it. Such a demonstration was given by Mr. Wellington owing to his chain breaking. Mr. M. Moyle came along on his motor-tricycle with news of how Mr. T. Maltby, jun., had had a spill, and was even then on the way. Shortly after Mr. Maltby appeared, neither himself nor his motor-tricycle any the worse for contact with Mother Earth. Mr. Ovenden, of Sutton, Mr. A. McCormack, and Mr. Gladding were also in the motor-tricycle contingent, and Mr. Marriott was on a quadricycle. Two Werner motor-bicycles were there, upon which Mr. Leonard and Mr. G. L. Rendell had ridden from town.

A most enjoyable tea was provided, and conversation became general. The roads had been good though dusty, and no mishaps worth retailing had occurred. Again in the yard, where Mr. Hart had thoughtfully given instructions for the cars to be

dusted over before the start for Bedford, everyone was anticipating a good day for the morrow. Suddenly a growling and a barking and a scuffling was heard, and it was seen that the dog from the 16 h.p. Napier car and another of similar type from an 8 h.p. Panhard were engaged in conflict. Evidently one or other



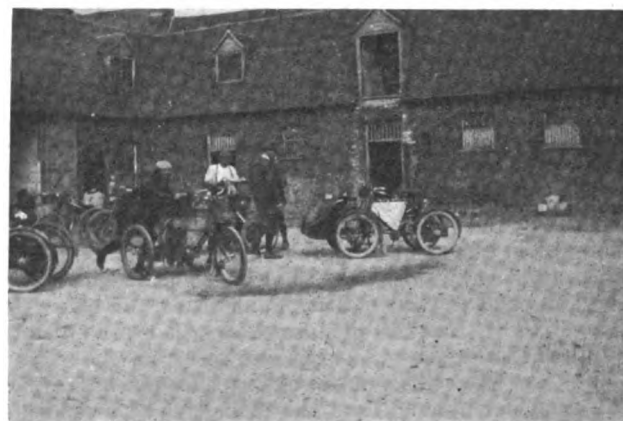
IN THE YARD OF THE SWAN AT BEDFORD.

Photo by) [Mr. C. Jarrott.]

had gone too near the car over which the remaining animal had an eye, and a few uncivil yelps had culminated in battle. The contestants were fierce, and in vain did their owners seek to disengage the dogs until the upholder of the honour of the car of Napier had lain the Panhard representative on the ground with a torn shoulder. But not all the woes lay with the latter, for the Napier dog had a torn ear and a generally unpleasant look about the coat. And when the contest was over a mere horse and cart was requisitioned, Mr. Edge conveying Mr. Wellington's dog to the veterinary surgeon, where he was to remain a few days. Though he then escaped, Mr. Edge's dog was doomed.

Shortly before seven o'clock the journey to Bedford was resumed, the streets of Luton being lined with a great crowd. Just before reaching Barton Mr. Wellington's chain broke again, and in the village itself a local constable made himself prominent but not altogether objectionable. In fact, his antics were amusing. Between Silsoe and Bedford the motor-cyclists had to pedal hard, but all got safely to the Swan at Bedford, where dinner was served.

At Bedford the Birmingham contingent arrived half an hour after the party from Luton, and then it was seen to include Messrs. Harvey du Cros, junr., and J. W. Stocks on a De Dion voiturette, and Messrs. Walter Talbot, Crowdy, Stevens, McDonald



SUNDAY MORNING—NEARLY READY.

Photo by) [Mr. C. Jarrott.]

and Clark on motor-cycles. Mr. C. W. Brown also came along, having got to Luton late. Mr. Chater Lea on a motor-tricycle, and Messrs. Ellington and Bruce had come over on a quadricycle direct from London to Bedford.

Sunday morning opened well, and after the usual overhauling of the cars and cycles the party started for Hitchin *via* Biggleswade. On the way the company "visibly decreased," for whereas thirty-five had dined at Bedford, only twenty-four partook of luncheon at Hitchin, where the organised tour ended, and from whence the various participants made their several ways homeward at will. Most of the party came home by way of Hatfield, and there a regrettable incident occurred. To avoid a passing cyclist Mr. Edge diverted the course of his car, and at that moment his dog fell from his place and got beneath the wheels, being killed almost instantaneously. He has been a familiar figure at every important motor meet of the last few years and was probably nearly as well known to automobilists as his master. Otherwise nothing occurred to mar the delight of the run, and the English Motor Club is to be congratulated on the success of the outing. Another run is in contemplation on the 22nd inst., and Wendover will most likely be one of the points of the journey.

BUSINESS pressure has caused Mr. C. Jarrott to postpone for a few days his attempt to beat the motor-tricycle record.

AN interesting automobile parade was held in Washington Park, Bridgeport, Conn., U.S.A., on July 4th. Forty-two vehicles, of all types and sizes, plain and ornamented, were in line, and their proud occupants were continuously cheered along the route. A number of the vehicles were artistically decorated, and the judges had some difficulty in deciding which was the handsomest decoration and worthy of the silver cup offered as a prize. They finally decided to award it to Miss Emma Guy Pike, who held the lever of a "Locomobile" steam car. The sides of the automobile, which had a sort of a Japanese effect, were covered with crepe paper, Easter lilies and green foliage of the same material. The front and rear of the carriage were extended by ornamental figures, and paper lanterns completed the effect. The steering bar was covered with roses.

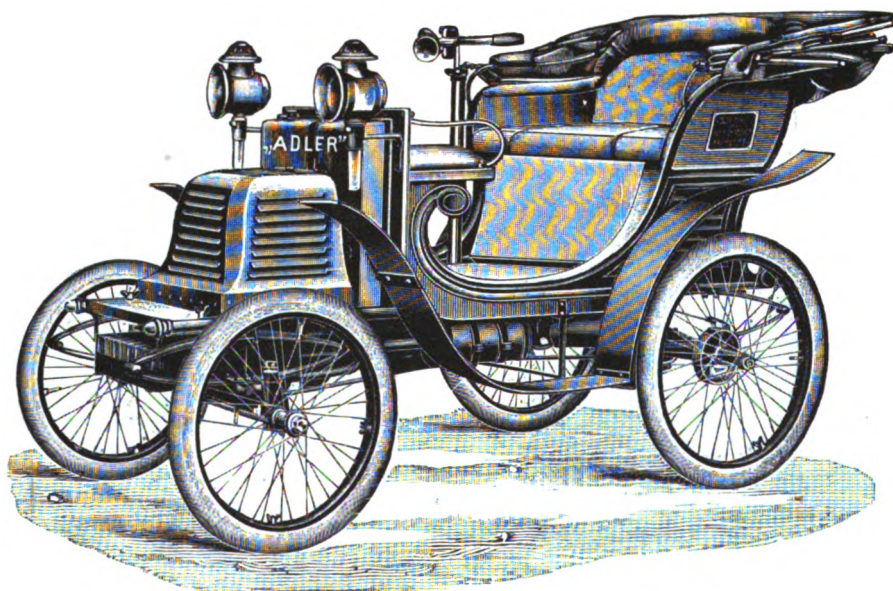
FOR a long time it has been our intention to run out to Chalk Farm and have a look over Mr. Frank F. Wellington's motor-car depôt in St. George's Square, N.W., but for one reason or another the projected visit was delayed last week. We were quite surprised at the large number of motor-vehicles on hand, these ranging from a motor-bicycle right up to large Daimler wagonettes. Motor-cars of every description were to be seen, including both early and modern specimens of automobile construction, for side by side we noticed an ancient Benz high-built delivery van and a very elegant Panhard car of recent build. It is not only in the sale of automobiles that Mr. Wellington is interested, but he is well equipped to carry on the repairs of all kinds. In fact, this branch of his business has grown so rapidly that for a long time the men have been compelled to work in excess of the usual hours. Recently he has added to his facilities in this department, and being unable to obtain good English repairing mechanics in sufficient number has had to fall back on French workmen. A good many motorists are under the impression that Mr. F. F. Wellington is connected with the Wellington Motor Company, of Battersea, but in the course of our ramble over the depôt he informed us that there is no connection between the two concerns whatever.

THE ADLER MOTOR-VOITURETTE.



REFERENCE has already been made in these columns to the fact that the Adler Fahrradwerke Gesellschaft (Kleyer), of Frankfort-am-Main, one of the largest cycle-making concerns in Germany, had taken up the construction of motor-cars and cycles. We are now able to give an illustration and a brief description of the two- or three-seated car which has lately been put on the market by this company. From the particulars sent us the arrangement adopted appears to closely resemble that of the Renault cars. The engine—a vertical single-cylinder one of the petroleum-spirit type—is located under a bonnet in the fore-part of a tubular frame. The motor is rated at $3\frac{1}{2}$ h.p.; it is fitted with a water-jacket to both the cylinder and explosion chamber, the circulation being maintained by means of a small pump. The ignition is electrical, while a radiating coil is fitted in the fore-part of the car in connection with the water circulation.

Three speeds are available, those usually fitted being $6\frac{1}{2}$, 14, and 28 kilometres per hour, but these can be increased or decreased by means of the variable electrical ignition. The power of the engine is transmitted to a longitudinal variable-gear shaft by pinions, and thence to the differential rear axle by bevel gearing, no belts or chains being employed. A hand lever controls band brakes on the hubs of each of the rear wheels, while there is a hand brake on the intermediate shaft, operated in conjunction with the friction clutch by a foot pedal. The steering is controlled by a bar on a vertical standard, and the wheels are of the cycle type shod with pneumatic tyres. The petrol tank has a capacity sufficient for a run of 150 kilometres. Before being put on the market the Adler car has, we understand, been submitted to extended trials over all sorts of roads and gradients, the results of which have apparently proved satisfactory to the makers.



THE ADLER VOITURETTE.

THE first Thornycroft steam lorry built in America was submitted for its trial trip at the Cooke Locomotive Works, Paterson, N.J., on the 21st ult. It was under the personal guidance of Mr. Charles D. Cooke, of the well-known engine-building company, who has for years taken a keen interest in the motor-vehicle, and it gave so good an account of itself that others on similar lines will be turned out as soon as possible. A new company to manufacture Thornycroft wagons on an extensive scale will be organised by the Cooke Company and the American agents of the Thornycroft system, Messrs. Thorpe, Platt, and Co., of New York.

IN reply to a correspondent who signs himself "R," the question as to the relative merits of block and roller chains for motor-cars is a much debated one. So far as our own experience has gone, there is very little difference between the two as regards speed and durability. We, of course, only speak of best quality chains. The principal advantage of roller chains over the block type, when they are used without gear-cases, as is generally the case in motor-cars, is that they are less liable to be detrimentally affected by wet, dirt, or mud, the block chain having a decided tendency to tighten when working in an exposed condition in bad weather.

HERE AND THERE.



HOLBORN is becoming known as the Automobilists' Parade, and country folk are beginning to take a walk from St. Sepulchre's to beyond Chancery Lane in the sure and certain hope of seeing a motor-car pass along. One day last week I walked along there shortly after two o'clock, and within a few minutes saw Mr. Mann on his Marshall dogcart; a gentleman unknown on a Benz car; Mr. H. J. Lawson in his German Daimler, the hood attracting general attention; Mr. Mark Mayhew on a fiery looking Renault car; and the steam van of Messrs. Harmsworth, which was a feature of the motor-car exhibition at the Agricultural Hall.

MR JOSEPH PENNELL, whose wanderings by bicycle are well known, has achieved further fame by an achievement with his motor-bicycle. He has just ridden from Paris to Andermatt, crossing the Furka and the St. Gothard Passes for the first time with a bicycle of that description. Probably the result will be another book and more illustrations.

WHEN will cyclists have the sense to withstand the temptation to "hang on" to fast motor-cars? Several accidents have occurred from this cause, and the cyclist has, like the lady invited to become Mrs. 'Enery 'Awkins, "only yerself to blame." The other day Mr. H. H. Sansom, an ex-champion cyclist, was motoring, and a Nottingham cyclist was following close behind. The former pulled up suddenly to avoid some cattle and the latter went down and damaged his knee cap. Probably that has taught him a lesson; will others learn by his experience?

EVERY week brings me news from automobilists on tour of different people catering for their requirements in various places. At Bognor the Cycle Manufacturing Company, of London Road, stock petroleum spirit, and also undertake repairs to motor-cars that happen to require such attention. At Weymouth, Messrs. Pearce and Herbert, ironmongers, are storing Pratt's motor spirit—a fact of interest to all who travel that way.

SLOUGH is seeing some smart things in connection with automobilism. When a serious accident lately occurred at the railway station there, Dr. Bruce Porter rode over from Windsor on his motor-car, arriving some time before the next train from the Royal borough to Slough was due. One day last week another instance of the convenience of the motor-car was given. Some tourists from Windsor arrived at Slough, and found that they were too late to get on to Reading in time to join an express to the north. It was of the greatest importance that they should go by that train, and they decided to charter a motor-vehicle and hasten to the biscuit town. Mr. Fullbrook went to their assistance with his new Daimler wagonette, which reached the station at Reading in time for the travellers to take their seats in the express.

SEVERAL times has it been urged upon the railway companies to consider the automobile as a feeder to their leading systems. There are many out-of-the-way places where a motor-car service would bring the railways and their passengers into close connection, and I am glad to give the above instance as a testimony to the feasibility of the idea. The car was got ready without delay, and went off at a good rate.

THERE was a pleasant little party at the Bow Street Police-court last week, when Mr. Edge appeared as a defendant, Mr. Jarrott as a witness on his behalf, and Mr. Staplee Firth as the good legal friend. Explaining that he (the witness) had gone to Regent Street for his motor-tricycle, Mr. Jarrott told Mr. Marsham, the magistrate, that he caught Mr. Edge up at Rottingdean on the same day—a fact that seemed to startle the worthy man, who evidently regarded it as a novelty, and asked the witness how long it would take him to go from London to Brighton. Mr. Jarrott confessed he

could do it under three or four hours, and Mr. Firth seriously remarked that motor-vehicles went fairly rapidly on good roads. I fancy I saw a twinkle about the eyes of the trio of automobilists concerned, and that they enjoyed the jokelet. Anyhow, I do know that the same Mr. Jarrott has designs on the forty miles in the hour motor-tricycle record, and that he has since travelled the London to Brighton road in — hour — minutes — seconds. Further details might worry the good Bow Street magistrate. Suffice to say that, like the daily runs of Mr. Rolls and Mr. Edge in the 1,000-Mile Trial, the speed was fully up to the legal limit.

THIS week journalists have been meeting in London, listening to papers by day and attending receptions by night. At the Hotel Cecil, on Monday, I noticed many who recorded the doings of the great tour, travelling from their own town a few miles and returning by train. From several little chats I had with representatives of the leading provincial journals it is clear that the "great organs of opinion" are with automobilists, and that it is mainly the "tinkling cymbals" of little importance that are engaged in inciting local authorities and others to harass our movement. The way in which general newspapers have given attention to automobilism is very gratifying to all interested in the problem of locomotion. The service is, however, reciprocal, for automobilism has provided many a readable article and given an interest to the columns of several papers. But newspaper men have much to learn about motor-cars, although the reporter who went to the stand of the Daimler Company at the last exhibition and asked where the electricity was stored in their car must not be regarded as typical of the state of knowledge of the whole profession.

THE Earl of Carnarvon, the Duke of Newcastle, and Lord Louth are not the only titled automobilists. The Marquis of Exeter is also a lover of the motor-car, and often drives himself. He has just had a slight spill while riding at Aswarby. He had ridden over from Butleigh House with Sir George Whichcote, and during the afternoon went for a short trip. When travelling at a good speed the car got on to the roadside and overturned. His lordship was thrown out, but happily escaped with nothing worse than a cut shin and other slight injuries subsequently returned home by train.

THERE are many enthusiastic motorists in East London, and some of them recently arranged for an excursion to Brighton. Five motor-cars were chartered, leaders appointed, and Mr. Lawrence Doyle elected captain. Messrs. T. Maltby, jun., and M. Moyle had consented to pilot the cars on their own motor-tricycles, and everything seemed in a fair way for a pleasant journey. In Railway Street, Bromley, E., the party assembled at 8 a.m.; the cars were due half an hour later. But they came not. At nine o'clock the telephone was requisitioned to the West End depot from which they had been ordered, and the reply came, "Cars are on the way; wait half an hour." At eleven o'clock one car arrived, and great was the disappointment of the would-be passengers. Thirty chagrined men stood on the pavement and solemnly adopted the resolution, "That we proceed to Brighton by train and call on the motor people to pay the extra expenses." Then they proceeded by cabs and trains to London Bridge, caught the train to London-by-the-Sea and denounced all associated with automobilism. They have slept since then, and something of the feeling of irritation has worn off, for a second attempt is to be made on Monday next, and cars have been chartered to take the party to Southend-on-Sea. If the cars do not appear this time some of the trippers will get quite cross—so one of the pilots, who went on the English Motor Club's run on Saturday, told me over the teacups at Luton.

LOLLIUS

ON Sunday afternoon last a motor-car accident occurred at Haxton Brow, near Scarborough. The vehicle ran into a hedge, and the occupants—a lady and gentleman—were thrown.

THE BERLIN-AIX-LA-CHAPELLE RACE.

FOR the first time in the history of German automobilism a long-distance automobile race has been decided, and, it may be added, decided most successfully. It is due to the Westdeutscher Automobile Club that this great event over a route of 700 kilometres, or about 438 miles, was organised and carried out, and that club should always bear the gratitude of German automobilists for the pluck and energy displayed by its members in undertaking such a heavy task as the organisation of an event of this length and importance. For it must be borne in mind that automobile racing is but of very recent date in Germany, and that those few events which have been decided have been run over, comparatively speaking, very short routes. But in the case under notice the conditions were widely different, for the preparation of a race extending from Berlin to Aix-la-Chapelle necessitated an enormous amount of work, all the heavier by reason of the lack of experience by the organisers. The course was divided into four stages, as follows:—

	Kilomètres.
1st day, Berlin, Potsdam, Magdeburg	142
2nd day, Magdeburg, Braunschweig, Moritzburg, Hanover	153
3rd day, Hanover, Munster	188
4th day, Munster, Aix-la-Chapelle	217
	700

Five categories were provided, these being: 1, Motor-cycles; 2, Voiturettes not exceeding 400 kilogrammes in weight and carrying a motor of four or less horse-power; 3, Tourists' two-seated cars weighing more than 400 kilogrammes, and carrying a motor of nine or less horse-power; 4, Tourists with four-seated cars weighing more than 600 kilogrammes, and carrying a motor of nine or more horse-power; 5, Racers with cars exceeding 250 kilogrammes in weight. The prizes offered were numerous and valuable, the winner in the fifth category, for example, taking £95. A start was made on Wednesday, August 29th, at nine o'clock in the morning, from the Berlin Zoological Garden, the actual competitors being:—Racers: Messrs. Bereis and Kraentler. Motor-cyclists: Messrs. Encke, Vogel, Gleizes, Kittsteiner, and Joyeux de Castillon's. Voiturettists: Messrs. Herfeldt, Jeannin, Paul Schleicher, Dassé, Reuter, Otto Kruger, Hewald, Langen, Meyer, Barthelems, Jean Moncet, Dupont, Emile Jeannin, Jager, Schaller, Mertes, and Carl May. Tourists (two seats): Messrs. Ernst Neuss, H. Gal, Isbert, Christian Barth, Fritz Kirchheim, and Ehrhardt. Tourists (four seats) Messrs. Buchner and Mundner. The leaders for the first day were Kraentler, who covered the 142 kilometres of route in 2h. 47min., and Gleizes, whose time was 3h. 5min. The other men well to the front were Kittsteiner, 3h. 25min.; Jeannin, 3h. 38min.; Barth, 3h. 50min.; Kirchheim, 4h. 1min.; and Neuss, 4h. 8min. During the second stage Kraentler's big car broke down for a couple of hours at Koenigs-lutter, which enabled Gleizes to secure a substantial lead, and no competitor could make any impression upon the French racer's commanding advance. Ultimately fifteen of the thirty-two starters completed the course, the official return being as follows:—

MOTOR-CYCLES.

	H.	M.	S.
1. Gleizes	14	46	22
2. Kittsteiner	17	49	36 ³ / ₄
3. Vogel	33	28	39

VOITURETTES.

	H.	M.	S.
1. Marozeau	23	28	19 ⁴ / ₅
2. Jager	27	49	46
3. Barthelems	28	30	41 ³ / ₄
4. Schaller	28	38	33
5. Langen	29	17	47
6. Kruger	29	41	50 ¹ / ₂
7. Hervold	32	7	26

TOURISTS (TWO SEATS).

1. Kirchheim	18	18	8
2. Barth	25	19	56
3. Isbert	31	21	46

TOURISTS (FOUR SEATS).

1. Durkopp	24	56	58
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RACERS.

1. Kraentler... ..	16	56	24
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This event has undoubtedly done much to popularise the sport in Germany, and it is to be hoped that it is merely the first of a long series of similar races. The interest shown in the event was not merely confined to automobile circles, but it attracted the attention of, one might almost say, the nation, and it demonstrated that what racing has done for the French industry it would assuredly do for the movement in Germany. May it be given the chance is the wish of all motor enthusiasts.

ACCUMULATORS FOR MOTOR-CYCLES AND CARS.

AMONG the several firms who are devoting special attention to the requirements of automobilists in the way of electrical accessories is Messrs. Peto and Radford Limited, of 57B, Hatton Garden, London, E.C. One of their leading features are accumulators for use in connection with the production of the spark for igniting the explosive charge in petrol motors. The batteries are made in various sizes, ranging from 4-volt 4 ampère-hours for short runs up to 100 miles, to 4-volt 14 ampère-hours for runs up to 500 miles. A convenient size for a motor-cycle is the 4-volt 12 ampère-hour battery, comprising a couple of accumulators, which are made to exactly fit into a standard De Dion battery case. Of these, only one is used at a time, the other being a reserve charging. They also manufacture accumulators for use with engines of higher power. These consist of single cells giving two volts each, and are usually supplied in 4-volt sets, consisting of two cells in a light wood tray. Any number of cells can be used if greater power is required. A set of six cells, consisting of two 6-volt batteries, is recommended as a useful set for chauffeurs to take on tour. Only one set is used at a time, and when this is discharged the other can be put in circuit, whilst the discharged set is sent to be recharged at the nearest convenient charging depot. Messrs. Peto and Radford also supply primary batteries for recharging accumulators, as well as handy little electric inspection lamps, which can be hung on brackets in the carriage, and used for inspecting the engine or transmission gear should such be necessary after dark.

La Locomotion Automobile states that it is proposed to establish an automobilodrome at Salon.

SOME enterprising gentleman has, we notice, acquired one of the electric cabs of the old London Electrical Cab Company, and is now running the same about London.

THE managers of the Berlin permanent automobile exhibition have fitted up on their premises near the Friedrich-Strasse Station a motor driving school for instruction in automobile driving.

THE postmaster of New York City made a test with a Hertel petrol motor-car a few days ago for the collection of mail. The usual carrier went with the motor driver to open the boxes and take out the mail. The first test was confined to the downtown districts, but subsequent trips were made uptown, the results being forwarded to the authorities at Washington.

ANY motorist who finds himself in want of sundries or petrol when passing through London on a Sunday will be able to have his requirements filled by calling on Mr. C. E. Rush, of the London Autocar Company, of Grays Inn Road, W.C. Mr. Rush resides at 74, Clovelly Mansions, close by, and will, he tells us, be only too glad to be of assistance to automobilists in the way named.

MOTOR-CARS IN THE FRENCH ARMY.

(From Our Paris Correspondent.)

FOR a long time past the French military authorities have regarded with favour the automobile for army purposes, and when opportunity occurred they have never failed to utilise the new means of locomotion. In this they have but demonstrated that, unlike the military systems of many countries, the French army has at its head chiefs who are not imbued with old-fashioned conservative principles so detrimental to modern progress. Granted that the sight of a brilliantly uniformed officer astride a motor-cycle may appear somewhat incongruous, still the rapidity with which orders can be transmitted and commands executed by means of the motor is in itself a reason sufficiently weighty to outbalance such minor consideration as the question of appearance. And then, too, there is a field in the army for such a variety of vehicles. Cycles for despatch service; voiturettes and carriages for passenger transport; drays and heavy vehicles for artillery, ammunition, ambulance, medical, telegraphic, and commissariat work, not to mention dozens of other directions in which the automobile may be employed with advantage. Frenchmen appreciate the possibilities of the self-propelled vehicle in a manner unknown in other countries, and French military men are in no way behind their civilian countrymen in this recognition of the motor-car's future. And this appreciation is not a mere senseless belief in the powers of the automobile, for its faults are also known, and strenuous efforts are being made to eliminate them. No, it is a recognition of automobilism as a whole, and the knowledge that only by employment and continual experiments will the cars be ultimately brought to perfection. From time to time I have noted in these columns the automobile trials made in connection with military operations in various provinces in France, but none of these experiments have approached in magnitude those now actually in progress in connection with the great manoeuvres of the Beauce. There the transport service is being practically entirely carried out by self-propelled vehicles, and a variety of types are engaged upon the work. First of all there are a couple of Scotte trains, one of which is being driven by M. Scotte in person. Then there are two De Dion steamers, two Panhard drays, and a couple of similar vehicles constructed by De Dietrich. So much for the heavy brigade, and here I may state that the Government hires these vehicles, paying twenty francs per day for their use, by no means a miserly figure; especially when the importance of the tests for the suppliers is considered. Coming to the lighter types of cars quite a caravan is in use. M. Debray, or Antony, as he is known in racing circles, is in attendance with his 32 h.p. Mors upon General Lucas, and this General has also three motor-cycles at his disposition. General Pendeze has a couple of motor-cycles in addition to the 16 h.p. car of M. Brault. General de Négrier makes use of the 12 h.p. car of M. Fabvier and three motor-cycles. As for the Commander-in-Chief himself, General Brugère, he employs two 16 h.p. cars belonging respectively to M. Journu and M. Brisson, two voiturettes of MM. Marcel and Louis Renault, and has in addition three motor-cycles. All the larger cars carry four persons, and both driver and mechanic are engaged upon their periodical twenty-eight days of service. As may be readily imagined, the greatest interest is being evinced

in these trials, and the official report will be awaited with impatience. A special commission has been appointed to follow the performances of the vehicles throughout the manoeuvres, and elaborate precautions are being taken to ensure an accurate record of their achievements. This is the sort of encouragement that is required, and all honour is due to the French Government, who show their sympathy with the new industry in so practical a manner.

Since the above article reached us we learn that a serious accident occurred at Sauveterre de Guienne (Gironde) on Monday owing to the front pneumatic tire of one of the cars bursting. General Marchal and two other officers were being driven by M. Versein, to whom the car belonged, when, owing to the bursting of the tire, the car skidded and collided violently with a tree. General Marchal was the first thrown out. He was severely bruised in the face, his forehead was fractured, and an eye injured. He also sprained his foot, and was for some time unconscious on the roadside. His aide-de-camp, a captain, was severely hurt in the left arm and hip, but was able to give help to the General and to the owner of the car, who was badly injured in the head and face. Owing to the accident, it is stated in one account that the petrol tank was broken, and that the car was destroyed by fire, but another report is to the effect that only a portion of the framework was damaged. General

Marchal, who was the worst injured of the three occupants of the car, is reported to be gradually recovering.



THE CLUB HOUSE OF THE FRENCH AUTOMOBILE CLUB, PLACE DE LA CONCORDE, PARIS.
(L'Avenir de l'Automobile.)

MOTOR tire repairs are now being undertaken by the Clipper Pneumatic Tyre Co., Limited.

A MOTOR TRADE EMPLOYMENT AGENCY is the latest development in the automobile world.

"F. H. P." is referred to the work on "Horseless Vehicles" by Mr. Gardner D. Hiscox, recently published by Sampson Low, Marston and Co., London.

ALL the new type of two-cylinder Napier motor-carriages for 1901 will be fitted with a 9 h.p. motor in place of the 8 h.p. engine as in the past.

THE City Editor of the *Westminster Gazette* acknowledges that the motor-car industry "is advancing by leaps and bounds, and gives promise of a magnificent future."

MR. HUGH MOFFAT, of Bournbrook, Birmingham, has just issued a little waistcoat-pocket card giving a list of spare parts which should be carried by motor-cyclists, and a number of useful hints to riders of motor trikes.

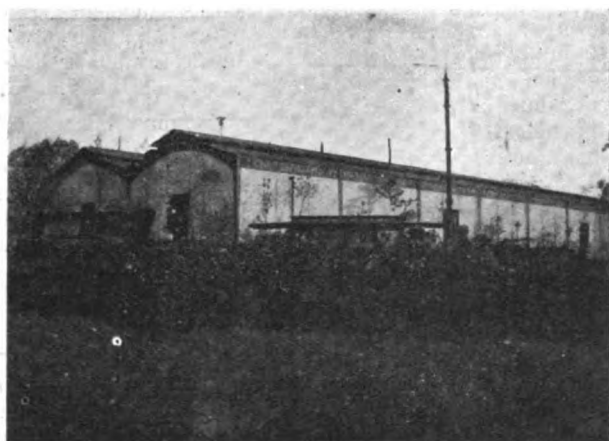
LAST week we referred to the consideration now being given by the Home Secretary to the speed of motors on the road, and on Wednesday of this week one of our cycling contemporaries gave some "information published exclusively by us" as follows—"I have the best authority for stating that the Home Office is at present considering the whole question of the speed of motors on the road."

THE leading feature of the divisional manoeuvres of the Austrian military authorities just concluded was the experiments made with motor-vehicles. It is stated that as a result of the trials the authorities are fully convinced that for all purposes of haulage the motor-car is essential to the equipment of an army. The conditions were made as trying as possible. The cars were put to work through level country churned into mud by the operating armies, and among the abrupt steep inclines in the lower spurs of the Carpathian Mountains.

ELECTRIC TROLLEY OMNIBUSES.



At a meeting of Section G of the British Association, on Monday, Mr. J. G. W. Aldridge read a paper on the automobile for electric street traction. He pointed to the difficulties presented to the provision of electric traction, particularly in crowded localities, one of the chief of which, he said, was that of expense. In the adoption of the system he advocated he claimed as advantages that no permanent way was required, overhead equipment was reduced to a minimum, the electric motor-cars had no accumulators to carry, and the system was worked from the same generating station and feeders as the tramway system. The first cost was, therefore, enormously reduced, and the motor-cars or omnibuses might run through any streets which allowed vehicular traffic. This system provided for a service of electric motor-vehicles deriving power from a pair of trolley wires supported on short brackets along one side of the road. On these wires ran a two-wheel trolley containing a small electric motor for its own propulsion, the whole being connected to the omnibus by a flexible cable attached to a pole on the roof, devices being provided for keep-



ing the cable sufficiently taut and to obviate any risk of derailing the trolley. Continuous current at 500 volts was supplied to the omnibus motor via the trolley wheels and flexible cable. The system dealt with is that of M. Lombard-Gérin, who has established an experimental line in the Vincennes Annex of the Paris Exhibition.

THE *Poids Légers* competition will commence in Paris on Monday, the 17th inst. So far seven entries have been received.

A SERVICE of steam omnibuses is about to be started between Genoa and Piacenza, Italy. The vehicles, which will accommodate twenty-five persons, are being supplied by Messrs. De Dion, Bouton, and Co., of Puteaux, France.

La France Automobile states that a Koch heavy oil car is now being used by the French military authorities for the conveyance between Vincennes and Champ de Mars of the pigeons used in the pigeon-post service.

ACCORDING to the *New York Herald*, Mr. I. A. Lyon and Mr. Luis de Onativia have started from Paris on a new 16 h.p. Panhard car for a trip via Dieppe, Newhaven, Brighton, Henley, Leamington, to the North of England. At Liverpool the car will be shipped to America.

THE promoters of the *Inter-Ocean* motor-vehicle tournament, which is to be held at Chicago from the 18th to the 22nd inst., are endeavouring to secure a race between Mr. A. C. Bostwick and Mr. W. K. Vanderbilt, Jun. As both these gentlemen are owners of European built high-powered cars, the race, should it take place, should prove an exciting event.

RESISTANCE OF ROAD VEHICLES TO TRACTION.*

BY PROFESSOR HELE-SHAW.

ABOUT the time of the general introduction of railways considerable attention was directed to the nature of the resistances encountered by vehicles upon the common road, and the researches of Correze, Edgeworth, Coriolis, Morin, Tredgold, Dupuit, and others must be regarded as having thrown considerable light upon the subject. From time to time recently others have done work in this direction, but there is no doubt that the attention directed to traction on railways has thrown the scientific investigation of the subject of common roads almost entirely into the background. During the last few years, however, it has been realised that there was a great field for the development of traction, and particularly by mechanical means upon the common roads, and the improvement which has been quietly taking place in the construction and maintenance of roads is a feature of national importance. Not only is the condition of the pavements in the cities and towns much improved, but in out-of-the-way districts, such as in the hilly parts of Cumberland and Westmorland, the use of steam rollers by the County Councils has effected vast improvement in the state of the roads. Various causes have contributed to this result, but it is worthy of notice that whereas when the coaching days became comparatively a thing of the past the roads fell into neglect, so now the increasing number of cyclists and tourists who visit country places are an appreciable factor worthy of the consideration and encouragement by the local authorities. The recent remarkable and growing development of motor-vehicles with a legal limit of speed as high as twelve miles an hour, and the generally increased speeds of tram-cars in cities owing to the introduction of electricity and steam, give some reason for thinking the general rate of speed on common roads may reach, or even exceed, the present legal limit applying to motor-vehicles. As showing the mechanical possibilities in this direction, it may be pointed out that quite recently in France between forty and fifty miles an hour has been safely maintained for more than 300 miles upon the common road. Such a speed—or anything approaching to it—would not be allowed in this country, but the fact remains that it is possible with safety. With heavy traffic the legal limit for a self-propelled wagon of about two tons tare, capable of carrying several tons, is no less than eight miles an hour, and the heaviest traffic with a tare limit of vehicle of three tons, probably carrying a load of eight or ten more, is as high as five miles an hour.

These facts, and the introduction generally of mechanical propulsion, point to the necessity of having a fairly complete knowledge of the resistance of common roads of various kinds upon different classes of vehicles moving at different speeds. In the brief historical account given by the author of what has hitherto been done in this direction it will be seen that the experimental means of traction has without exception—as far as the author is aware—been limited to traction by horses; and as at any rate the earlier experiments were made with the view of horse traction, only two speeds were taken into account, viz., walking and trotting. Considering the variation in speed of horses under these two conditions, these terms cannot be said to express anything very definite, and certainly afford no guidance whatever as to the resistance of self-propelled vehicles at various speeds. Again, in recent years large sections of cities have been paved with asphalt and wood, while the laying of setts or stone pavements has undergone considerable modification, which is readily seen by an examination of a modern street and one of ten or fifteen years ago. Another modern development is the introduction of solid indiarubber and pneumatic tires, which were at first regarded merely as a luxury, but have now proved to be an important factor in the life of the vehicle, as well as of its resistance, this being so much the case that efforts have from time to time been made to introduce the use of indiarubber tires upon traction engines.

Beyond the foregoing points, which have not been brought

* Paper read before Section G of the British Association at Bradford.

under investigation in connection with the resistance of vehicles, no attempt appears to have been made to ascertain the extent to which the various factors of resistance relatively effect the whole result. Now it is evident that as the higher speeds are used, and the weights are increased, vibration and shock become more and more important; thus the resistance due to the rim of the wheel, and the ways in which it can be met by mechanical contrivances, must be regarded as quite a different problem from that of the springs attached to the body of vehicles, and some distinction must be made between the resistances as effected by each of the foregoing.

Enough has been said to show that there is not only matter for an inquiry which would be welcomed by makers of road vehicles, especially of self-propelled road vehicles, but that such an investigation, if it is to be of any real value, must be thorough, and requires not only some expenditure of money, but cannot well be undertaken by any single individual. The great interest which was excited by the paper read by Mr. Thornycroft at the last meeting at Dover of the British Association, and the previous communications which have passed between the author and the president of this section, who is himself a high authority upon the question of roads, have led to this matter being brought forward with the idea of forming a committee of the British Association for the investigation of road resistance.

In order to facilitate the work of the committee a summary of previous investigations in this subject has been prepared, which can be laid before the members, if it is formed. Some preliminary experiments have also been made with a view to obtaining some idea of the nature of the apparatus thus required, and the amount of expense likely to be entailed.

Preliminary Experiments.—Allusion has been made to the fact that all the previous experiments have been performed by means of the traction of horses; it seemed with the introduction of powerful motor-cars it might be able to pull steadily any vehicle at any required speed. This idea really forms the chief feature of the proposed experiments, as it is evident that if one motor-car is not sufficient two or more could be harnessed

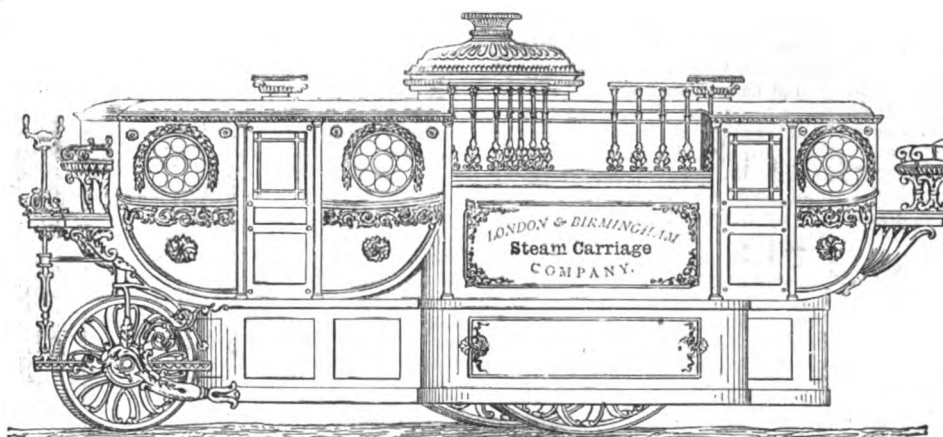
to the vehicle which is to be drawn. In order to ascertain how far this idea was practicable Mr. J. A. Holder, of Birmingham, who owns a 12 h.p. Daimler car, was kind enough to visit Liverpool, and on Tuesday, Wednesday, and Thursday, July 17th, 18th, and 19th, a series of experiments, in which the author was assisted by two former students, Mr. Humfrey, B.Sc., and Mr. Cormack, B.Sc., were made, Mr. Holder's car towing the author's New Orleans voiturette. These experiments took place over roads of asphalt, wood, setts, and macadam in the neighbourhood of Liverpool, both level and up the steepest gradients which could be found, viz., Everton Brow. It will not serve any useful purpose at present to give the detailed results of these experiments, as they were obviously incomplete, and pointed to the absolute necessity of more elaborate apparatus of a self-recording nature; but it may be of interest to explain the apparatus actually employed, so as to indicate what will be required to insure satisfactory results.

The apparatus consists of two parts: (1) a dynamometer and (2) a speed indicator:

Dynamometer.—This consisted of an ordinary spring balance, the back of which was riveted to a cylinder of a small steam engine which acted as a dashpot. The ports of the steam cylinder were closed up, and a small hole drilled into the piston was found quite sufficient when the cylinder was filled with oil to check the free oscillations of the spring.

Speed Indicator.—The speed indicator was a Schaffer and Budenburg tachometer to which a temporary wooden wheel was attached, and a special dial was made, so that instead of indicating revolutions per minute the miles per hour at which the vehicle was travelling were at once made visible. The mode of conducting the experiments is shown by a photograph. A rope about 20ft. long was attached to the voiturette and connected with the dynamometer, the dial of which an observer was able to read. At the same time a second observer called out the actual speed of the vehicle at that instant and the nature of the road which was being passed over, which were recorded by the first observer in his note-book, together with the pull on the dynamometer.

The net result of the experiments showed that even on apparently the smoothest road the variation in the pull was so considerable that nothing but appliances which would record autographically both the pull and velocity at the same instant and indicate also the distance travelled, so as to identify the exact piece of road corresponding to the record, would be of any value. Moreover, it was evident that some autographic record of the nature of the road as well as some instrument for recording the vibration of the vehicle which was being towed were necessary in order to form some estimate of the effect of vibration upon the resistance. With such appliances the pull on wagons, lorries, ordinary vehicles with iron rims, pneumatic and indiarubber tires, could be investigated for any speed, and it is not too much to hope that some definite idea of the laws concerning traction might be found, with the effect of springs, tires, and the surface of the road taken into account.



DR. CHURCH'S STEAM CAR, BUILT ABOUT 1832.

FURIOUS DRIVING CASES.

At the Yarmouth Police Court last week, Mr. Edward E. Lackenby was summoned for furiously driving a motor-car. Sergeant Mason said that on the previous Friday he saw defendant driving a motor-car at the rate of ten or twelve miles an hour along the Parade. Defendant said he could not remember being on the Drive at the time, but Police-constable Fish also proved he was there. Defendant said he did not think he was driving too fast, and in

reply to Mr. De Caux said he drove his car at eight or nine miles an hour. He had been passed by every other motor-car on the Drive, and been laughed at for being so slow because he was careful. Mr. de Caux said that on the Drive a good many motor-cars and bicycles went a good deal too fast, and they often came round a corner on the wrong side of the road, which was very dangerous. Defendant was fined 20s., including costs.

CHARLES ALBERT CLARK, cutlery manufacturer, of Sheffield, has been summoned for driving a light locomotive on the highway in the parish of Skipsea (Yorkshire), on the 19th August, at a speed which was calculated to endanger the safety of the public. P.C. Bell deposed that on Sunday afternoon, the 19th August, at 3.45, he was on duty on the Bridlington-road, Skipsea, when he met the defendant driving a motor-cycle at a furious rate. He was going at the rate of about 20 miles an hour. He had another man with him. The weather was foggy, and witness could only see the defendant at a distance of 150 yards. He was then coming down a hill, and witness had the greatest difficulty in getting out of the way. Witness followed him to Hornsea, and told him he should report him for furiously driving. Defendant pleaded that he was only going 13 to 14 miles an hour. A fine of £1 and costs was imposed.

At Porth Police Court last week, William James Gunning, motor-car driver in the employ of Mr. F. Gould, landlord of the Brigend Hotel, Pentre, and the Osborne Hotel, Barry, was summoned for furiously driving a motor-car down Tynewydd Hill, near Treallaw. Mr. James Phillips, solicitor, Pontypridd, who defended, observed that in cross-examination Police-constable Harrel said that the passengers had not complained to him of it; neither did he see any persons running away from the car.—Mr. Phillips said that the car was only registered to travel twelve miles an hour, and at the time in question could not have gone faster than nine miles an hour. But his point was that there was no evidence to show that the car on the night in question had been

dangerous to life and limb. Not one of the passengers had complained, and the constable's evidence as to it being dangerous, he submitted, could not be accepted. He argued that if a man was on the pavement, and the car travelling over the road, even at a rate of thirty or a hundred miles an hour, the driver was not liable to prosecution.—Defendant said he had been driving motor-cars for five years in London, and had built this car.—The Bench, after a lengthy consultation, dismissed the case.

At Douglas on Saturday last, John Lewis, driver of a motor-car for the Isle of Man Cycle Company, was charged with travelling along the Promenade at a speed which endangered the public. Evidence was given that the car was going at the rate of ten miles an hour, and that many people had to hurry out of the way. The defence tried to show that the car went but a little faster than the trams and 'buses, out of the way of which people had frequently to hurry, and that defendant was justified in travelling at 40 miles an hour if the road was clear. Mr. Hutchinson, J.P., said that drivers of all sorts should remember they had as much right to get out of the way of foot passengers as foot passengers had to get out of their way. Lewis was fined 10s. and costs.

At Llanrwst, on Monday, Mr. William Geipel, of Blackheath, London, was summoned for furiously driving a motor-car on the 25th August. Superintendent Jones said about 7.35 p.m. on the night in question he saw the defendant, who was accompanied by a lady and a little boy, coming at such a furious rate down Station-road that he (witness) thought he had lost control of the machine. He held his hand up, and defendant stopped within four yards. The streets were crowded at the time, and the defendant was going as fast as a horse could gallop. Defendant denied that he was travelling at an unusual rate, and as he did not want to be summoned offered to pay any amount witness liked to a public institution he liked to name. The defendant, who did not appear, was fined £5 and costs.

OBSTRUCTION BY MOTOR-CARS.

At Bow Street Police Court last week, Mr. Archibald Ford, of 2, Shaftesbury Avenue, was summoned, before Mr. Marsham, for causing an obstruction by a motor-car. Police-constable 102A stated that the defendant left a motor-car standing in the roadway at Charing Cross from 3.35 to 4 in the afternoon. It caused great obstruction to the traffic, and eventually a 'bus ran into it. The defendant said he left the car standing in the street while he went into an office to see his solicitor. He expected to be gone about four minutes, but time passed quickly, and he was absent altogether about twenty-five minutes. It was only a small car, holding three persons, and he did not think it could have caused any obstruction. The 'bus that ran into it did damage to the extent of about £5, and possibly there would be county court proceedings. Mr. Marsham: Of course no one had a right to run into your car, but you were causing an obstruction, and must pay a fine of 2s. 6d. and 2s. costs.

At the same court, Mr. Selwyn F. Edge, of Tavistock Chambers, Hart Street, W.C., was summoned for committing a similar offence. Mr. T. W. Staplee Firth appeared for the defendant. Police-constable 112D stated that on the afternoon of the 25th ult. he was on duty at the corner of Hart Street and Museum Street. At twenty-five minutes to two o'clock the defendant drew up at Tavistock Chambers, Hart Street, in a motor-car, which he left outside while he went upstairs. The defendant allowed the car to remain in the roadway till twenty minutes past three o'clock. During that time fifty or sixty persons stood round the car, and the vehicular traffic was greatly obstructed. There were three lines of vehicular traffic. When the defendant came out, and witness told him the car had been staying in the street an hour and three-quarters, he said, "Do you mean to say it cannot remain there as long as I like?" In reply to Mr. Firth, witness said a furniture van stood near the motor-car, but the men in charge were engaged in loading or unloading. Mr. Firth argued that the mere opinion of a constable as to an obstruction having been caused was not sufficient to warrant a conviction. He submitted that some private person who felt aggrieved should be called to complete the case, and in support of his contention cited the case in which a newspaper boy was summoned for shouting his papers late at night to the annoyance of the public. He was fined, but upon the case being taken to a Divisional Court the conviction was quashed on the ground that no private individual had been called to prove annoyance. Mr. Marsham said that case had nothing to do with obstruction, and there was nothing in the point raised by Mr. Firth. If an obstruction was caused to traffic in London the police had a perfect right to take proceedings. The defendant was called, and said that on the afternoon in question he was going to take his wife out on a motor-car. While he was waiting for her to dress a heavy storm came on, and the motor-car remained outside until the rain abated, but no obstruction was caused, and it was untrue to say that the car was surrounded by fifty or sixty persons. Mr. Jarrott, a friend of the defendant, agreed that no obstruction was caused, and said that not more than two persons stood looking at the car at any one time. Mr. Marsham said he had no doubt the defendant let the motor-car stand in the road longer than he would have done if it had not rained, and only called upon him to pay the cost of the summons, 2s. A few minutes afterwards Mr. Firth returned to the court and said he wished to take the case to a Divisional Court, as there was no evidence as to obstruction. Mr. Marsham: It is absurd to say there was no evidence. The constable distinctly said an obstruction was caused. Mr. Firth: And I called three witnesses who said there was no obstruction. Mr. Marsham: The constable proved an affirmative. Your witnesses tried to prove a negative, which, of course, is a very different thing. Mr.

Firth: Will you grant me a special case? Mr. Marsham: Certainly not. Mr. Firth: I would rather that you fine him, so that I may take the case to a higher court. Mr. Marsham: If you like I will fine your client, but it will not do him any good. Mr. Firth: Then I must leave it where it is, but I must say the police treat motor-car drivers as though they were all rascals, and they are too readily upheld by the courts.

FATAL ACCIDENT AT ABERDARE.

At Aberdare Police Court, on Tuesday, William Howard and George Ison, the driver and conductor of a motor-car at Mountain Ash, were charged with having killed a child, aged two years and nine months, at Abercynon on Monday last. Mr. J. W. Evans, Aberdare, defended. Mr. George Blacker said he was sitting in his house when he heard a motor-car come down the street. He heard it grinding against the kerbstone, and ran out and saw the deceased child between the wheels. He saw the hind-wheel pass over the child. He shouted to the driver to stop, and he did so. The child had one leg crushed and the other practically off. It was taken to the Cottage Hospital, and died that evening. Ison was driving. Cross-examined: Witness went out fearing his own child was about. There was a cart on the road opposite, and the horse's forefeet were in the gutter opposite, and the cart somehow slewed to the road. There was some room between the tail of the cart and the motor.

Mr. William Smith, who drove the cart, said the motor-car was coming towards him, and when some five yards away his horse shied suddenly to the gutter and slewed the cart somewhat out into the road. Defendants then swerved. He did not see the child until it was run over. Police-constable Tucker, Matthewston, said that he found by the marks on the kerb that the cart had ground against the kerb for 28ft. The width of the road at the point the spots of blood were was 23ft. Cross-examined: He could not say less than that the child had been drawn to the spot. It was picked up from the middle of the road.

Mr. J. W. Evans made an eloquent appeal to the bench not to commit the defendants. All the evidence showed that it was a pure accident. There was no evidence whatever of negligence. The Bench, however, decided to send the case for trial, but admitted both defendants to bail on their own recognisances.

THE MOTOR TRACTION COMPANY.

THE second ordinary general meeting was held at Cannon Street Hotel, London, last week. Lieutenant-Colonel C. E. Macdonald, who presided, said that since the present board took office they had had to encounter many difficulties and discouragements, but he believed that they would succeed in bringing the company to a successful and dividend-earning stage. He thought that the shareholders would agree with the directors in refusing to make any large capital outlay on motor-omnibuses until a more perfect type of vehicle than those hitherto built had been evolved. The two petrol omnibuses now running between Oxford Circus and Kennington Gate, and which were built under the direction of the previous board, had been put through a very extended trial. By the new licence granted by the vendors the company obtained the right to manufacture not omnibuses only, but any kind of motor-carriage under the patents of the licensors. Seeing that some considerable time must elapse before the omnibus business could be worked on any large scale, and being convinced that there was a large business to be done in the manufacture and sale of ordinary motor-carriages, the board had determined to take steps to develop this part of the business. Another consideration which had influenced them in coming to this decision was that when the company possessed a proper manufacturing plant they would be able to build their own omnibuses and thus save a great deal of money in the initial cost. With the object he had mentioned in view, the company had secured the business and premises of Mr. Alex. Mackenzie, of Lambeth. The board had made what they considered a satisfactory arrangement for the manufacturing rights and control by this company of an invention in motor engines, patented by Major Holden. The engine was remarkable for its lightness, simplicity, and freedom from vibration, and, if the expectations formed after a trial of the models which had been in use for some time should be fully borne out when the engine was constructed on a larger scale, it was believed that a great improvement on existing motors would have been obtained. Turning to the balance-sheet, he said that the figure of £210,000 appearing on the assets side of the earlier balance-sheet under the heading "licences and patents," was now reduced to £50,000, representing the sum by which the purchase price in cash and shares for the licences and patents was reduced. Of the authorised capital of £420,000 rather less than £140,000 had been issued, and of this amount £5 per share, representing about £68,000, had at the date of the present balance-sheet been called up. The call since made brought in about £35,000. He concluded by moving the adoption of the report. Lieutenant-Colonel C. M. Davidson, who seconded the motion, said that when the company built their own omnibuses they should be able to run them at a profit. A discussion followed, in the course of which considerable dissatisfaction was expressed with the company's position, and Major-General Fellows suggested that it should be wound up. He had no faith that the business would prove successful. Mr. Heath moved an amendment to adjourn the meeting for a month, to enable certain shareholders, who were ruled out of order on rising to speak, on the ground that they had not paid the last call, to pay the call should they see fit. This was duly seconded, and on a show of hands was negatived by a majority of one. The motion for the adoption of the report was afterwards carried by a small majority.

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COMMENTS.



THE Maidenhead Corporation decided on Wednesday evening that the tolls for Maidenhead bridge should be lowered to 6d. for motor-cars and to 3d. for tricycles for one day, however many times the bridge might be used. Alderman Cox said that motorists would no doubt consider that they were very fairly dealt with by Maidenhead, seeing that the toll for Cookham Bridge was 1s. 6d. for the first time, and 9d. each subsequent time, while at the west end of the county one

authority charged 4s. 6d. for each motor-car. Councillor Upton said he had no doubt that the reduction would result in benefit to Maidenhead and its trade. The change will come into operation after October 31st. Excessive tolls should be resisted wherever possible, and certainly should have full publicity. No doubt the many letters that have appeared on the subject of the toll over Maidenhead bridge have had much to do with this reduction.

Porlock Hill Again.

So many rumours have been in circulation with regard to the ascent of Porlock Hill by the Napier car that an authoritative statement from Mr. Edge should now settle up some little points about which contradictory things have been said. It appears that the motorist and a local gentleman were casually discussing the possibility of motor-cars ascending the hill. Mr. Edge maintained that there was no difficulty providing the car was geared low enough, and made a bet of £50—not £20 or £1,000—that his car would go up the hill. This was done at an average speed of 12 miles per hour. "Of course," says Mr. Edge, "a much lower powered car would also have gone up easily enough, but very, very slowly, and, curiously enough, the thing that impressed everybody there was not the fact of its climbing the hill, but the fact of its going up faster than they could run up, or drag a coach up, or even gallop a horse from top to bottom; that is to say, a motor-car went from the bottom to the top of the hill in faster time than any other method of travelling on the road could do. And then, again, you must remember that a car of this sort is an ideal car to drive, for the simple reason that whilst it develops a big h.p. when run at 750 revolutions a minute, one can go along at 10 or 12 miles an hour with the engine running at 250 revolutions per minute. The result of this is that you get very little wear of the car."

Another Car Goes Up.

CONFIRMATION of Mr. Edge's statement as to the ability of a lower-powered car than his 16 h.p. Napier being able to ascend the hill comes this week. On Saturday Rouse, one of Messrs. Hewetson's drivers, took a Benz Ideal Victoria to Mr. H. Hickley, of the Electrical Works, Taunton. Mr. Hickley met the car at Bath and went on with it to Castle Cary, arriving

there eight hours after it had left London. On Monday Mr. Hickley and the driver left Castle Cary at 10.30 a.m. for Taunton, via Ilminster. At 3.45 p.m. they left Taunton for a run up Porlock Hill, which the car successfully negotiated at 6 p.m. In some places the road had inches of loose material, into which the wheels sank deeply.

Passing Horses.

IN another column will be found a report of the inquiry into the circumstances of the death of the gentleman who fell from a coach at Cheltenham recently. It appears that the driver of the coach requested a passing motorist to stop. He did as desired, but the vibration of the car frightened the horses, one of which bolted, and all the passengers were thrown. Captain Hunt, the owner of the coach, said that had he been driving he would have driven past the motor-car without stopping it, so as to get away from the noise as soon as possible. He thought no one was to blame. There is no doubt that the best plan is to drive right past animals whose temper is unknown or uncertain.

An Experience on the Brighton Road.

THIS was demonstrated during the course of a drive to Brighton on Saturday. Turning a corner we came suddenly upon a coach and four. A gentleman, apparently the owner, jumped off the coach and put up his hand. We immediately slowed down, and as the horses did not appear restless we continued travelling slowly until we got past the them, when we stopped. The gentleman came up to us and remonstrated for not stopping immediately when he raised his hand. Our contention was that had we done so we should most assuredly have frightened the horses. He informed us that one horse had been giving him trouble all the morning, and he was extremely nervous about that particular horse, otherwise he would not have troubled us. Continuing our journey, when passing over Clayton Hill we heard the well-known sound of a motor horn behind us, and saw coming towards us Count Seilern's cream-coloured 16 h.p. Panhard. On it as passengers were Mr. Cheel and a lady. Meeting Mr. Cheel at the Hotel Metropole afterwards, he mentioned he had met the same coach which we had passed, but being near a lane they had turned aside and stopped the motor. The gentleman got off the coach and thanked the occupants for turning aside as they had done.

Taken at Luton.

THE group on another page shows some of the cars and motor-cycles participating in the English Motor Club's run at Luton on the 8th inst. They were drawing up for the start to Bedford, and in the group are the faces of several well known motorists. To the left of the photo Mr. Leonard is standing by his motor-bicycle, with Mr. G. L. Rendell on his left. To the rear of the latter, with both hands gripping the handle-bar, is Mr. M. Moyle on his motor-tricycle, and a little behind is Mr. T. Maltby, jun. On the right Mr. and Mrs. Edge are in full view, and to their rear is Mr. F. F. Wellington, with Mr.



E. W. Hart peering over his shoulder, the latter gentleman being faced by Mr. Holtzafel. Immediately in the foreground is a brother of Mr. E. W. Hart, ready to act as pilot on the way to Bedford.

A Run to Wendover.

ON Saturday, the 22nd inst., the English Motor Club will have a run to Wendover via Uxbridge and Amersham. As the trip is a somewhat short one, the distance being only thirty-five miles, the motorists will take their own time in getting to the destination, where dinner will be served at the Red Lion Hotel at 7.30 p.m. On Sunday a run to Thame via Aylesbury has been arranged, with luncheon at the Spread Eagle Hotel. Then via High Wycombe, Great Marlow, and Maidenhead, the party will return, via Colnbrook, to town, the whole distance of the day's run being about sixty-eight miles. The road to Wendover is a particularly pretty one and the view of the Chiltern Hills very fine. It is one which is not generally known to motorists and on that account alone will have a particular charm. The Club, as before, will welcome most cordially any motorists, not being members of the Club, who would like to take part in the run, and further particulars can be obtained either from Mr. F. W. Baily, hon. sec., at 94, Oakfield Road, Penge, or the Chairman of the Runs Committee of the Club, Mr. Charles Jarrott, 14, Regent Street, S.W.

A Lady Automobilist.

ALTHOUGH lady automobilists are not yet so numerous in this country as in France, their number is, we are glad to say, steadily increasing. Our illustration shows Mrs. Thynne, of Horley, at the helm of a Marshall car, in which she may be frequently seen driving about in the district. Mrs.



Thynne is the daughter of Dr. J. Muter, the Public Analyst for Lambeth, to whom the car belongs, and has become quite an adept *chauffeuse*.

To Waterloo by Motor-Car.

SHADE of the Iron Duke! The latest thing from Brussels is the organisation of trips to Waterloo and over the historic battlefield by motor-car. And why not? For by such means the whole area of the great conflict may be traversed and every point of interest seen within a reasonable time. Hitherto it has been impossible for visitors to adequately inspect the field of Waterloo in any reasonable time from the tourist's point of view. But the automobile has changed that state of things, and the development should suggest imitation in other historic districts—such as Shakespeare's country, the land of the Lake poets, etc.

Automobiles at the French Manœuvres.

ALTHOUGH the troops have up to the present been manœuvring some distance from the town, the distance varying from twenty to sixty kilomètres, the fact that General Brugère, Generalissimo of the French army and director of the manœuvres, established his headquarters at Chartres caused a continual coming and going of officers of the staff, aides-de-camp, and orderlies, on foot, on horseback, on cycles, and in automobiles. This last innovation has been the great feature of this year's French military manœuvres, and all day long the streets of the town have echoed with the puffing and the rattle of the vehicle of the future. There were automobiles of every kind, tricycles, two-seated, four-seated, and eight-seated carriages, driven by petroleum and electricity, and long lines of transport wagons, veritable trains, puffing slowly along, drawn by the Dion-Bouton and Scotte steam tractors. General Brugère boldly accepted the innovation and attended the manœuvres in a four-seated Panhard-Lavassor car. The rate at which he travelled certainly inspired awe. One saw a distant speck in the road three or four miles away, travelling in the midst of a cloud of dust. Five minutes later the speck took the form of a white painted automobile, which rushed by like a whirlwind. At the instant it passed, through the dust cloud the Generalissimo of the French army and his aide-de-camp were seen, their faces covered with black masks with glass-covered eyeholes, and a minute later, the vehicle, travelling at sixty kilomètres an hour, was again a speck in the distance. The automobile of the Generalissimo occasionally gave an illustration of the hare and the tortoise. One morning it passed the representative of the *Times* and the Paris correspondent of the *Daily Graphic* (to whom we are indebted for the foregoing) travelling like a meteor as usual, but five kilomètres further the steady trot of their horses enabled them to overtake General Brugère, whose mechanic was wrestling with a burst tire.

A Motor-Bicycle in Switzerland.

FOLLOWING on the reference to Mr. Joseph Pennell's feat in Switzerland by "Lollius" last week we now give the following details. Mr. Pennell set out on his trip from Paris. He went over the Juras to Andermatt and Lausanne and up the first portion of the Furka Pass. The second portion of the latter was traversed by carriage. The Furka pass is closed to motorists by the police authorities and so Mr. Pennell's ability to pedal stood him in good stead on that part of the ride. By means of his motor-bicycle he was able to do the whole trip in about half the time that would have been taken by an ordinary bicycle.

Police Ingenuity.

THE declarations of policemen in police courts have been so frequently discredited that various devices have been suggested to secure reliable confirmation as to their testimony. Stationing comrades at various points with stop-watches has not been a successful method, and the requisition of field glasses—a practice adopted at Yarmouth a year ago—has not been continued. Now it is suggested in France that cameras working on the biograph principle should be employed. The notion is ingenious, but will never be seriously considered by the police authorities of this country. We doubt whether it will do anything but raise a smile elsewhere.

Ladies' Motor Garments.

ON Saturday the *Daily Chronicle* gave a sketch of a lady's automobile cloak, and declared that the sportswoman who is up to date should learn to drive her own motor-car. Garbed correctly for the pastime she will be seen enveloped in a long coat made of a material that is absolutely impenetrable so far as dust is concerned. In colour it should be that of the roads, though a mouse-grey is found a good alternative. The coat sketched is of stone-hued automobile silk much strapped and stitched with silk to match. The tricorne hat is excessively

smart, and is one type of the genus "cocher." Fine beaver composes it, and the sole trimming it possesses is a flat band of silk round the crown threaded through a long iron buckle in the centre.

Lincoln and Automobiles.

AUTOMOBILISM is developing rapidly at Lincoln, and the Lincoln Motor-Bus Company has decided to build extensive premises to accommodate the expansion of business which is anticipated. In this expansion Mr. A. W. Goodall is playing an important part. Motor-cars wait every evening at the theatre exits, and during the football season teams and their supporters will be rapidly and comfortably carried to the outlying districts. A number of bus tops are now being built for the cars, and a spirit of enterprise marks the whole concern. Every facility is wisely offered to owners of horses to train them to regard automobiles with indifference, and the public is showing great interest in the whole development. We hear that a passenger on one of the company's cars has just won a £10 cheque offered by *Pearson's Weekly* in connection with a novel competition now running to advertise that journal.

Carriage Builders and Motor-Cars.

THE construction of automobiles by English carriage builders was one of the subjects discussed at the conference of the Carriage Builders' Institute, which opened at Dover on Tuesday. The president acknowledged that motor-cars had "come to stay," and, in reply to the suggestion that coach builders were not keeping abreast of the times in this line, said their capital was, as a general rule, fully invested. But, supposing firms had the money to spare, the difficulty was to know what class of motor to adopt. He thought engineers should construct the machinery and running gear, the body of the motor-car being built by their own trade.

From Brighton to Arundel.

FROM North Street, Brighton, to the Castle at Arundel in eighty minutes sounds a "tall order," but we did it, says a writer in *Brighton Society*. And at no part of the journey did they appear to be going at a dangerous speed. Something depends upon the class of carriage, and much depends upon the driver; and in these two particulars everything necessary is combined in Mr. H. Chapman and his magnificent Daimler-Hampton char-a-banc, which has recently taken up a position for hire on the Brighton front. The road to the Duke of Norfolk's famous castle is one of the prettiest in the pretty county of Sussex, but it is also one of the most trying for vehicular traffic; and the hilly character of the journey, affording such constant changes of scenery, is not rendered easier by the present wretched state of the roads, a condition to which the local authorities should give early and proper attention.

The Motor Racing Track.

THE idea of a motor racing track is not dead, although it has been rather unobtrusive of late. Mr. S. F. Edge has now given his view of the matter. He would like the track to be in the form of a road with gradual curves, so that the highest speed could be taken at those curves without throwing undue strain on the tires. Of course the great radius which Mr. Edge considers necessary is in itself an obstacle to the realisation of the project at present, but the heavy expense of the tires when used on the ordinary racing track will probably prevent track racing growing to any extent. At the Automobile Club's race meeting at the Crystal Palace a few months ago an object lesson on this point was given. A racing tricycle used up a set of tires inside an hour, owing to the tremendous scraping action that takes place in going round the curves.

The "Traveller."

ENTERPRISE seems one noteworthy feature of the *Traveller*, the new sixpenny weekly paper which is being published by the Newnes Company. We hear that it is about to despatch Mr. C. N. Williamson on a long journey through the whole of France and Spain. The tour will extend through the winter, and his adventures will appear every week in the *Traveller*. The interest of the matter to our readers consists in the fact that he will travel on a motor-car of English manufacture—the Royal International.

The "Royal International" Car.

This new car, of which an illustration is given herewith, can be fitted with either an 8, 10 or 12 h.p. engine, and shortly a 16 h.p. motor will be available. The engine is made in either tandem or twin cylinder form, with all the valves on the top, so as to render them easily accessible. Two Clarkson coolers and a semi-rotary pump are provided in connection with the cylinder-cooling water. The frame is built of channel steel, the motor being suspended on the top of the same, so keeping the belts well out of the wet, damp and dirt. The crank is



enclosed in an oil chamber, and all lubrication is automatic. Electric ignition is adopted, a useful feature being that the sparking plugs can be detached without upsetting the packing of the joint. Three forward speeds—from two to twenty-four miles per hour—and one reverse are available. The car is claimed by its makers, the International Motor-Car Company, to be almost entirely free from vibration, and to be able to mount hills on the first and second speeds, the occasions on which the third speed is necessary being extremely rare.

The Sunbeam Car.

THE latest addition to the list of cycle-making firms taking up the construction of motor cars is John Marston, Limited, of Wolverhampton. In the particulars sent us the makers state that they have endeavoured to produce a vehicle combining the elegance and comfort of a victoria, with a motor and mechanism easily accessible in all its parts. The motor, which is located in the fore part of the frame, is of 4 h.p., with water-cooled cylinder, the water constantly circulating from a tank through a cooler to the water jacket without the use of a pump. The ignition is electrical, a small lever, placed conveniently for the right hand, being provided for timing the spark. The motor is started by means of the usual detachable handle. The cylinder and main bearings are lubricated from a sight feed box fixed on the dashboard in front of the driver. The power of the motor is transmitted to the driving wheels by belts. Two speeds forward and one reverse are fitted, the changes of speed being effected by fast and loose pulleys acting on a second shaft.

and connected with the live axle of the driving wheels by two gear wheels enclosed in the differential gear box. Wheel or other steering is provided as desired, while the road wheels are of wood, 28in. diameter at the front and 36in. at the back, fitted with either solid rubber or pneumatic tires. Two powerful brakes, both acting direct on the driving wheels, are fitted: (1) a band brake operated by a pedal for ordinary use, and (2) an emergency hand-controlled brake acting direct on the driving wheel tires by means of special shoes. The weight of the car is between 9 and 10 cwt.

Scotch Caution (?)

SCOTCHMEN are credited with caution and much worldly wisdom. They never do things in a hurry, and are regarded as considerate persons. That may be true of the race, but it apparently belies the character of the Corporation of the city of Glasgow. During the present month this august body invited tenders for a motor dust-van. Sealed tenders had to be submitted four days later—a fine chance for manufacturers to submit designs and prices. With such a display of unnatural celerity we shall not be surprised to hear that the stable manager of the dust-cart department is looking forward to a long and happy life among his gee-gees.

Some Early Automobiles at the Paris Exhibition.

NOT the least interesting feature of the Paris Exhibition from the automobilists' point of view, is the display of historical motor-cars that is to be found in various parts of the great show. Visiting the Exhibition last week, we noticed in the French section a Bollée steam 'bus of 1873, and a steam tricycle built by Roger L'abbé de Montais in 1885; also a De Dion steam tricycle of 1885, a steam 'bus of Amedée Bollée of 1885, and the first De Dion petrol motor-tricycle. The air-cooled motor of the latter looks rather insignificant when compared with the engines with which the De Dion tricycles are equipped to-day. Close by, in the Austrian section, the Austrian Automobile Club exhibit, on the stand of Messrs. Jacob Lohner and Co., an historical petrol vehicle, built by Herr Siegfried Marius in Vienna in 1875. The vehicle has a turning fore-carriage steering gear, a single-cylinder engine, a single speed-belt transmission from engine shaft to driving axle, and no differential. In the German section, at the Vincennes Annexe to the Exhibition, is shown the first Benz petrol motor-tricycle, with a single-cylinder engine, the shaft of which is placed vertically, an arrangement which was probably adopted to make room for the large fly-wheel with which the engine is provided.

The Prince of Wales on a Steam-Car.

ON the opposite page we reproduce a photograph by M. Serpollet, which depicts H.R.H. the Prince of Wales and Major-General Sir S. Clark on the steam-car with which he has been touring from Homburg to Frankfort and other places in Germany. Mr. Gardner is at the helm. As we said last week, his Royal Highness has now been on motor-vehicles of nearly every description, and evidently appreciates his experiences. Both Mr. Gardner and M. Serpollet have pleasant recollections of their drives with the Prince, who gave each a pin in the form of a sword set with brilliants as a souvenir of his trips on their car.

Steam-Cars in England.

TALKING of steam-cars, an attempt is about to be made to extend a knowledge of their merits in this country, and Mr. W. M. Letts, late of the British Motor Coupé Company, has been appointed general selling agent in the United Kingdom for the Locomobile. The headquarters of the Locomobile Company of America in this country will be, as heretofore, in Sussex Place, South Kensington, and Mr. H. N. Searles, who won many friends among automobilists during the 1,000-mile Trial, will continue in charge of the dépôt,

which now presents a busy aspect. So large has the business prospect become that no one man could supervise the whole of the arrangements, hence Mr. Letts will probably find his time well occupied in appointing agents and generally developing the popularity of the Locomobile throughout Great Britain. When in America he was much struck with the usefulness of the steam-car, and this enthusiasm for that class of automobile will now have a particular outlet—the progress of which will be followed by all interested in the new form of locomotion on common roads.

Another Royal "Chauffeur."

THE Shah, it appears, will not be the only royal automobilist in Persia, for already one of the princes has followed the example of his sovereign and purchased a self-propelled vehicle. "This new adherent to the motor cause is," writes our Paris correspondent, "his Highness Ehtessam-es-Saltaneh, and in selecting a Koch heavy oil car the prince has shown excellent judgment, for petrol is hardly a common commodity in his native land, and the *chauffeur* dependent upon it would have rather a worrying time; and the Koch is such an excellent vehicle that the automobilist about to voyage in far-distant climes should never hesitate to take it in preference to the light oil car. From personal experience I can testify to the good running of the Koch car."

Motor-Cars for Traders.

TRADE journals are giving more and more attention to the utilisation of the automobile in connection with the delivery of goods and there is no doubt important progress is being made in that direction. Apart from the heavy traffic now conveyable by steam wagons there are many retail trades in which the motor-car can be adopted with economy and success. The great difficulty that modern tradesmen who have only two or three horses for delivery purposes have to contend against is the uncertainty of their delivery. One day their animals may have comparatively nothing to do, and another they may have exceptional loads and far more than any respectable horse can be burdened with. These periods of relaxation and excessive strain tell very hardly upon horses, and hence the adoption of the automobile will be a boon and a blessing to that section of the equine race engaged in the delivery of goods.

Excursions from Coventry.

THE Coventry and District Motor-Car Syndicate has arranged a number of local excursions, commenting on which a writer in a Midland journal says: It has long been a mystery why in a city which is so closely connected with motor-car enterprise so little has been done in making use of the new vehicle to serve the purposes of the public. I have long wondered that no service of cars was run between different points of the city, say between Hertford Street and Earlsdon. The expense would not be considerable; the convenience would be great. I was in Nottingham lately, and saw there a couple of motor-cars engaged in 'omnibus' work, and very fairly they seemed patronised. Nottingham is, of course, a busier place than Coventry, but there was no difficulty with the omnibus and other traffic, the cars being steered with great comfort and freedom from accident. The horses seemed perfectly accustomed to them. The running of a motor-car for public convenience through any district of Coventry would be a good advertisement for the horseless carriage, as well as a public convenience.

AT the Paris Exhibition Messrs. Arnot and Marot, of Paris, exhibit a rotary engine, which can be run by steam, compressed air, gas, petrol, etc. The engine has four cylinders, and when working with steam or compressed air there are claimed to be eight impulses per revolution, while with petrol there are four impulses. The two engines shown are both constructed as explosive engines, having flanges on the cylinders for air-cooling. The engines have no flywheel, and are claimed to be entirely vibrationless.

Royalty and Automobilmism.



H.R.H. THE PRINCE OF WALES AND MAJ.-GEN. SIR S. CLARK ON A SERPOLLET STEAM CAR, MR. GARDNER AT THE HELM.
(See opposite page.)

THE RUN OF THE MILITARY GUN CARRIAGE IN AMERICA.

IN our issue of August 11th last we referred to the attempt that was to be made to run from Fort Sheridan to Washington the automobile rapid-fire gun built by the Duryea Company for Major Highland, of the U.S. North-Western Military Academy at Highland Park, Ill. The trip proved unsuccessful, and as various incorrect accounts of the failure have been circulated in America, the following authentic account of the run, sent by Major Davidson to the *Horseless Age*, may not be without interest:—

"Some weeks ago I started from Fort Sheridan with a motor gun wagon to carry a message to General Miles at Washington. With the exception of two or three minor troubles, such as the loosening of nuts and the short-circuiting of batteries, we got along nicely to just this side of Hammond, Ind., when one of our rear tires exploded. I was using some inferior tires, but as I had ridden some thousands of miles through Central Illinois with them, I assumed they would carry me at least 100 miles further to La Porte, Ind., where I had contracted with the Preston Hose and Tire Company, of Everett, Mass., to have new tires for me. On sending a messenger ahead, I found, however, that they had failed to arrive. To make a long story short, I was compelled to wait there, camped in the sand hills for twenty-two days before we could get our tires, all manner of accidents having happened at the tire factory in the meantime. When we at last did receive them, having in the meantime ridden the carriage some twenty

miles on a flat tire to get into a better country, it began to rain. We pushed on, however, to La Porte, Ind., much of the way through heavy black mud, and as it continued to rain for seven days, I was compelled to postpone the trip on account of work at home. I wish to say, however, that the engine did not explode, nor did we have any serious trouble aside from our tires. I am, in fact, so confident the trip can be made that I am now planning to build another carriage and take a battery of two carriages with the message to Washington. This I hope to be able to do some time in October."

Mr. J. B. WALKER, editor of the *American Cosmopolitan Magazine*, has the distinction of being the first to ascend Pike's Peak (Colorado) in an automobile. He reached a height of 11,000ft. The roads were very bad. The return journey was like going down a toboggan chute, and was fearfully rapid work.

THE recent automobile race from Berlin to Aix-la-Chapelle is said to have resulted in the following loss of life:—A cow, two hogs, three sheep, sixteen dogs, and twenty-three chickens. A stone wall and a hay-cart were also injured. The enumerator of these casualties must have had the sense of exaggerated imagination in addition to arithmetical talents of a very patient order.

SOME horses attached to an omnibus took fright in the Kew Road, Richmond, the other evening. Bolting through the town they collided with a butcher's van and a mineral water cart. Not satisfied with that, they jumped on a brougham and overturned a fruiterer's van, finally mixing themselves up with a hansom cab. Needless to say, the local reporter ascribes their excited condition to the presence of a motor-car.

CORRESPONDENCE.

A SUGGESTED IRISH MOTOR-CAR TOUR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is to be hoped that the Automobile Club will arrange some great event for next year. The success of the 1,000-mile Trial was so unmistakable that manufacturers would probably be glad of another great scheme to further popularise the industry. Of course, I know that there was a lot of expense, but experience has probably justified every penny that was spent.

Could not an arrangement be made that London and southern members of the club should go to Liverpool—a city that was missed in the last itinerary—and there be joined by a Scotch and northern contingent? Such a display would be welcome in a place where motor-vehicles for heavy traffic have been so much to the fore. Thence to Holyhead and across to Dublin should begin an interesting tour through a country where motor traffic will be popular in the near future.

A visit to the manufacturing towns of the north of Ireland should certainly prove a paying as well as a pleasant trip for manufacturers engaged therein.

Liverpool, September 18th, 1900.

Yours truly,
NESTORIAN.

PRICE'S BRAKE BLOCKS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be glad if any of your readers who have had experience of the above would favour me with an opinion of their usefulness or otherwise. I understand that when properly fitted they will so brake the wheels as to prevent the car running backwards. If this is so, surely they would be a great boon to motorists, especially those running 6 h.p. vehicles, weighing a ton or more.

Sheffield, September 17th, 1900.

Yours truly,
NERVOUS.

MAGISTERIAL WISDOM.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR, I have been much exercised over two decisions of Mr. Marsham, reported in this week's *Motor-Car Journal*, and should be glad to hear further opinions from your readers as to their soundness.

I have never had any trouble about my horse and carriage standing any length of time outside my patients' houses. This winter I am contemplating using a motor-car, but if I am to be responsible for the idle curiosity of the casual lounge I shall have to reconsider my decision.

Stones End House, Southwark, S.E.

Yours truly,
J. L. JAQUET.

September 15th, 1900.

TIRE TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am having a great deal of trouble with the tires of my motor-quadracycle, which I received new last March, and I should feel much obliged if some of your readers could give me some hints or instructions which would help me, and perhaps others who may be similarly placed, out of their difficulties.

I have not had any punctures, nor any cuts which have required attention, but after running a few hundred miles, say six or thereabouts, the strips or bands which are fixed on the treads of the tires commence to loosen or peel at the edges, coming away from the tire proper, and from this time onwards they are continually giving trouble, first one place and then another coming loose. A few days ago I refixed a number of loose places on one cover whose united length was as much as five feet.

I have five outer covers for four wheels, and, although I ride very little, and have not done more than about 1,500 miles since I got the machine, yet I seem nearly always to have a cover either wanting or undergoing repair, generally the latter.

I adopt the following method of refixing, which has been suggested to me, viz:—Clean out all the loose places carefully with petrol; let dry. Coat with Dunlop solution both tire and

strip; leave half-an-hour. Apply another thin coat; leave ten minutes or so. Bind tightly with tape or wide elastic, and leave for twelve hours or so.

I should be glad to know whether such strips as are on my tires can be fixed in such a manner as to be permanent, so that the fixing will last as long as the strips themselves. If so, is it likely that the covers, the strips, or the rubber solution is wrong in some way, or have they been fixed carelessly or by a wrong method?

I should be very glad to know whether my own method is at fault, and in what way. The trouble I have with the tires spoils most of the pleasure I get from using the machine, and seems to make me wish that I could get covers with a very thick tread, without strips, and run them, with comparatively little trouble, until they are worn out, and then discard them.

September 14th, 1900.

Yours truly,

LINZEE.

EXPERIENCES IN WALES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As I see you make mention in a recent issue of the penalty inflicted upon me by the Llanrwst magistrates for alleged furious driving, I am prompted to write you briefly as to the results of my experience during a recent motor tour in Wales.

Taking first the case above alluded to, I was fined £5 and costs for entering this small town or village, where there were no other vehicles in sight, at the rate of ten miles an hour. The policeman said he thought my car was beyond control, though he admitted subsequently that it was stopped dead within four yards from the time of his signal. He further swore that the speed was fifteen miles an hour. Yet I was within thirty yards of a sharp corner, and was not, therefore, likely to be driving furiously with passengers whose lives I valued. Further than that, drivers of Daimler motor-cars will understand me when I say that I was on the third speed with the engine unclutched on a level road, and that fifteen miles an hour, or any speed approaching that, was impossible.

I did no harm to anybody; I stopped when requested to do so, and offered to reduce my speed to local requirements in future, notwithstanding the provisions of the Road Locomotives Act, but without avail. Taffy had got hold of an English motor-car driver, and he meant to salt him. I was accordingly persecuted by the police in every possible way, and subsequently fined £5 by the venerable Nestors of Llanrwst.

I see in the same issue of your paper that you make mention of four other prosecutions for furious driving, the total fines for which amounted to 50s., or an average of 12s. 6d. each, against mine of £5. These four cases appeared in English courts. On another occasion my car was actually standing in the road when a coach drove up; the horses shied at the car, and shortly after returning to my hotel I was honoured with a call from the local policeman. My name was promptly taken down, and in the course of the evening I was informed that a terrible motor-car accident had occurred, and given all kinds of tragic details, amongst others that a coach had been run into by a motor-car running at sixty miles an hour, killing two horses, etc., etc. The horses were working the following day.

I could give other instances of the prejudice and ignorance with which I met during my few weeks' tour in Wales, and can confidently state that I had more trouble than I have had during the whole of my motoring experience in England. I venture to suggest, therefore, to any of my fellow motorists who contemplate a tour, that they should give these small Welsh towns a wide berth.

Let us hope that some day our Welsh friends will not put such difficulties in the way of motorists desiring to visit their lovely country.

Yours truly,

W. GEIPEL.

Cardigan House, Shooter's Hill Road, Blackheath, S.E.

September 17.

AT St. Neots (Hunts.) last week Mr. A. J. Wilson was fined £4 for driving a light locomotive at a pace exceeding twelve miles an hour.

THE COTTEREAU VOITURETTE.

ALTHOUGH Messrs. Panhard and Levassor and other builders of powerful cars in France report no falling off in the demand for the same, the call for light vehicles is growing enormously, and all over the country engineering firms are busily engaged on their production. Hardly a week passes now that particulars of some new two-seated car of French construction reaches us, the latest being the Cottereau, built by Messrs. Cottereau and Co., of Dijon, and of which a general view is given in Fig. 1. As will be seen, the vehicle has an attractive appearance: it has a frame constructed of tubular steel, spring suspended, at both front and rear, on the axles.

A leading feature in the car under notice is the engine. This is of the two-cylinder air-cooled type, the two cylinders being set V-fashion under a perforated bonnet in the fore part of the frame. The valve chambers are located on the top end of the cylinder, and are, like the cylinders, provided with extra large radiating fins. The cooling of the cylinder is claimed to be further assisted by making the valve boxes quite distinct from the explosion chambers, and also by a special regulator automatically acting on the admission pipe, allowing only the absolutely requisite amount of explosive mixture to pass through the inlet valve at each suction stroke of the pistons. The cylinders are 80mm. in diameter, and the stroke is 100mm. Running at a speed of 1,000 revolutions per minute, the engine develops 5 h.p. The ignition is electrical, while a carburettor of the Longuemare type is fitted. As far as the differential shaft the transmission mechanism is very much on the lines of that adopted in the Panhard cars. Three speeds forward and a reverse motion are available. The motor shaft carries at its outward end one-half of a friction clutch, the other portion of which is mounted on the end of the variable gear shaft, in line with the engine shaft. The variable gear consists of a train of spur wheels, any one of which can be made to mesh with corresponding pinions on a short parallel shaft which conveys the power by bevel gear to an intermediary shaft at right angles. The variable speed gear is enclosed in an aluminium oil-containing case fitted

with a detachable cover to give ready access to the gear. From the intermediary shaft the power is conveyed to the rear axle, which is provided with a differential gear by a single chain; this axle is also so mounted that it can be moved backwards or forwards within certain limits to allow of the regulation of the tension of the driving chain. A foot pedal actuates a hand brake on the transverse intermediary shaft, while a hand lever at the side actuates a similar brake on the differential axle. The exhaust silencer is of large dimensions and is located right in the rear of the frame. Steering is controlled by an inclined bar, on which the electric current interrupter is mounted. Wheels of the cycle

type are generally fitted, and these are shod with pneumatics. The little car, which can be fitted with a spider seat at the rear if desired, weighs, with petrol, etc., ready to start, about 6½ cwt. With its 5 h.p. engine it is claimed that the vehicle will mount any hill, and on the level attain a speed of 28 miles per hour.

MESSRS. EVANS AND Co., of Llan-gollen, are now stocking petroleum spirit.

ONE of the most recent additions to the ranks of medical automobilists is Dr. Broom, of Kirriemuir, N.B., who has lately acquired a Mors Petit Duc.

THE Chief Constable of King's Lynn has suggested that a limit of about eight miles an hour should be regarded as a reasonable speed for motor-cars in the town.

MORRISTOWN, New Jersey, has adopted an ordinance which provides that no conveyance "driven or propelled by power" shall be run in any of its streets at a speed greater than eight miles an hour, and that all such vehicles

shall be equipped with lights that can be seen 100 yards away at night, and with bells "which, when rung, may be heard 100 feet distant."

WE understand that the Automobile Association of Holland Park, W., is about to be amalgamated with the British and Colonial Motor-Car Company, Ltd., of 14, Baker Street, W., under the management of Mr. J. H. Adams, and that Mr. Frentzel's services will be retained as technical manager to the amalgamated concern. We also learn that the company, in addition to their show rooms at 14, Baker Street, W., are taking over the extensive premises at 17, Balderton Street, W., known as "Motoria" and now occupied by the Motor-Carriage Supply Company, Ltd.



FIG. 1.—THE COTTEREAU VOITURETTE.

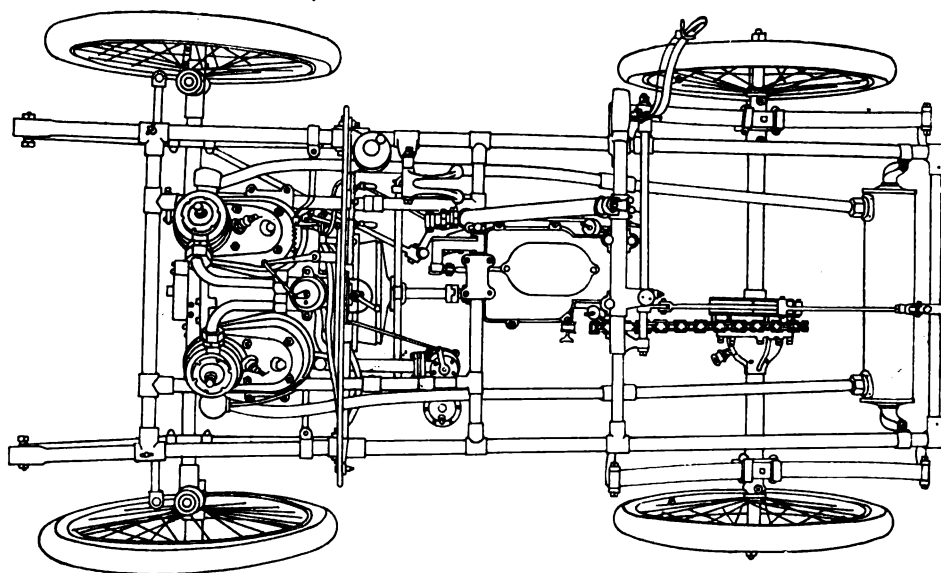


FIG. 2.—PLAN OF COTTEREAU VOITURETTE.

THE KÜHLSTEIN ELECTRICAL CARRIAGE.

AN electrical carriage with seating accommodation for four or five persons, and which comprises some novel features, has lately been constructed by the Kühlstein Wagenbauanstalt, of Charlottenburg, Berlin. A general view is given in Fig. 1, while details of the steering and speed control gear are shown in Fig. 2. The rear axle is in two distinct parts, each

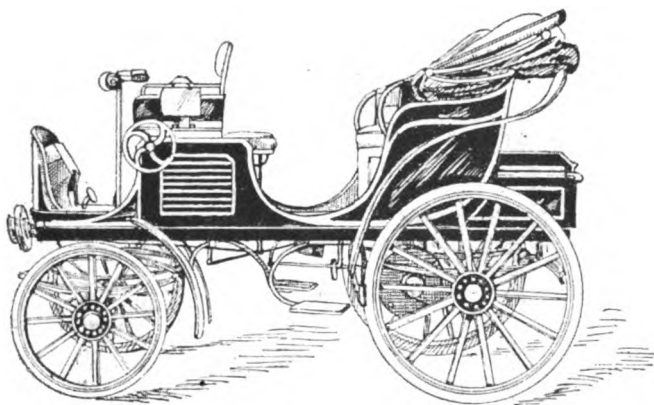


FIG. 1.—THE KÜHLSTEIN ELECTRICAL CARRIAGE.

driven through double-reduction spur-gearing by an Allgemeine Electricitäts electro-motor of from 2 to $2\frac{1}{2}$ h.p. In order to equalise the strain on the three bearings on the compound axle a stout stay of H section is fitted to and below it. The electrical energy is stored in two batteries of accumulators, weighing together 1,100lb., one being carried under the driver's seat and one in the chest at the rear of the car, the combined capacity

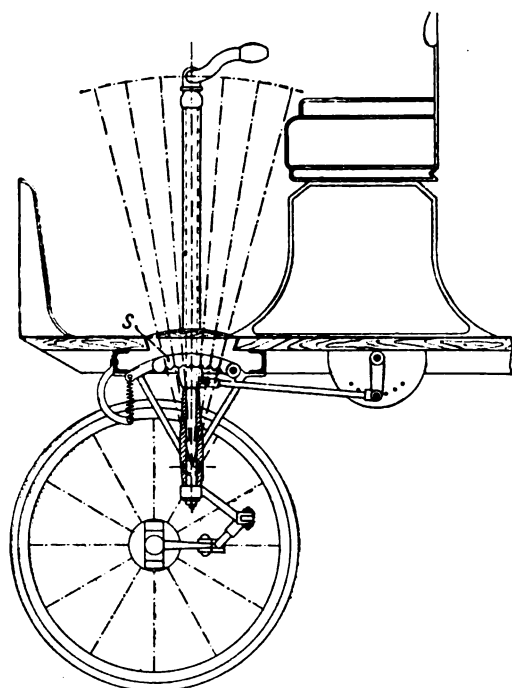


FIG. 2.—THE SPEED CONTROL GEAR.

being stated to be sufficient for a run of fifty kilometres on one charge at a speed of ten kilometres per hour. The principal feature of the car is to be found in the combination steering and controller switch handle (Fig. 2). The vertical standard of the steering lever, which is similar to that used on cycles, is so connected to the levers at its lower end that while able to rotate on its axis it can be pushed away from or drawn towards the driver. The steering standard works inside a hollow tube; the latter is connected up

to the controller switch in such a way that the driver can push forward the whole steering column, or draw it nearer to him without in any way interfering with the steering. The end of the column works in a rack. Three speeds forward are obtainable according to the distance the steering bar is pushed from the driver; the first two positions, in pulling the bar towards the conductor, give electrical brakes, while the third one gives a reverse motion. In addition to the electrical brakes there are band brakes on each of the rear-wheel hubs, controlled by a foot pedal. The makers claim that by the adoption of the device illustrated in Fig. 2 the control of the vehicle is rendered most simple.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

The Delivery Volturettes.

ON Monday last there commenced, under the auspices of the Automobile Club of France, a competition for delivery voiturettes, and throughout the week this contest has been in progress. A route of some fifty kilometres through the heart of Paris has been followed morning and evening daily by the competitors, each of whom has been required to transport at least 100 kilos. of goods. Eleven entries were received for the event, but only eight actually competed. Peugeot sent a couple of cars, and De Dion, Fernandez, Jeantaud, Corre, Forest-Gillet, and La Parisienne one each. The somewhat unusual sight of these little vehicles fitted with small van or lorry bodies has excited considerable attention on the Boulevards. I hope to give details of each competitor's daily performance next week.

An Incident of Le Bol d'Or.

IN connection with the recent twenty-four-hour race held on the Vincennes track for the famous Bol d'Or, and which was so unexpectedly won by Cordang, a curious incident has to be recorded. Almost immediately upon the completion of the first hour, and while the spectators were following with feverish interest the great struggle between Walters and Huret, the pacing petrol tandem of the latter took fire, and its riders had barely time to run the machine to the top of the banking ere it was a mass of flames. Placed as the cycle was, a stream of petrol ran across the track, and as the flames mounted higher and higher it was feared that this would take fire and so stop the passage of the racers. By a miracle, however, this did not happen, and after the tank had exploded like a miniature cannon, the flames subsided, and were finally extinguished with sand. It appears that a rag wrapped round the sparking plug was the direct cause of the fire.

In Madagascar.

ON page 185 of the *Journal* of May 12th last I referred to the proposed automobile services in Madagascar, and now it is announced from that island that the first self-propelled vehicle has made its initial run from Moramanga to Tananarive, a distance of 108 kilometres, or some $67\frac{1}{2}$ miles. The motor-car is making its appearance in so many out-of-the-way places that one learns of these new services without any of that feeling of astonishment which formerly took possession of one when making such a discovery. The organisers of these services must certainly be endowed with ample courage, for, generally speaking, a work of this description is no light undertaking.

Another Nice Meeting.

THE Committee of the Nice Automobile Club propose to organise during the month of February next a week of racing reserved for tourists, and during which the cups presented by MM. Lebaudy, de Barry, de Linsky, and Brunetta d'Usseaux will be put up for competition. This meet will be

quite independent of the historic Nice week, which will take place as usual, and for which entries are already commencing to arrive. For the Nice-Avignon-Nice event, Paul Chauchard, Mercédès, Stead, Giraud, and Pascal have sent in their names, and many others will shortly swell the list. The club committee have decided to create certificates, to be awarded to those mechanics who are able to fulfil certain conditions relating to their competency, their length of service, and their general conduct. This is an excellent idea, and should give rise to a feeling of emulation, at present rather lacking among the mechanician class.

The Trailing Car.

THE motor-tricyclist is so often desirous of mounting a passenger upon his machine, that the invention of Monsieur P. Pasquet, of Etampes (Seine-et-Oise) should secure a ready market. The ordinary trailing car offers no attractions, for the passenger there receives the full benefit of the exhaust, which, combined with either the mud of wet roads or the dust of dry, renders his position disagreeable in the extreme. One has only to stand at the Porte Maillot on a Sunday evening and witness the return to Paris of scores of *chauffeurs*, each towing a friend seated in a trailing car, to appreciate the doubtful pleasures of this form of automobilism. Seated almost upon the ground itself, these begrimed motorists present the most miserable of appearances, and one is apt to wonder whether it is possible to find any pleasure in such a method of travelling. M. Pasquet's trailer, on the contrary, places its occupant well out of this dirt, and as he is seated conveniently near to the conductor, it is possible to carry on a conversation without indulging in the shouting inseparable from the use of the ordinary trailer. This new attachment is provided with a single wheel, placed at the extremity of a triangular frame. The method of attachment to the cycle frame permits the trailer to ride easily over the inequalities of road surface, and allows of corners being turned with ease and safety.

The Austrian Hill-Climbing Race.

A GREAT success has been scored by the Austrian Automobile Club with a hill-climbing competition over the well-known Schottvien-Semmering route, for not only were the entries fairly representative, but the racing also was keenly contested. Although the difference in altitude shows but an average gradient of 4 per cent. over the entire course, the rise is actually very severe in places, and the route throughout extremely trying. A French representative, in the person of Marcellin, figured in the category reserved for motor-cyclists, but only secured second place, his vanquisher being Dietrich, whose time was 75½sec. faster. A meritorious performance was achieved by Dr. V. Stern in the tourists' class, as his time of 16min. 57sec. was one of the best made in any category. The official returns are as follows:—*Motor-cycles*.—1, Dietrich, in 14min. 38½sec.; 2, Marcellin, in 15min. 54½sec.; 3, Mandl, in 16min. 43½sec.; 4, Warchalowsky, in 22min. 14sec. *Voiturettes*.—1, Stary, in 22min. 49½sec.; 2, Spitz, in 22min. 53sec.; 3, Risch, in 28min. 5sec.; 4, Jelinek, in 29min. 40½sec.; 5, Weiser, in 49min. 1½sec. *Electric Cars*.—1, Langlais, in 22min. 27½sec. Theyer and Porsche abandoned. *Touring Cars*.—1, Dr. V. Stern, in 16min. 57sec.; 2, Dr. Suchanek, in 21min. 1½sec.; 3, Lucolf, in 24min. 24½sec.

Heavy Cars in the French Army.

THE heavy vehicles taking part in the army manœuvres in the Vendôme district are doing most excellent work, and the military commission specially deputed to watch their performances are considerably impressed with the possibilities of the self-propelled vehicle for this class of service. The Panhard and de Dietrich tractors have been busily engaged in transporting flour, oats, etc., to the various villages in the neighbourhood, each load weighing upwards of 2,000 kilos. The Scotte train, always kept under steam and ready to get under weigh at a moment's notice, has been engaged upon similar labours, but, of course, with a much heavier load than that carried by the light

oil representatives. As an instance of the nature of the work accomplished by the steamer, I may quote its performance of the 12th inst. On that day the Scotte train, having in tow six wagons loaded with 15,000 kilos of bread, etc., left Vendôme at six o'clock in the morning, and covered 85 kilomètres in thirteen hours, a work which, done by horses, would have required three relays, each of thirty-six animals, and a considerably larger convoy. And the route followed was by no manner of means an easy one, for the commission studying the question are evidently determined to ascertain exactly what the automobile is capable of, and accordingly put it to the severest of tests. Night work has also been accomplished, and little difficulty has been found in operating with this size of Scotte train. This is a step in the direction of solving the trouble which has always been experienced in revictualling, and the military experts are of opinion that by the employment of ten such tractors an army of 72,000 men would be assured of the necessary supplies. Another point in favour of the automobile is that by reason of its shortness as compared with a waggon and team of horses, it necessitates the despatch of a much smaller escort, and furthermore it lends itself with greater facility to defence. It is extremely probable that considerable developments in this direction will be seen in the French army at no far distant date, so satisfactory have proved the recent experiments.

An Automobile Search-Light.

ANOTHER interesting feature in connection with the French manœuvres has been the use made of an electric search-light attached to a small motor-car. During a night attack ordered on Saturday this search-light was extensively employed. The only fault found with the apparatus was that in consequence of its not being placed sufficiently high it disclosed the position both of friends and enemies. The search-light is the invention of M. Marcel Renault.

The Waiter-Automobile.

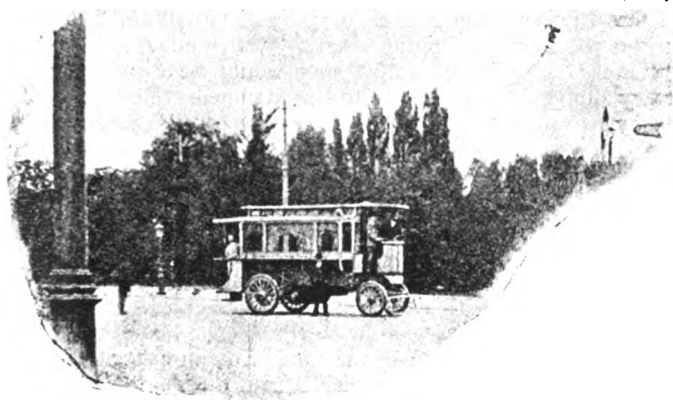
SHORT as has been its existence the self-propelled vehicle has already been put to a great variety of uses, and not infrequently these have been of a somewhat startling nature. And now an entirely new occupation has been found for it, for among its many previous employments that of waiter has, I believe, never entered into the *role* of the motor-car, and M. Legrand can safely lay claim to be the first to initiate the automobile into the mysteries of this new service. Of course, you will at once say that all this is a joke, but I hasten to assure you that the waiter-automobile is an actuality; and it has arisen in this way. In connection with this year's Paris Exhibition there is, as all the world knows, a great gathering of mayors, and if there is one person on the face of the earth who fully realises the importance of eating and drinking it is a mayor. Obviously, then, an opportunity must be accorded their worship to demonstrate their abilities as trenchermen, so all are meeting to-day at half past eleven in the gardens of the Tuileries, there to partake of a banquet. As the guests muster in all 22,178, of whom 20,777 are mayors, it will at once be seen that the scene of operations occupies considerable space. Placed end to end the tables would cover 7 kilomètres, while the kitchen and the offices similarly arranged would add another 5 kilomètres, bringing the grand total up to 12 kilomètres. Now to aid the army of waiters Monsieur Legrand has engaged the services of two cars, two voiturettes, and four cycles, by means of which the rapidity of the service will be greatly increased and the possibility of any guest being badly waited on reduced to a minimum. It is hardly likely that the automobile will be frequently employed in this capacity, but then banquets for 22,000 guests are not held daily. The motor-car is really a wonderful creature!

M. G. DE MEAULNE has returned from Tunis and Algiers, where he has been organising a "Caravane Algérienne" for October and early next year. M. de Meaulne reports that he has overcome all difficulties in connection with the supply of petrol and other motor accessories.

ELECTRIC TROLLEY OMNIBUS.

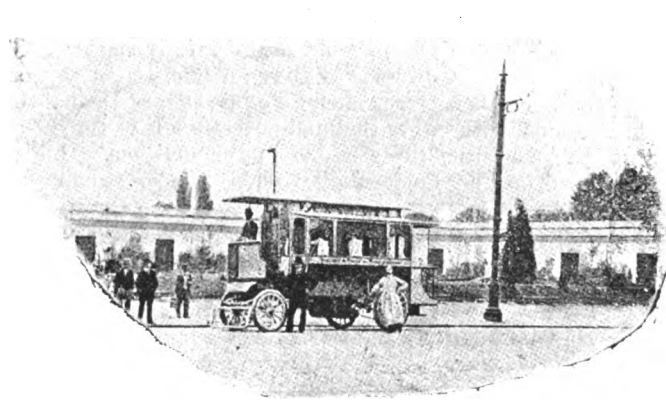
WE referred briefly in our last issue to the electric trolley omnibus of M. Lombard-Gerin, described in the course of a paper read by Mr. J. W. G. Aldridge before Section G of the British Association at Bradford. The system is an ingenious arrangement for working omnibuses and other wheeled vehicles in the streets and on high roads by means of an electric trolley upon very much the same principle as the overhead-conductor electric tramway, the vital difference

owing to the heavy expenditure on the track and road bed. The expense of laying down an electric tramway system is, from a commercial point of view, inadmissible in many towns and districts owing to the certainty that the traffic would not repay even a reasonable percentage upon the outlay. Traffic facilities for the increasing population of the outskirts of large towns may be provided either by : (1) The extension of existing tramways. (2) The existing omnibus routes maintained, or (3) motor-cars adopted to replace these omnibuses. The great difficulty in the extension of tramways is the cost of the permanent way,



Clichés de]

FIGS. 1 AND 2.—GENERAL VIEW OF THE LOMBARD-GERIN OMNIBUS AT VINCENNES.



[Le Chauffeur.

being that there is no rail on the road, the return current being effected through a second trolley wire overhead. Mr. Aldridge opened his paper by referring to the one he read at a meeting at Toronto, in which he predicted the general adoption of the overhead trolley system for tramways, and stated how the new system he described would overcome the objections to the tramway, which are twofold, viz. : (1) The unsightly appearance of the

and of track maintenance. Mr. Aldridge in his paper expressed the opinion that the system hereinafter described offers a complete solution of the difficulty. The principal features are as follow :—(1) No permanent way is required ; (2) overhead equipment is reduced to a minimum ; (3) the electric motor-cars have no accumulators to carry ; (4) the system is worked from the same generating station and feeders as the tramway system ; (5) the first cost is, therefore, enormously reduced ; (6) the motor-cars or omnibuses may run through any street which allow vehicular traffic.

The system described is an arrangement by which a service of electric motor-vehicles derives the power from a pair of trolley wires supported on short brackets along one side of the road ; on these wires runs a two-wheel trolley supporting a small electric motor for its own propulsion (Fig. 3), the whole being connected to the omnibus by a flexible cable attached to a pole on the roof, devices being provided for keeping the cable sufficiently taut, and to obviate any risk of derailing the trolley. Continuous current at 500 volts is supplied to the omnibus motor via the trolley wheels and flexible cable, which also, contains three small conductors which serve to convey back to the trolley-motor the three-phase current which drives it. This is derived from the omnibus motor, which is provided with three collecting rings on the armature at the end remote from the commutator, and connected to suitable points in the winding. By this arrangement synchronism is maintained between the speeds of the vehicle and trolley motor, but, in addition, there is provided on the trolley motor an electro-magnetic brake which can be energised at will through a sixth wire in the flexible cable. A trial experimental line on the Lombard-Gerin system is in operation at the Vincennes Annex of the Paris Exhibition (Figs. 1 and 2). The omnibus illustrated is a specially-built vehicle, weighing about three tons empty and five tons loaded, and is furnished with solid rubber tires ; at ordinary speeds the power required to propel it is from 130 to 160 watt-hours per ton-mile on level roads.

overhead wires and supports as generally constructed. To obviate this objection, which is chiefly an æsthetic one, conduit or surface contact systems are being adopted in some towns, but it is certain that the outlay, both in first cost and maintenance, on these systems will in most cases be prohibitive. (2) The cost of electric traction in small towns and thinly populated districts,

In the discussion which followed Mr. Aldridge's paper Major-General Webber and others took part. The author, in reply, stated, while in busy streets it might be desirable to erect wires on both sides of the street, some experiments are being made with a trolley which would pass another running in the opposite direction on the same wires.

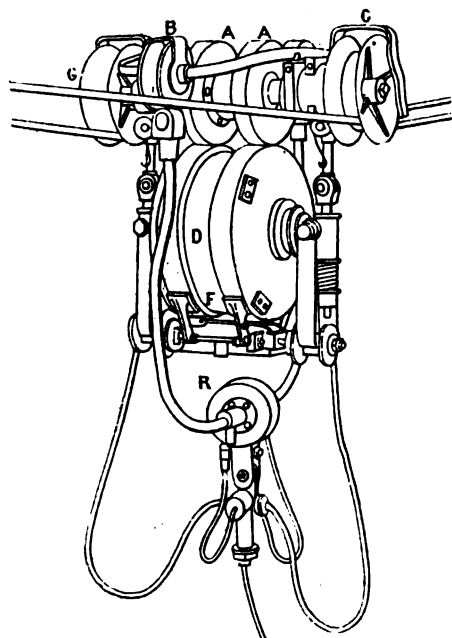


FIG. 3

HERE AND THERE.

MONMOUTHSHIRE people are looking forward with much pleasure to the visit of the Automobile Club early next month. Naturally they are interested in the doings of the Hon. C. S. Rolls, and this opportunity of seeing an organised gathering of automobilists will be taken advantage of by most of the county people. In Monmouth the two leading hotels, the Beaufort and the King's Head, will do what they can for the motorists who will be the guests of Lord and Lady Llangattock, on the 8th prox. Lord Llangattock is very popular in the district where he spends a great deal of his time, and his picturesque house, the Hendre, contains many fine curios, reminiscent of distant travels in which Lady Llangattock and his lordship have participated.

AMONG the newspapers published in London is one called *Fun*—a title the reason of which I have been unable to discover. The other week it had some doggerel about "The Motor Car," from which I abstract a sample quatrain:—

When first I saw a motor-car it made me feel quite gay,
I longed to mount and go with it upon a holiday.
I cared not for a horse or "bike," they both of them need toil—
How easy to sit on a motor-car and feed the thing with oil.

Should any motorist meet the "poet" on the road he need not turn his car to avoid contact.

My reference last week to the feasibility of utilising motor-cars in connection with railway services has brought some correspondence, including a letter enclosing a cutting from an Irish paper referring to the probability of a motor-car service being established between Borrisokane and Cloughjordan in Tipperary. It appears that the latter place is served by the Great Southern and Western Railway line, but the former, which is six miles distant, has no such facilities. Hence the suggestion for a motor-car service. There are scores of places in England as well as in Ireland where the population is not large enough to warrant even a light railway, but which would form profitable termini for motor-car services.

SEVERAL commercial travellers are using motor-tricycles in connection with their business journeys, and now Mr. James George, of Keith, N.B., has obtained a motor-phaeton to facilitate his work. The other morning he arrived in Aberdeen to make several calls in the granite city, and in the afternoon set out for Peterhead, visiting customers on the way. Staying at Peterhead for the night, he started on the following morning on a journey to Longside, Old Deer, Maud, and other places throughout Buchan.

OTHER "commercial" should follow his example as far as possible. Why could not three or four travellers, representing houses in different trades and going the same journey, join together for the hire of a motor-vehicle to carry themselves and their luggage from town to town? Such an experiment would be of considerable interest, and when a motor firm has a few slack moments it might consider the details of such a notion.

THE motor-vehicle has been a familiar object at hunting meets this season, being employed mainly in connection with the commissariat. In America things have gone a step further, and Colonel J. J. Astor, mounted on his car, was in at the death at a recent fox hunt at Newport. It will be a long day before motor-vehicles are similarly employed here, but I shall be glad to hear of their use in connection with the transport arrangements of sportsmen and hunting parties generally.

HEAVY motor-vehicles are becoming numerous in London, evidence that, despite the relatively heavy initial outlay, the economy of motor as compared with horse traction is slowly but surely being realised. As is well known, several of the vestries have adopted them for dust collection, street watering, and other purposes, while many large industrial concerns, notably Messrs. Spiers and

Pond, Messrs. Schweppe's, Messrs. W. H. Smith and Sons, and Messrs. Fuller and Co., have been using them for some time. The latest addition to the list is the Val de Travers Asphalt Company, Limited, who have just put in service a Thornycroft steam wagon. The other day I happened to be in Fore Street, E.C., which thoroughfare is just now, like a dozen other City streets, undergoing repairs, and saw the new van at work. Naturally it attracted much attention from passers-by, for a score or so of labourers were busy loading it up with old road material, and when the vehicle itself was full a trailer was attached. After this had also been loaded up with material the steam wagon hauled its heavy load away without any difficulty, much to the surprise of many of the onlookers and the amused curiosity of those who had loaded it.

One minor matter about the lorry which attracted my notice was the unprotected water-gauge attached to the tank at the rear. From what I saw of the operation of loading, I would suggest that some protection had better be provided for this glass, otherwise frequent renewals may be necessary. Or perhaps the labourers might be given special training in loading, for, judging from the performance in Fore Street, the gauge glass will not be missed every time.

AMONGST the successful motor-car services which have been established is that which Mr. W. H. Hollier has provided for the visitors to Aberystwith. This has been running two seasons,



with increasing favour, and next year some longer trips with higher powered cars are contemplated. Herewith I give a snapshot of a merry party on one of Mr. Hollier's cars, supplied by the Motor Manufacturing Co.

MOTOR-VEHICLES of every sort and description may always be seen on the road to Guildford, the steep High Street of which is an uncomfortable termination to one of the prettiest jaunts out of town. Nearly every village on the way is associated with cycling expeditions and known to cyclists throughout the country. Just on the way to Esher are two interesting things which have often aroused the interest of motorists who have been eager to get along, and who have not cared to stop and inquire their history. The first is the much ornamented enclosure of Sandown Park with its gilt railings and great gas lamps. These once served to decorate the luxurious mansion built at Kensington for the late Baron Albert Grant. A little further along on the right is an alcove built a century ago by the Rt. Hon. Henry Pelham, as the initials "H. P." serve to indicate.

THE other day returning from Guildford I met one of the finest motor "turn outs" I have yet seen on English roads. We had reached the great central square at Epsom when a 12 h.p. Panhard wagonette passed by. It had a natural wood body, which gave it a stylish appearance, and with eight people aboard it had evidently been going at a good pace. The driver was be-goggled and the car be-dusted—two facts which indicate "twelve miles an hour," or thereabouts.

THE NICOLAS PETROLEUM-SPIRIT MOTOR.

AMONG the many petroleum-spirit motors recently introduced in France, one of the most novel is that made by M. Paul Nicolas, and illustrated in Figs. 1 to 3 herewith. The balancing of multiple-cylinder motors is a question which has engaged the attention of engineers for many years past, and numerous designs have been tried, with a view to attaining a

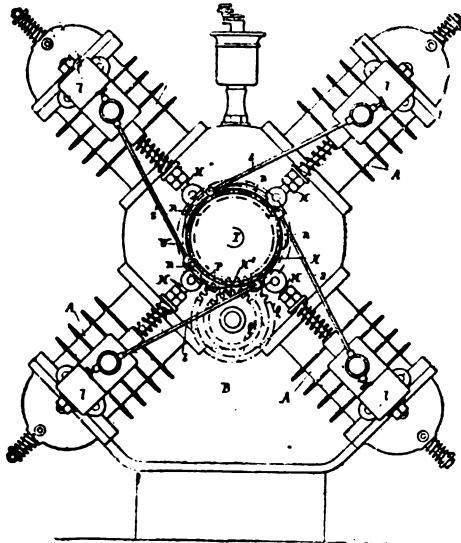


FIG. 1.—SIDE ELEVATION.

simple mechanism and a well-balanced motor. It will be seen that the Nicolas engine, which presents some distinct features of novelty, comprises four cylinders placed at angles of 90 deg. around the crank chamber, the single crank shaft passing through the centre of the chamber in the usual way. The cylinders are provided with radial discs for cooling purposes. The connecting rods *D* are fastened to the crank pin *E* in a special manner. The heads of the rods are of segment form; the

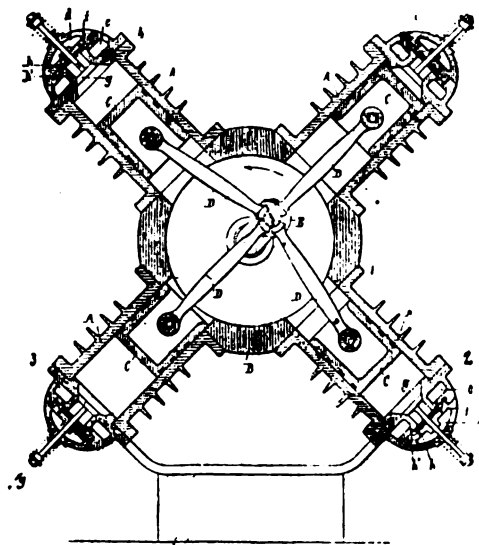


FIG. 2.—SECTIONAL ELEVATION.

exterior surface of the segments is circular, and the two sides conical. On the latter bear two rings, the interior of which is of a corresponding conical form, and which screw on to two rings placed on each side of the crank. In this way, the heads of the four connecting rods are solidly connected to the crank pin, at the same time permitting of any wear to be taken up. The head or combustion chamber of each cylinder is provided

with an admission box composed of two compartments *d* and *e*, separated by a metallic diaphragm *f* (Fig. 2). A single valve *g* is connected with this box, and, working automatically, permits the entrance of the explosive charge. The two compartments of the box communicate with one another by means of small holes *h*. On admission the valve *g* opens, and the diaphragm permits fresh air to enter by the pipe *i* into the gas chamber *e*, where it is intimately mixed with the gas which enters by the pipe *j*. On the other hand, when the suction of the piston ceases, the gas which fills the lower compartment *e*, causes the diaphragm *f* to bear on and close the air entrance holes *h*, and also prevents the gas escaping. The action of the diaphragm valve is entirely automatic, and effectually prevents the escape of gas, while ensuring perfect mixture of the charge in the combustion chamber. The electric ignition was originally effected by the rods *Z*, whose ends made contact with a cam on an insulated sleeve attached to the rotating sleeve *N*. This arrangement has now been discarded, and an ordinary commutator ignition adopted. An examination of Fig. 3, which is a cross vertical section through two cylinders and the crank chamber, will show the arrangement of the exhaust valve gearing. Each cylinder is provided with an exhaust valve

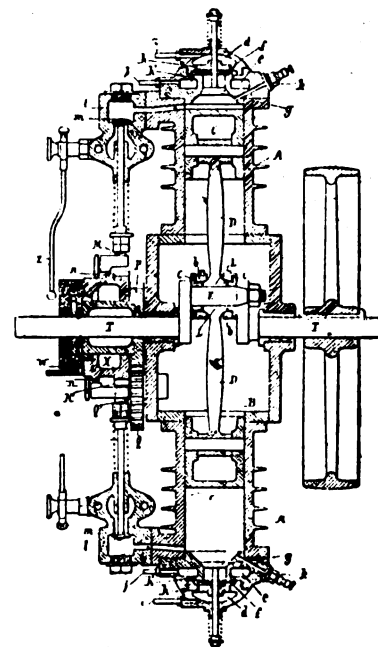


FIG. 3.—CROSS-SECTION.

l, so arranged that the latter can be quickly removed in case any repair to the valve becomes necessary. The admission and exhaust valves are kept on their seats by means of spiral springs, the tension of which may be regulated as desired. The exhaust valves are controlled by means of a cam *N*, with four projections *n*, mounted loosely on the crank shaft *T*. This cam *N* only makes one revolution to two of the crank shaft, this being obtained by means of the reducing gear wheels *QQ*¹ (Fig. 3), the smaller of which drives the toothed portion of the periphery of the cam *N*. Each of the projections *n* having to control only one of the exhaust valves, the cam *N* has, of course, to be sufficiently wide to permit of their being arranged in different planes. The operation of the motor is as follows:—With the cylinders in the position shown in Fig. 2, and with the engine running in the direction shown by the arrow, cylinder No. 1 is commencing to draw in the mixture of air and spirit, cylinder No. 2 is at the centre of the compression stroke, cylinder No. 3 is commencing to exhaust, while cylinder No. 4 is at the centre of its impulse stroke. It will thus be seen that explosion and compression take place simultaneously in two opposite cylinders, thus greatly relieving the structure from vibration, one movement serving to a great extent to counter-balance the other. M. Nicolas has already completed a number of these motors for vehicle propulsion purposes. The engine illustrated is of 8 h.p., having cylinders 72 m.m. diameter with a stroke of 105 m.m.

AUTOMOBILES IN FRANCE.

(From Our Paris Correspondent.)

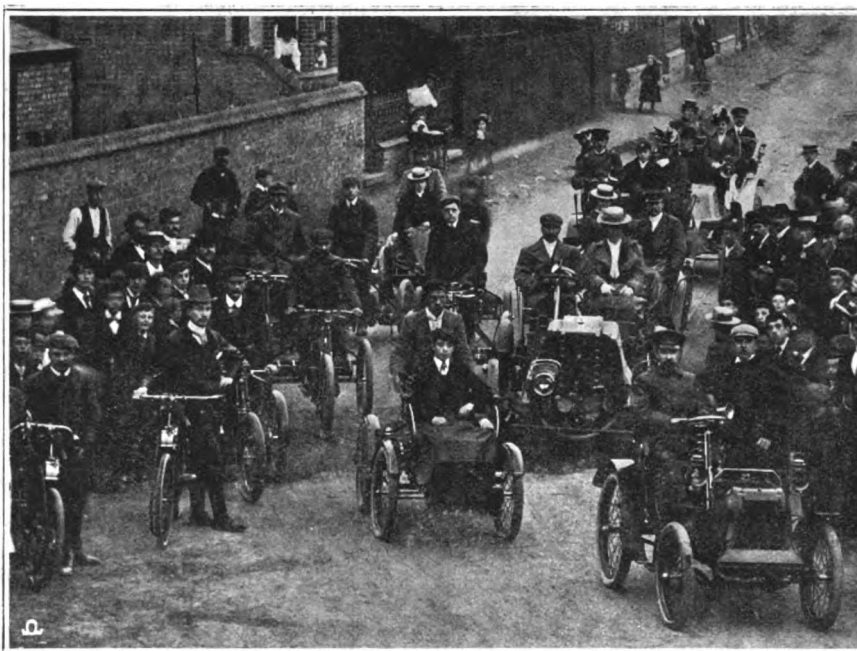
IT is extremely difficult, one might almost say impossible, to reconcile the figures quoted by *Le Vélo* in a recently issued statistical table dealing with the number of automobiles actually in circulation in France at the end of last year, with what we know of the French automobile industry. According to these statistics the number of motor-vehicles throughout the entire country only totals up to 1,672, of which Paris claims but 288. It really seems incredible, and I doubt whether anyone in France, no matter how closely connected he might be with the automobile movement, would have estimated the number of vehicles in use at anything like so moderate a figure. For my own part I would have considered 2,500 a very inside estimate, and 3,000 would not have surprised me. But 1,672 passes all belief. Why here at Paris we have seen on more than one occasion 300 cars assembled together, and even supposing that every owner in the capital was then present it is obviously improbable that every one of his vehicles—and many men own several cars—was on the spot. When one has witnessed at some race or fête a gathering of vehicles such as this, one cannot but be astounded at the figures of the Minister of Finance. Then, too, a moment's consideration of the output of the leading constructors adds to the difficulty of reconciling these statistics. During the last five years certain manufacturers—not many certainly, but two or three without doubt—have had a continuously steady output, and although all the cars built are not now in use, still one would have readily expressed the opinion that the number of vehicles built by these firms alone, and now in use, would have considerably exceeded the total quoted.

Exportation certainly cannot account for the difference, for England has been the best customer for France's automobiles, and one knows how many are to be seen in England. Therefore the difference cannot be put down to that cause; and the accuracy of the official figures is, needless to say, beyond reproach, and the certainty that few, if any, self-propelled vehicles escape the tax is also beyond doubt. All this being so the question simply resolves itself into the fact that one and all of us are so accustomed to hear and to make exaggerated reports as to the output of constructors that we quickly arrive at belief in the figures ourselves, and are absolutely astounded when we ascertain that they are but delusions. Everyone in his turn adds a little to the figures given to him, and ultimately all become convinced of the accuracy of the statements, and it requires an official report to open our eyes. It is so easy to say, "Oh! yes, so-and-so turn out four cars a week," when but three are actually constructed in that time, a small difference in itself, but a consideration in the course of twelve months. Of course, in dealing with these figures it must be borne in mind that no motor-cycles are included, but here is the exact table as taken from *Le Vélo*:

	Cars of more than two seats.	Two seated cars.
Communities of 5,000 inhabitants	313	256
Do. 5,001—10,000 inhabitants	104	92

	Cars of more than two seats.	Two seated cars.
Communities of 10,001—20,000	87	96
Do. 20,001—40,000	75	60
More than 40,000 excepting Paris	163	138
Paris	204	84
	946	726

I may mention that this classification is followed by reason of the fact that in France the tax payable on automobiles varies with the number of seats which they possess and the population of the town in which they are registered as expressed in the above table. The motor-cycles are included in the cycle returns, which for the year 1899 showed a total of 838,856 registered machines, figures almost double those of the preceding year. Since last December the number of motor-vehicles in use has very greatly increased, and when the figures for the year 1900 shall have been published one will find a very considerable advance upon the meagre return for 1899. But in the meantime the statistics published are distinctly disappointing.



THE ENGLISH MOTOR CLUB'S MEET AT LUTON—READY TO START FOR BEDFORD.
[A. J. Anderson & Co., Luton.]

JOSEPH WHITFIELD, of Darlington, was summoned, on Monday, for being drunk while in charge of a motor-car at Croft on the 1st inst. Defendant was fined £1 and costs.

THE Rural District Council of Romney Marsh have had before them the question of the excessive speed at which motor-cars travel over the highways in the district. After discussion it was decided to bring the matter to the notice of the Chief Constable of the county.

A GLOUCESTER firm has just had its excursion to Bournemouth. The principal attraction of the day was the motor-car

trip to Boscombe, which was much appreciated, and the hope was expressed that Gloucester would quickly adopt such a form of locomotion.

OUR French contemporary, *L'Avenir de L'Automobile*, is getting up a subscription with the object of presenting Le Comte de Dion and M. Bouton with a testimonial and *objet d'art*, in recognition of the services which they have rendered to the creation and development of the automobile industry.

LAST week George Barron, the driver of a motor-car, and Evan Thomas, the driver of a brake, had a long run together in the straight portion of Cardiff Road and Aberaman. P.C. Senior, however, was on the watch and timed them, with the result that they had both to appear at the Aberdare police-court on Tuesday charged with furious driving. They were each fined 20s. and costs.

AT a meeting of the Upper Ward Committee of the Lanarkshire County Council on Monday information was read from the police in regard to the furious driving of a motor-car on the public road near Lesmahagow, at an estimated rate of thirty miles an hour, by Mr. John Stirling, of Stirling Motor Carriages Limited; James Andrew, the foreman engineer of the same company; and Wm. Dodds, engineer, on September 3rd. The Chairman said there were seven witnesses who estimated the speed at thirty miles an hour. It was agreed, with one dissentient, to prosecute.

THE LOUTZKY MOTOR-VOITURETTE.

FIG. 1 of the accompanying illustrations shows a one or two-seated light car which has lately been put on the market by the Gesellschaft für Automobil-Wagenbau (system Loutzky). It is fitted with a single-cylinder air-cooled motor, of which two sectional views are given in Figs. 2 and 3. The

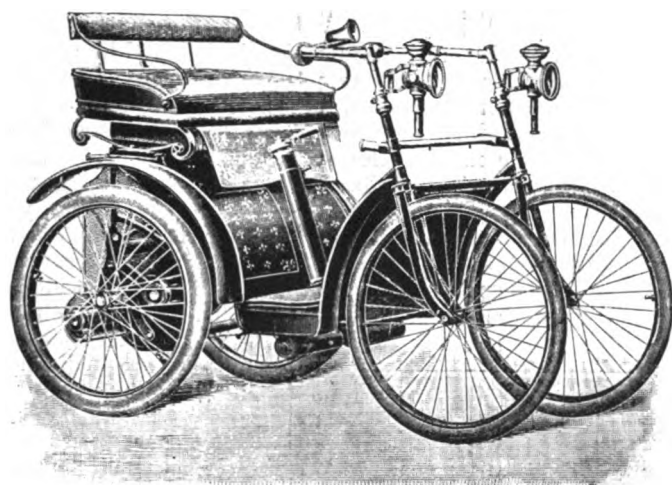
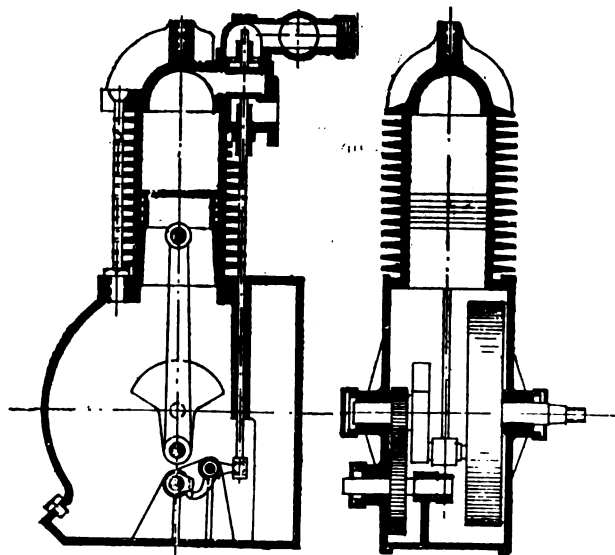


FIG. 2.—THE LOUTZKY VOITURETTE.

engine, which is capable of developing 2 h.p., is provided with electrical ignition; it is geared direct by spur wheels to the rear axle, a two-speed gear controlled by the handle projecting up through the floor of the car being provided. The front wheels are, it will be noted, carried in forks



FIGS. 2 AND 3.—SECTIONAL ELEVATIONS OF MOTOR.

of the type employed in bicycles, the steering being controlled by a long bar connected to these forks. The speeds can be varied from 4 up to a maximum of 25 kilomètres per hour on the level, while it is claimed that the car, which weighs complete about 4 cwt., can mount 10 per cent. gradients.

THE Locomobile Company of America, New York, is constructing a number of mail wagons for the U.S. Government.

MESSRS. CHAVANET, GROS, PICHARD, AND CO., of St. Etienne, have sent us a copy of their new list of Automoto motors and motor-cycle and car fittings. The firm have recently introduced a useful series of front and rear axles for voiturettes and heavy cars.

ARE STEAM CARRIAGES DANGEROUS?

THE criticisms which have been made in England and on the Continent regarding the design and safety of the small fire-tube boilers used in steam carriages on the Stanley lines do not impress us as being very weighty, remarks the *Horseless Age*. The opinion was expressed by M. Amedée Bollée at the recent Automobile Congress in Paris that it was imprudent to put a boiler of this kind on a carriage, on account of the risk the user ran if the feed did not act properly—a danger alleged to be enhanced by the difficulty of keeping an eye on the water gauges. As it is on account of the supposed danger from low water that boilers of this class are not permitted on the public roads in France, the objection calls for serious consideration even if it does not command assent.

As a matter of fact, it is only a question of money, material, and design to build any sort of a boiler to withstand any given conditions. If for whatever reason it is desirable to have a boiler that will run dry without exploding, and if the need for it is such as to justify the cost of making it, there is no reason in physics or engineering why it cannot be done. What makes the cylindrical boilers of the ordinary designs—Scotch, Lancashire, etc.—so dangerous in the event of low water is that they have crown sheets or flues, which, if suffered to become red-hot, will collapse, tearing open a seam and causing rupture of the boiler. The water is not expected to get low in these boilers, and no provision (other than safety plugs) is made for such an occurrence. The Stanley and similar boilers, on the other hand, have neither flues nor crown sheets, properly so called. They are simple cylinders, with small tubes extending from end to end and expanded into the heads. There is, therefore, nothing to collapse, even if the whole boiler were made red-hot. As to bursting, the expense of making the factor of safety double or treble what it is in larger boilers is so small that it may be, and is, ignored; and this provides not so much for undue pressures, which are prevented by the safety-valve, but for deterioration in service.

This, of course, is not to say that the Stanley type of boiler can be run dry with impunity. On the contrary, it is, after such an experience, if not actually ruined, at least a very promising candidate for the hospital. The overheating and the unequal expansion thus induced cause the tubes, some or many of them, to leak at the ends. This relieves the pressure and prevents casualties, but it puts the boiler out of service till the tubes are made tight once more. In this connection the experiment made a few months ago by the makers of one of these boilers is worth remembering. They put a boiler, with water in it, over a fire in an excavation in the ground. All valves were closed, and a pipe was led off to a distance, where a steam gauge was connected. The pressure shown by the gauge rose to 1,200 lb., at which it stopped. At this pressure the joints between the tubes and the sheets began to open, and the steam gradually escaped till the water was exhausted.

A perhaps more important objection, which might have been raised by European critics, is the possibility of deterioration by grooving, pitting, electrolytic action between the steel and copper where two metals are employed, and kindred ailments, common enough and discoverable by inspection in large boilers, but which can only be guessed at in the small ones. Very likely that was what Sir David Salomons had in mind when he objected to these boilers on the ground that their interiors are inaccessible. Grooving might take place at the bend where the tube sheets are flanged, if the bend were made too sharp, especially if copper tubes were used with a steel shell; or it might conceivably occur at the longitudinal seam if this were lap instead of welt. The obvious preventives, however, are a liberal radius for the bends, and the use of welts; and until some evidence to the contrary appears we shall be quite willing to regard the large factor of safety as sufficient provision against failure from pitting and kindred deterioration.

In large boilers an excessive incrustation, by preventing the water from absorbing the heat rapidly enough, is liable to lead to failure of the tubes and sheets; and this matter of incrusta-

tion is really the most troublesome feature of the small boilers. Whether or not it is dangerous, however, can best be settled by experience. We should rather expect to find that the carriage boiler whose tubes and bottom sheet were so thickly incrustated as to over-heat would not be very efficient in taking that carriage up-hill. In other words, the carriages are not so over-boilered that any serious diminution in efficiency could be neglected; and this, of course, is as it should be.

Assuming, however, the vehicle to be worked so lightly that by continued additions of scale the lower part of the boiler is heated, step by step, beyond the safe limit, the question is, when the failure comes, will it be local and without an explosion, or will it take the form of an extensive rupture, "bursting" the boiler and destroying whatever may be in its way?

To our perception of the matter, one of three things may happen. Obviously the weakening of a few isolated tube joints will not afford relief, since the scale will prevent the water from escaping. Such weakening, however, would throw added strain on the adjacent joints, and these would quickly follow suit, with the result that the lower tube sheet would presently bulge at one or more points, letting the water escape, and perhaps extinguishing the burner by the steam thus formed. This would happen if the incrustation and the consequent weakening were mainly local, or it would happen if for any reason one part of the lower tube sheet were more heated than the rest. If the overheating were general, however, the failure of each successive tube joint would leave the next ones less able to carry the pressure, and the result might be a general and practically immediate giving-way of all the joints in the bottom sheet. This would practically amount to an explosion, even if the bottom sheet were still held to the shell by the circular seam; while if the latter, softened by the heat, gave way also, the explosion would assume its most violent form.

No such cases of failure as those we have just outlined have, adds our contemporary, come under our notice. It may be doubted if they would even be possible while the boiler continued to do duty at all; and certainly the victim of such an accident—if by good luck it carried off the individual responsible for its occurrence—would have only his own stupidity to blame for his fate. Nevertheless, the point seems worth discussing, if only because it is the only obvious way in which these boilers could be made to explode. Actual data regarding the behaviour of carriage boilers are regrettably meagre, and especially so as regards their life and the frequency of repairs. As they are commercially so very recent, this is only to be expected; but it is not too early for some information to be available. "An ounce of practice is worth a ton of theory," and we shall be glad to publish any such particulars as our readers may be able to give us, for the benefit of all concerned.

THE Meyra Electric Company have removed from Newman Street, W. to more extensive premises at 78, York Road, King's Cross, N.

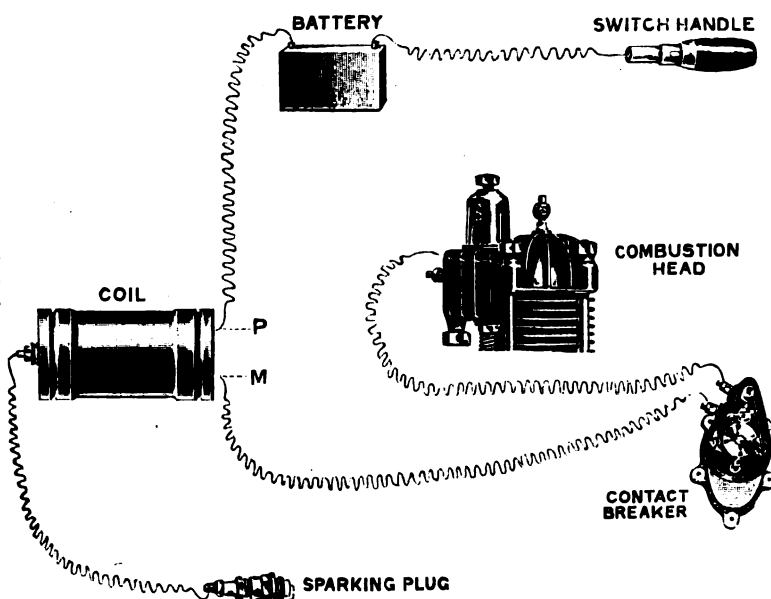
THE New York Post Office department reports a saving of fifteen minutes per trip as a result of its tests with motor-vehicles for the collection of mail in the downtown districts.

MR. W. L. BODMAN, whose newly-formed connection with the Milwaukee Automobile Company, of Milwaukee, U.S.A., was recently reported in our columns, expects to have a steam omnibus, embodying his designs, completed by next November. He returns to Europe this month to settle up his affairs prior to making his permanent home in the United States.

It is the intention of the Automobile Club of America, at their exhibition in the Madison Square Garden in New York next November, to make a display of a number of racing automobiles, as well as a number of foreign cars. They are also arranging to add to the exhibit any early experimental motor-carriages which they can obtain, as they believe these will be of considerable historical interest.

THE DE DION TRICYCLE INDUCTION COIL AND ITS CONNECTIONS.

MESSRS. DE DION, BOUTON AND CO. have recently adopted a new induction coil in connection with the electrical ignition on their motor tricycles. The device, which is made by Messrs. Bassée and Michel, of Paris, is known as the "three terminal" type, one terminal being at the right and the other two enclosed in the left hand end, holes being provided for the ignition wires to pass through. The



accompanying illustration, which has been furnished us by the United Motor Industries, Limited, who handle the device in this country, so clearly shows the method of connecting up the coil with the battery, contact breaker and sparking plug, that no lengthy description is necessary.

THE Rose Polytechnic Institute, of Terre Haute, Ind., U.S.A., will in future devote special attention to the automobile in its course of study.

THE flowing robes and new motor car of Wu Ting Tang, the Chinese representative in Washington, are said to be familiar sights, generally seen together in the streets of America's capital.

AUTOMOBILISTS who reside in or who may be passing through the Oxford district will find their wants in the way of petroleum spirit and motor accessories supplied by Mr. T. G. Barton, of 11, George-street, Oxford. Mr. Barton, who is agent for Oxford, Abingdon, and district for the "Mayfair" voiturette, is also well equipped to carry out repairs to motor-cars and cycles.

AN interesting innovation in connection with exhibitions will be introduced at the permanent automobile exhibition which is about to be opened in Berlin. It would, of course, be rather expensive for the exhibiting firms to have a representative constantly in attendance, so the director of the exhibition has conceived the idea of using the phonograph to expound the merits of the various machines, etc. The management has procured several phonographs, and a cylinder for each exhibitor. A description, containing the most important points, accompanies each exhibited article, and these descriptions are recorded on the cylinders. If a visitor desires any information concerning a certain article, the attendant of that section places the corresponding cylinder in the phonograph, and puts the latter at the service of the visitor. The instrument is entirely at the visitor's command, and may be stopped and restarted as often as convenient.

FURIOUS DRIVING CASES.



At the Steyning Petty Sessions, on Monday, Herbert Lonsdale, of Brighton, was summoned for riding a motor-car at a pace dangerous to the public at Shoreham. P.S. Beacher and two constables swore to seeing the defendant's motor-car going at from eighteen to twenty miles, in Shoreham High Street. Defendant was fined 2s. 6d. and 13s. costs.

At Barry Police Court, on Monday, William Gunning was charged with furiously driving a motor-car on the highway. Acting-sergeant (Hill said that on the 1st inst., in company with Inspector Morris, he saw defendant driving a motor-car along Holton Road, Barry Dock, at the rate of thirteen or fourteen miles an hour. Defendant told him that he was only going at the rate of twelve miles an hour. Inspector Morris corroborated. Gunning said he had been driving a motor-car for five years in London, where, however, he had also been summoned. No one was in danger on the present occasion. The Bench fined defendant 40s. and costs, the maximum penalty.

At the Beverley Borough Police Court, on Monday, Henry Lovaggi, of New Park-grove, proprietor of the East Riding Cycle Company, Hull, was summoned for driving a light locomotive at a pace to be dangerous to persons using the highway, on the 6th inst. Supt. Knight stated that the summons was taken out consequent upon what happened near the Beverley Gasworks on the date in question. The defendant was driving a light motor-car into Beverley from Hull. Near the gasworks there was a bend in the road, which he negotiated so quickly that a horse and cart being driven by Mr. Loft towards Woodmansey was upset, and the driver thrown out. It was alleged that defendant came round the corner at the rate of ten miles an hour, and although the Act gave drivers of such cars power to go at the rate of fourteen miles an hour, it was expected that they would use due care for the safety of persons using the road. Joseph Lyon, Emily Elizabeth Robinson, and Robert Loft also gave evidence. Mr. Hare, who appeared for defendant, contended that there was no evidence that defendant was driving at an unreasonable speed when the accident took place. Defendant said when he passed Lyon he was going at ten miles an hour; he travelled over the bridge at the rate of six miles, and when the accident happened he was only going at the rate of three or four miles. Cross-examined, defendant stated that he had offered to consider the question of compensating Loft for the damage to his apples. But he was asked a sum he considered to be an imposition. He had been warned about the pace he travelled, but he had never been interfered with by the police before. The Bench considered the case proved, and fined defendant £1 and costs.

MR. FRANK MORRISS, of London Road, King's Lynn, has been summoned for furiously driving a motor-car.—P.C. Boliston said that while he was in South Everard Street about 10.45 p.m. on the 6th inst., he saw a motor-car going along London Road at a terrific rate from the direction of the South Gates. The speed could not be less than twenty miles an hour. He could not see who the occupants were, but after making inquiry he went to Mr. Morris's house on London Road, but did not see the motor-car. He saw defendant through a window, and asked him if he had just passed in a motor-car, to which he replied: "Yes; I will admit I was driving at an excessive rate." [Defendant: That's untrue.] That statement defendant made in the presence of P.C. Thrower. William Cliff, of Pleasant Row, in the employ of Mr. E. Fysh, cab proprietor, said he was with a cab outside Mr. P. T. Chatterton's house on London Road, and saw the motor-car pass at about eighteen miles an hour. Mr. Morris and a lady were the occupants.—Mr. Sadler, in defence, said the charge was that of furiously driving the car to the danger of the public, and defendant denied that he did so. The road was a wide one, it was a moonlight night, and there were no people about. Mr. Sadler said he hoped the Bench would not convict, and remarked that defendant was the pioneer of the motor-car industry in this district.—Defendant said he had been to Yarmouth that day, and on his return stopped at Swaffham. He left there about ten minutes to ten o'clock, and arrived in Lynn about eleven o'clock, the distance being about fifteen miles. When he got into Lynn he slowed down. He would not drive along London Road at such a rate as the constable declared he did, because the car was a good one, valued at £600.—In answer to the Chief Constable, defendant said it would be about a quarter to eleven when he got home.—Mr. Ayre said the Bench had come to the conclusion that he was driving at a dangerous pace. Mr. Morris would be fined £1 ls. and costs.

At the Isle of Wight County Petty Sessions at Newport, on Saturday, Captain H. R. Langrishe, the Royal Yacht Squadron, was summoned for furiously driving a motor-car. For the prosecution a police constable said he saw the defendant driving a motor-car in the High Street, where there was a lot of people about. He was going at the rate of nine to ten miles an hour. In cross-examination by Mr. Firth, he admitted he did not speak to the defendant. A porter also gave evidence. At the conclusion of the evidence for the prosecution, Mr. Firth raised an objection to the summons. He said it was well-known law that no man could be tried for two particular offences arising out of the same occasion, and, notwithstanding this, his client was summoned for driving his carriage at a speed that was greater than was reasonable and proper in the High Street, having regard to the traffic there, so to endanger the life or limb of any persons thereon. Mr. Firth pointed out that by Article 4 of the Local Government Rules, the regulations were sub-divided into two different offences. It was an offence to drive at any greater speed, having regard to the traffic on the highway; it was also an offence to drive a

motor-car so as to endanger the life or limb of any passenger on the highway, and he pointed out that it was incompetent for the prosecution to couple the two offences in the summons, and that on this ground the charge should be dismissed. The Bench found that a mistake had arisen, and that the summons was bad; whereupon Mr. Firth contended that the case should be dismissed, but the Chairman stated he should amend the summons. Captain Langrishe said he got into the car, accompanied by Lady Affleck, at the London Club, that his valet there started the engine, and that he drove down the High Street to the Pontoon, that his servant walked after him and arrived within twenty seconds of his arrival at the end of his journey, so that instead of driving ten miles an hour he only went at a walking pace. Captain Langrishe's valet gave confirmatory evidence. In his speech for the defence, Mr. Firth characterised the case as "trumped up by the police." Ultimately the magistrates came to the conclusion that they were prepared to dismiss the summons and give Captain Langrishe the benefit of the doubt.

THE CHELTENHAM COACH ACCIDENT.



THE Cheltenham coroner has concluded his inquiry into the circumstances of the death of Mr. Thomas Bugbird, which occurred from the rupture of a blood-vessel, occasioned by falling from a coach on August 29.—The Coroner explained that all the injured persons except deceased had recovered.—Mr. Walter Coyney, the driver of the coach and an experienced amateur whip, stated that the horses were walking when they passed Mr. Bingham's motor-car on Hunting Butts Hill. The motorist stopped the car when requested by witness, but the great vibration of the motor frightened the horses. The road was narrow, and the near side-wheels went three feet up a bank, jerking witness and two passengers off. Then the horses bolted and collided with a tree, and the rest of the passengers, including deceased, fell off. If witness had been strapped to his seat the horses would not have got out of control, as they had safely passed motors before.—Captain Hunt, the owner of the coach, said he would have driven past the motor-car without stopping it, so as to get away from the exceptional noise as soon as possible. He did not blame either driver or motorist.—The jury returned a verdict of "Accidental death."

MOTOR-CARS AND FRIGHTENED HORSES.



A CASE of some importance to those interested in motor-cars came before Judge Stonor, on Tuesday, at Brompton County Court. The plaintiffs, the Coupé Company, Ltd., 75, Britannia Road, Fulham, London, W., sought to recover damages from the Motor Traction Company, Ltd., 133, Finsbury Pavement, E.C., with respect to the smashing of a coupé, through the negligence, it was said, of one of the drivers in the employ of the defendant company. J. Williams, a driver employed by the plaintiffs, stated that on March 1st last he was driving a coupé along Buckingham Palace Road, and when near Victoria Street he saw a motor-bus coming towards him. Seeing that his horse was becoming rather restive, he held up his hand and shouted to the driver of the motor to stop. The latter, however, continued to approach, and witness's horse shied, overthrowing the coupé on to its side, causing considerable damage. Cross-examined by Mr. C. Walsh, counsel for the defendants: Both he and the driver of the motor-bus were on their proper side of the road. The motor was not proceeding at an exceptionally great speed; there was no smoke issuing from it, but it made a great noise. The Judge: How far away was the motor when you first saw it? The witness: About thirty or forty feet. Mr. Walsh: The instructions given to our drivers are to stop whenever it may be necessary, but I am not aware that any other drivers have a right to control the travelling of motors. The Judge: Suppose a man had a heavy van load of iron, and his horses became frightened at the noise of a motor, I am not sure that the people belonging to the latter would not be liable for any accident that might occur, if they did not stop when requested to do so. William Addie, the driver of the motor-bus in question, was called, and denied having seen plaintiff's driver hold up his hand or heard the man shout for him to stop. The Judge: I do not see that there was a want of reasonable care on the part of the defendants' driver, and I shall strike out the claim, with costs.

WE understand that the claim of Mr. Rucker against the insurance company in connection with his recent motor-car accident has been settled to his satisfaction. Mr. Rucker sailed for the United States on Wednesday.

In a recent court decision at Binghamton, U.S.A., in the case of a summons for exceeding the ordinance of eight miles an hour, the policeman making the arrest swore the motor-vehicle started from a standstill, and from that point (which was the position of the guardian of the peace) turned a corner, crossed four tramway tracks, there being two switches at that point, heavily paved with cobble rocks of long standing, crossed a crossing over which people were passing, and came again to a standstill at a point distant from the start of about 500 feet, and within the distance the wagon had travelled at the rate of fifteen miles an hour!

THE Motor-Car Journal.

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COMMENTS.



AT the General Election motor-cars will probably play an important part—certainly they will be employed by the candidates in South Hants and North Ayr, while the Hon. J. S. Montagu and Mr. H. W. Forster would probably mount their cars and ride to victory should opponents decide to take the field against them. In the Horncastle division of Lincolnshire, where the candidates are Lord Willoughby de Eresby and Alder-

man T. Wallis, the constituency is being scoured by the aid of motor-cars. The Liberals, it is said, started by introducing a couple of motor-cars, and the Conservatives have chartered half-a-dozen with which to whip up their followers. In another Lincolnshire constituency Mr. Herbert Peake is getting from place to place on a motor-car, thus obtaining a distinct advantage over his opponent, who is looking after his interests on a bicycle. We understand that practically everyone in London who has motor-vehicles on hire has been approached with a view to their being used in the elections, and that many provincial firms have let out all their motor-cars to the friends of candidates.

Mr. Broadhurst and Automobilmism.

MR. H. BROADHURST represents the place of his residence on the Norfolk County Council, and in that capacity has had to utter a warning against the reckless driving of motor-vehicles. He also represents the important town of Leicester in Parliament. Now it so happens that at Leicester there is a motor-car service which is of great public convenience. One of his constituents, recognising this latter fact, has written him on the subject, drawing forth a letter which should be welcome reading to all interested in the progress of automobilmism. Mr. Broadhurst says he occasionally rides a motor-car himself, that he has said nothing about numbering vehicles, and that he has never said all motor-car drivers were wild. Evidently he is on the side of the automobilists.

To South Wales.

THE Automobile Club's tour, which it was thought at one time would have interruption from the General Election, will take place as already arranged. Several members of the club have already intimated their intention of participating in the run. Three nights will be spent at Monmouth, and in addition to the invitation to lunch at The Hendre an invitation has been given by a well-known member of the club to visit some important iron works in the locality. Given fair weather a very pleasant excursion should result.

The English Motor Club.

SATURDAY'S run of the English Motor Club was to Wendover, and about a dozen members participated—including Mr. Barnes on his Benz, Mr. W. H. M. Burgess on a quadricycle, Messrs. Gladding, Baily, Moyle, and others on motor tricycles. On Sunday the party lunched at Thame, and then

returned home *via* Reading. On the Saturday we had gone part of the way on the road and found it very dusty—as dusty, in fact, as we have known it this season.

Engine Drivers and Motor-Cars.

THE other day Mr. C. Jarrott took an engine-driver for a ride on Mr. S. F. Edge's famous Napier car. It was a pleasant trip for all concerned. They went from London to Biggleswade, St. Neots, Bedford, and home again *via* Luton—and all in a very short space of time, full details of which need not now be revealed. After the engine-driver had got over the newness of his experience in riding without the worry of looking out for signals, he settled down to enjoy the experience. He grew enthusiastic, and declared that the speed was sixty miles an hour—which was, of course, rather beyond the actual pace. One thing, he is certain that motor-vehicles *can* go. During the trip a timber-laden van passed, and the projecting timber nearly caused an accident such as that which overtook Mr. Rucker's car in Hampshire. Really there ought to be special regulations as to such vehicles.

Accidents in France.

ACCORDING to the *Velo's* return of accidents for July last, the automobile has hardly been so blameless during the month as is its habit, but all the same fewer accidents can be laid to its charge than in the case of the three other principal means of locomotion. The motor-vehicle is held responsible for twenty-eight accidents, in three instances these being fatal ones. In one case the victim was a pedestrian but in the other two the *chauffeur* himself met his death. In the first instance an old lady, half blind and deaf, was knocked down by a car passing through Magny-en-Verin (Seine et Oise) and succumbed the following day to a fractured skull. At Longwy a motor-cyclist fell from his machine and died almost immediately, while upon the same day, at Ville d'Avray, M. Jacques Ellisen was thrown from his car and killed on the spot. This is the motor-car's black list, and the record which most nearly approaches it for moderation is that of the railway. Here we find fifty-four accidents, bringing eleven deaths in their train. The bicycle has caused 117 mishaps, and claims ten fatalities, while the horse's record runs up to no less than 630 accidents and 68 deaths. The grand total, therefore, amounts up to 897, resulting in 92 deaths.

The French Heavy Motor-Vehicle Trials.

WE learn that a party of members and friends of the Liverpool Self-Propelled Traffic Association is being formed to attend the *poids lourds*, or heavy motor vehicle competition, which is to be held in the neighbourhood of Paris from the 8th to the 13th Oct. It is intended to meet at Charing Cross Station, at 8.30 a.m. on Sunday, the 7th prox., and journey to the French capital by the Dover-Calais route, but, as a large number is not expected, no special arrangements for fares or accommodation will be made. Members can, therefore, return from Paris at their own convenience. Mr. E. Shrapnell Smith, the hon. secretary, is, we understand, arranging for seats for members on the competing vehicles.

Motors and Milk.

VERY enterprising have been the leaders of the modern movement in connection with creameries in Ireland, and now some of them are inquiring as to the conveyance of milk from the farms to the butter factories by motive power.

From one place where the matter has been mooted we learn that vehicles to carry from two to three tons would be required. They should be fairly speedy as some of the distances to be traversed are long and in outlying districts. Any particulars as to cost, type of vehicle, etc., which readers may have will be welcomed in our columns. With such inquiries before us, and so many Irish people anxious to have a visit from the Automobile Club, it would appear that there is good ground for automobile development across the Irish Sea.

A Motor-Car Smash.

DESCRIPTIVE reporters had a fine chance on Monday. Dr. Heath, of London, with two friends, was returning to town from Grange by motor-car. After a halt at Kirkby Lonsdale, they proceeded down Brig Brow to the noted Devil's Bridge, when the brake failed to act, and the car rushed off at a terrific rate. Before reaching the bridge it dashed into the iron railings at the entrance to Lunefield, the residence of the Countess of Bective. The car was smashed to atoms, and "blew up with a resounding report." Dr. Heath was found under the debris, and when examined by Dr. Ledger and Dr. Paget Tomlinson was seen to be suffering from injuries mainly on the upper part of the body. The two friends escaped with a shaking. Dr. Heath's injuries are not so serious as was at first thought.



THE GORDON-BENNETT INTERNATIONAL CHALLENGE CUP.

Typical Adjectives.

THE foregoing is a typical illustration of the class of adjective reserved for such exploits:—"a terrific rate," "smashed to atoms," "resounding report." Then the last line is equally typical of the way in which these paragraphs usually end—

"The injuries are not so serious as was at first thought." Why cannot journalists get to the last line of their reports before writing the headline?

A Veritable Death Trap.

THE road between Horsham and Dorking, although somewhat hilly for a portion of the way, is a popular one with both motorists and cyclists. Entering Ockley, the road is a straight one, and looking ahead it is seemingly continuous, but as the road is followed a gate suddenly appears in front. There is no warning notice and the gate is always closed. Upon looking closely a very narrow lane, with projecting hedges on either side, is seen on the right, and round this suddenly the traveller has to turn. A more awkward and dangerous corner we have never seen. Many cyclists have run into the gate and have been injured. A friend of ours, a few years ago, while on a driving tour, ran into the gate one dark night, injuring his horse and smashing the trap. The latest accident occurred last week when a voiturette, driven by a gentleman accompanied by a lady, ran full tilt into the gate, with the result that the motor-car was seriously damaged. Fortunately the passengers escaped with nothing more serious than bruises. The gate was smashed to pieces and the fragments are still lying by the side of the path, waiting, perhaps, for the luckless *chauffeur* to pay for its repair, which the owner threatens to make him do. It is a scandalous thing that people should be allowed to place such barriers on a road—which, by the way, leads to Coldharbour—like that we have mentioned, without being compelled to place some warning sign to assist strangers travelling at dusk. Riders journeying along the road in the dark are almost certain to run into the gate with more or less disastrous results.

Freights.

A GENTLEMAN recently resident in Banbury but now living in London leaves these shores for America next week, and in the course of conversation at the Automobile Club has been comparing the difference in freightage by train of his voiturette from the Midland town to London to the amount charged by an American company for the conveyance of his car from London to Philadelphia. In the first instance the charge was £4 19s.; and in the second, the American company collects and packs the car, clears—but does not pay the duty—the customs and delivers to Philadelphia for the sum of £6 10s.

The Motor-Car on the Battlefield.

ALTHOUGH the automobile was not allowed to play a part in the military operations in South Africa, there is little doubt it will be used ere long to visit some of the battlefields. In fact, such has already been done, Mr. F. G. Cartlidge, of Durban, having recently gone over all the battlefields in Natal on a Motor Manufacturing Company's motor-tricycle, geared very low. He recommends voiturettes of from 5 to 7 cwt., and about 5 or 6 h.p., as eminently suitable for touring there, and will be pleased to advise any motorists thinking of visiting South Africa with their cars.

Royal Motor Artillery.

THE suggestion made recently for the establishment of Royal Motor Artillery finds a supporter in the *Times of India*, which, after showing the useful service performed by traction engines in South Africa, says:—"It is certainly true that nowadays motor-cars have been driven at high speed over rough ground with astonishing success. The question of cost deserves examination. The average price of battery horses in England is set down at £50, so that a gun-team of six horses costs £300. The estimate of the cost of a high-speed motor engine capable of drawing any field gun is about £200, while the liability of loss is said to be far less. We do not profess to assert that the notion is feasible, but it is at least worth examination. The proposal is not weakened by the admitted fact that motor artillery could not be used in mountainous districts. Cavalry would be of no service in an attack on Gibraltar, but their utility in warfare is not rendered

doubtful thereby. Gunners who may be inclined to jeer at the suggestion ought to remember the opinions expressed by 'experts' when the breech-loading gun was first invented."

Volunteer Automobilists.

It is some time since a correspondent suggested the formation of a Volunteer motor-cyclists' corps—an idea which did not realise into fact. Now the success of the operations of the automobiles employed in the French military manoeuvres has led to a proposal for the establishment of a Volunteer Automobilists' Corps. The development of such a notion would be more difficult than that of the formation of a motor-cycle corps, but there is a modification of the idea which seems worthy of execution. Could not automobilists offer their cars to the officers at army manoeuvres for the purpose of carrying messages, etc.? Such a beginning would probably quicken the coming of the automobile into the Army.

A Curious Accident.

An extraordinary automobile accident is reported from Aix-les-Bains, and once again would it appear to be demonstrated that a special providence watches over the welfare of motor men. The mishap occurred on the 18th instant, between Lyons and Aix-les-Bains, at what is perhaps the most dangerous place of the route, known as Pont de l'Abime. Here the road skirts the river Sierroz, and a sheer drop of some thirty-five feet to the surface of the water makes the spot by no means a pleasant one. On the 18th instant, M. Chappuis, of Lyons, accompanied by Dr. Lochon and a servant, were driving slowly, *en route* for Aix-les-Bains, when at this spot a sudden side-slip on the greasy road precipitated the vehicle and its occupants into the river. Dr. Lochon suffered a broken leg, but the other two travellers escaped unscathed from what one would have considered to be certain death. Even the car showed but comparatively little sign of its terrible fall.

In a Fog.

A RUN of the Manchester Automobile Club was arranged for Saturday last to Buxton, but owing to the bad weather it was spoiled. The owners of eight cars had promised to attend and take dinner at the Shakespeare Hotel. But the morning opened so inauspiciously that the dinner was cancelled. Ultimately, Mr. J. H. Smith arrived at Buxton on a 5 h.p. phaeton, the only other car putting in an appearance being a 5 h.p. Marshall phaeton owned by Mr. Rupert Williamson, who was accompanied by a friend. Mr. Simpson, of Messrs. Simpson and Bodman, was there on his tricycle. The party had dinner together, and then Mr. Williamson went on to Bakewell, Mr. Smith setting off by the Cat and Fiddle to go through Macclesfield and Alderley home, by the route taken on the 1,000-mile Trial. About half a mile from Buxton Mr. Smith ran into a thick fog and had to cross by the Cat and Fiddle without being able to see more than a yard or two in front. The gradients on the road are very steep, and the many sudden turns of the road made it the more difficult. Fortunately Mr. Smith had a powerful Dietz lamp, and after leaving Macclesfield was able to make good running to Manchester.

Porlock Hill.

MOTORISTS have been much interested in the ascent of Porlock Hill on a Benz car as recorded in our columns last week, and Mr. S. F. Edge, who, of course, knows the gradient and surface of the hill, writes:—"Of course it is to a certain extent a question of gearing, as no doubt if a sufficiently low gear was used almost anything of any power at all could get up the hill, although possibly it might be necessary to make a periodical trip with a foot-rule to find out whether any progress had been made. Could the gentlemen who were present on the occasion of this car climbing the hill oblige us with the time occupied in climbing the hill and the average speed? Of course, although

the mere climbing of the hill by the 16-h.p. car was a great feat, nevertheless the most remarkable point about it was the speed at which it accomplished the journey. Did the Benz car carry two passengers up, and did it go up without a stop? It would certainly be interesting to have these particulars. No doubt all those who have seen the hill appreciate the difficulties in climbing it.'

New Motor-Tricycle Records.

It is a long time since any attacks were made upon records in Paris, and it has been left to Rigal to break what was becoming a distinctly monotonous quiet. The Parc des Princes was, as usual, the scene of operations, and the intrepid little rider simply slaughtered the previous best performances. His figures were:—One lap (666 mètres) in 31½ secs. (previous record 32½ secs.); 10 kilomètres in 8 mins. 25 secs.; 20 kilomètres in 16 mins. 16 secs. (previous record 16 mins. 47 secs.) The 20 kilomètre record has stood to Béconnais' credit since May 20th last, but Rigal's time is no less than 31 secs. faster, and represents a speed of 73 kil. 800 m. per hour. Perhaps now that the ball has been set rolling again we shall have as many of these speed trials as were formerly witnessed; indeed, it is fairly certain that Béconnais himself will not rest long without an attempt to regain his records.



MR. H. JOHNSON ON HIS "ESCALAPE" VOITURETTE.

Cuba Wants Motors.

ON some previous occasions we have referred to inquiries with regard to the use of automobiles on the sugar plantations. Now comes another confirmation of the demand that is arising in a letter received by a New York export house from a Cuban correspondent, who says there is a demand there for automobiles suitable for transporting cane on the plantations and to the grinding factories. At present the work is done with bull-carts, and is unsatisfactory. The larger plantations are equipped with railroads connected with the large grinding stations, but the smaller properties generally are less advantageously situated. It is from these that the demand for automobiles, it is thought, will be large if a suitable type can be constructed. The correspondent wrote that a planter of experience told him such a cart should be an ordinary platform affair, without sides, about seven feet broad, and the capacity about three tons of cane. The wheels should not be high, and the motive power should be steam. Extraordinary speed, of course, would not be a necessity, though ability to get over the ground with fair rapidity would be an advantage, since the wagons in that

event could be transformed into passenger carriages between crop seasons. The roads on the estates, he says, are fairly good, and flat iron wheels would obviate many difficulties. The need is for a strong machine, even at the expense of appearance.

**Unconventional
but
Descriptive.**

A LADY living in Sydney, New South Wales, thus gives her impressions of the motor-car:—"It is harmless to look at, but it seems to be restless when it has to stand still, and makes a low moaning all the time as if it felt bad inside. A large crowd gathered round it as we got in. The driver told us that here were five brakes, and that no accident could possibly occur unless twenty-five complications arose, and in addition somebody put a match to something; nevertheless, at first, we were too busy placing our trust in Providence to enjoy the novelty. The machinery of the motor is coiled up serpent-like beneath the seats, so that in addition to putting our trust above we had to place it below as well. No matter how fast the vehicle goes the motion never seems much to those inside. From the street it appears to skim along, out-distancing 'buses and electric trams; even the perspiring bicyclist with his head on a level with the front wheel is left behind by that little horseless victoria. As we moved along we seemed to have advanced a century ahead of the rest of the street; the horses had quite an antediluvian look, and the 'buses looked like Noah's Arks; the faces of riders and pedestrians flashed back on us admiringly till we felt as if we had invented the thing ourselves. The motor is an animal with many voices. Till you get on him he wails and jumps; once started he moves contentedly enough, only making a low continual grr-grr, which to the people outside has somewhat a cricket-like sound. When you want to move admiring people off the track you squeeze a squirt, and a horrible noise, something between a midnight cat and a foghorn, causes to fall under a tram a small boy who has just remarked 'Ere's a kerridge bolted from its 'orses.' The most original thing about the motor consists in the remark it makes to itself when you compel it to remain still for a minute or two. Its curses are low but deep. I don't know exactly how to work the cursing apparatus yet, but I am going to learn."

**Self-Propelled
Lunch Wagons.**

THE United States Lunch Wagon Company has been succeeded by the T. H. Buckley Company, of Worcester, Mass., which proposes to build self-propelled lunch wagons. So says an American correspondent, who evidently knows. Probably there is something peculiarly American in the institution of the lunch wagon in the United States. But, so far, it has not penetrated our British insularity. A self-propelled lunch would be a good thing if introduced into city restaurants as a means of quickening the mid-day feeding operations; send it round on a special wagon and even greater time would be saved. Motor-vehicles are now entering into the commissariat of the people, and, judging from the number of such ingenious applications recorded from America, we shall do most things by machinery before long. In those days the journalistic scribe will probably lay down his pen and by means of mechanism secure the transference of thoughts to paper without hand labour. Hurry along with those lunch wagons, and let both lunch and wagon be self-propelled.

**Coventry to
Manchester.**

THE query raised by Mr. J. Reginald Egerton in our issue of August 4th, with reference to the best road between Coventry and Manchester, brings a letter from Mr. Edgar Soames, of East Grinstead, who, as one who has had the misfortune to be misguided, as he was, by a modern though obsolete map, gladly replies to it. The old road no doubt lay through Coleshill, but that village is to be avoided, and the road to Tamworth taken, just outside Lichfield. Coventry will thus be gained by an entirely different route through Fillongley. This is a very fair road and Mr. Soames does not think it is any longer.

PARIS EXHIBITION NOTES.

(FROM OUR OWN CORRESPONDENT.)

(Continued from page 458.)

FOR the automobilist who is staying but a few days in the French capital, let me at once say that the Vincennes exhibition is not worth his while to visit. Most inconveniently situated and far removed from all other attractions, the unfortunate Annex contains but little of interest, so the visitor to Paris, who is at all pressed for time, may eliminate it from his programme with the certain knowledge that he loses little by so doing. To visit Vincennes one must devote an entire afternoon, for the journey is long and the means of communication very indifferent. And then there is so little to see. The collection of locomotives and rolling stock is certainly magnificent, and is well worth a prolonged visit, but apart from this section there is practically nothing of interest. The automobiles, for whose benefit the Annex was principally organised, cannot by any manner of means be considered the *élite* of horseless vehicles, and the firms exhibiting would appear to have lost all interest in the exhibition long ago, even if they ever had any. And the lack of interest displayed by manufacturers is not to be wondered at, for they do not exhibit for mere pleasure, and business has always been conspicuous at Vincennes by its absence. When any people do visit the show—and there are a fair number every Sunday and Thursday—they are not of the automobile buying class, and the folly of holding an exhibition of such an *article de luxe* as the motor-car in a district like Vincennes has long ago been made apparent. In London one would hardly select Wandsworth Common in preference to Hyde Park for the purpose of holding an automobile exhibition, but here in Paris the Bois de Vincennes was chosen instead of the Bois de Boulogne, and the result was inevitable from the very date of the selection. If the sole idea of the authorities was to give the East-enders of Paris a share of the big exhibition, that object has been attained, but at the sacrifice of the interests of the exhibitors. The moneyed class cannot reasonably be expected to trail across Paris to see automobiles, when right at their own West end are to be found the magnificent displays made by Charron, Moutier, and the Palais de l'Automobile. Had the Bois de Boulogne been selected, this year's automobile show would have scored an immense success, for the fashionable quarters in the vicinity of the Bois have throughout the year been crowded to repletion. All that Vincennes offers in the way of space could have easily been secured in the Bois de Boulogne, and the demonstrating cars would never have lacked for wealthy passengers during their trial trips. No, automobile constructors have no great reason to be satisfied with their share of the Exposition Universelle de 1900, for their expenses have been heavy and their returns microscopical.

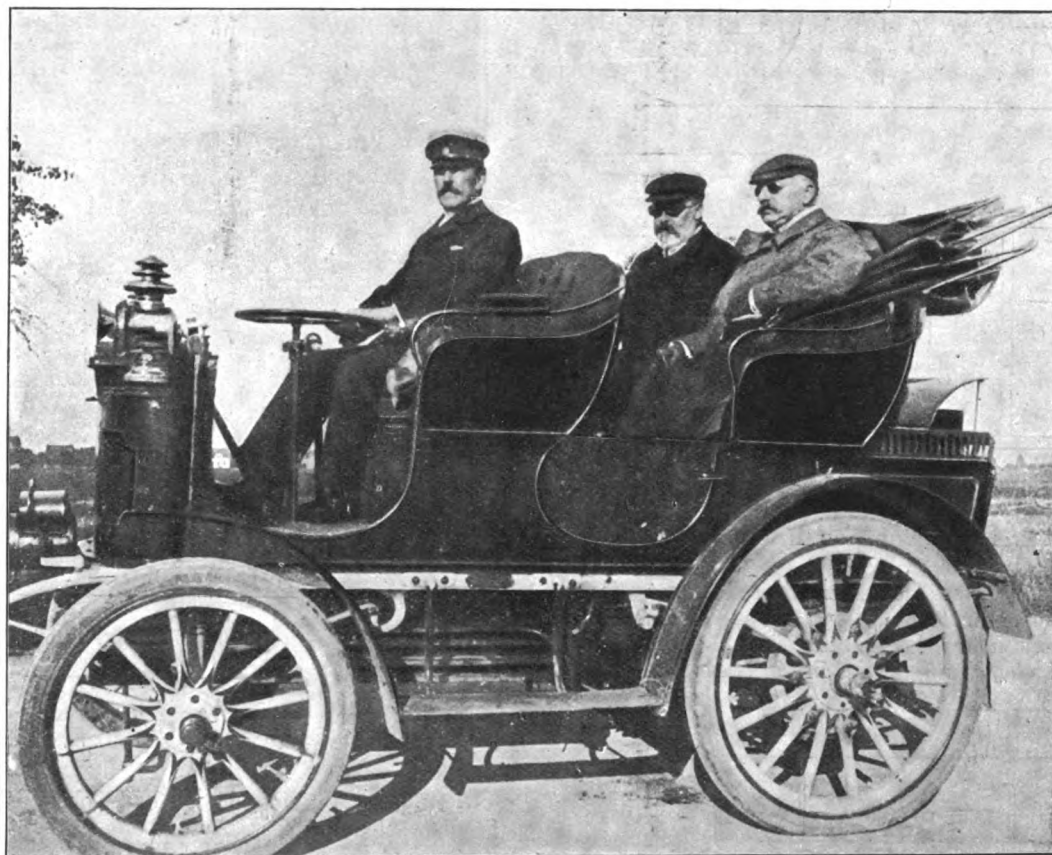
But with time at one's disposition a visit to Vincennes can be made with pleasure, for I am sure that all motor men will examine with interest the splendid locomotives and rolling stock which have been gathered together from the four corners of Europe, and this will compensate them in some degree for the lack of automobiles. So to the man of leisure I will dictate my remarks; and first of all let me recommend him to pay his visit on a Thursday, when the Annex is usually seen at its best. It is on every Sunday and Thursday that fêtes are held, and while on the former the crowd is too numerous and frequently very mixed, the latter day usually witnesses a sufficient number of people to take off the miserably deserted appearance presented by the show during the remainder of the week. And then, too, some little gaiety is shown, and one often sees automobile racing on the part of voituresses and motor-cycles, the road running round the beautiful Lac Daumesnil being roped in and utilised as a track for these contests. So then I first of all recommend Thursday for the day of the expedition, and now will tell you how to get there. All routes are more or less bad, and for the visitor located anywhere in the centre of Paris the least so is the Metropolitan Railway. This line has only been recently opened, and it runs from the Porte Maillot, by way of the Place de la Concorde, Rue de Rivoli, Place de la Bastille, and Place de la Nation, to the Cours de Vincennes, practically a

straight line from end to end. Stations are found throughout the route at frequent intervals, and as electricity is the power used and the carriages and all appointments are beautifully clean and fresh, no more agreeable means of locomotion can be desired. The only drawback is the distance at which the Vincennes station is placed from the exhibition. Certainly there is a tramcar which runs from the railway terminus to the Porte Reuilly entrance of the show, but it is a tedious affair and usually densely crowded on fêtes. But the Metropolitan is certainly the best and quickest route to follow, and personally I always make use of it when visiting Vincennes. The fares are 25 centimes first, and 15 centimes second class, irrespective of distance. Upon descending at the Cours de Vincennes, the tramcar, a yellow one—is found just in front of the station exit, and for 25 centimes one is taken to the exhibition. The route follows the fortifications to the right, passing the Portes de St. Mandé, de Montempoivre and de Picpus until the Porte de Reuilly is

route branches to right and left, follow the right-hand one—the route de la Croix Rouge—and after some five minutes' walk one arrives at the road skirting the Lac Daumesnil. Here turn to the right, and bear again to the right where the route branches. This brings one direct to the automobile section, and one remarks at once on the left a building reserved for the products of MM. De Dion and Bouton. Here, holding the place of honour, are to be seen the three winning tricycles of the Paris-Toulouse-Paris race. It will be remembered that this *course* was 1,446 kilomètres in length, and that the three men who occupied the leading places were:—

1. Teste	23h. 54m.	1s.,	average per hour	56 kil. 400
2. Collignon...	27h. 28m. 34s.,	" "	" "	49 " 100
3. Bardin	30h. 0m. 26s.,	" "	" "	46 " 900

The three machines present a weather-stained appearance and carry a great assortment of spare parts, tools and accessories.



THE PRINCE OF WALES ON THE SERFOLLET STEAM CAR.—THE ROYAL "CHAUFFEUR" DONS THE GOGGLES.
(Cliché de) (La France Automobile.)

reached, when one should turn to the left. The exhibition gates will then be seen directly in front. Should the intending visitor find himself in the neighbourhood of the Ceinture Railway he cannot do better than travel by it to the Rue Claude Decaen, the nearest station to the show. Starting from the Gare du Nord, for example, one takes about forty minutes to make the journey on this line, no fewer than ten stations being passed *en route*. The second class single fare is 30 centimes, and trains leave frequently from the east end of the station. Upon descending at the Rue Claude Decaen, turn to the right and pass by the Porte Reuilly to the exhibition. Other means of communication, which convey one to within a reasonable distance of the show, are the tramways Louvre—Cours de Vincennes, Place de la République—Charenton, and Place de la Bastille—Charenton. By boat one should descend at the Ponton des Carrières, but none of these routes convey one very near to the Exhibition.

Once having passed through the exhibition gates at the Porte Reuilly, one should proceed straight ahead until the

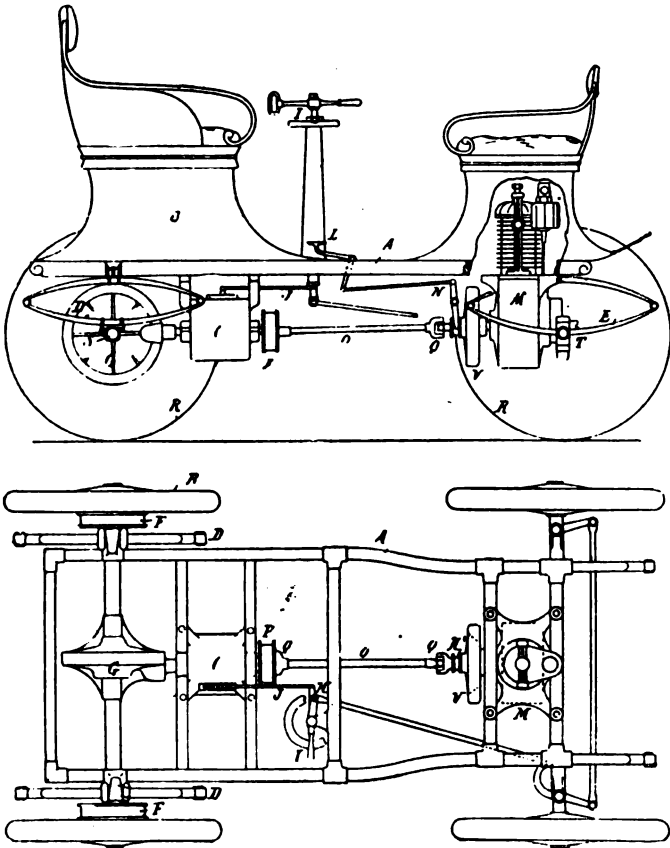
Placed on either side of them are a couple of the new type voiturettes, fitted with straight rear axles and new speed change levers. Both are four-seated cars, and one carries an awning. A couple of quadricycles and a like number of tricycles call for no particular attention, but the two ancient steam cars are of particular interest. The first was built in 1885, and carries both boiler and engine in front, the power developed being about 6 h.p. The second, constructed a year later, carries a 10 h.p. engine, placed with the boiler in the middle of the vehicle. Modern steam vehicles, constructed by the Puteaux house, are represented by a large 30-h.p. omnibus and a 25-h.p. lorry. Samples of the firm's $3\frac{1}{2}$ h.p. water-cooled and $2\frac{1}{4}$ and $2\frac{3}{4}$ h.p. air-cooled motors are also shown.

(To be continued.)

THE Desheron Motor-Car Company, of New York, expect to have a four-ton steam truck in regular service in October next.

THE HENRIOD VOITURETTE.

A NEW voiturette, of which illustrations are given here-with, has lately been completed by Mr. C. E. Henriod, of Neuilly, France. At first sight, the vehicle closely resembles the well-known De Dion voiturette, but it will be



FIGS. 1. AND 2.—PLAN AND ELEVATION OF HENRIOD VOITURETTE.

seen from the drawings that the general arrangement of the motor and transmission gear is entirely different. The motor is of the vertical single-cylinder type, and is said to develop $5\frac{1}{2}$ h.p. It is provided with electrical ignition, and is, states *La Locomo-*

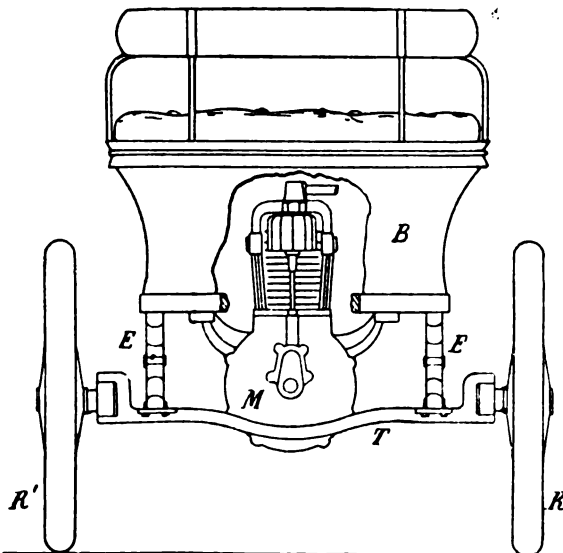
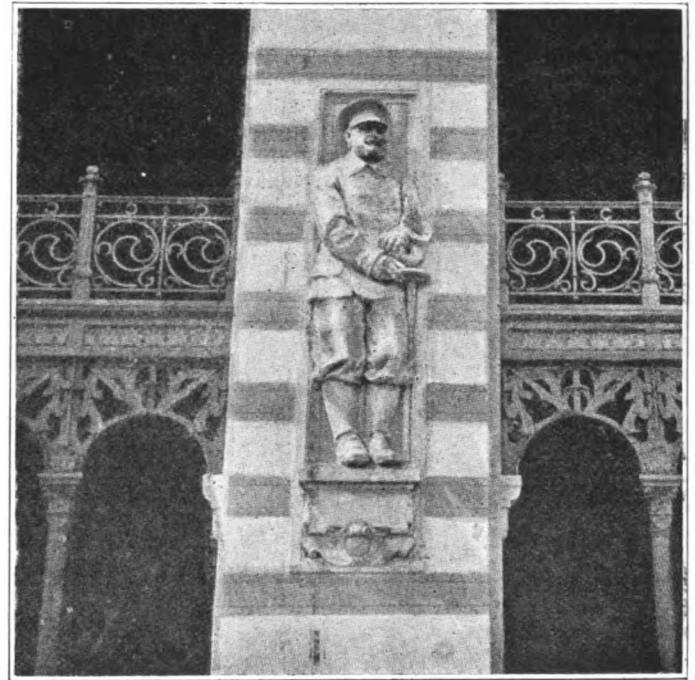


FIG. 3.—FRONT VIEW OF HENRIOD VOITURETTE.

tion Automobile, air-cooled in a special manner. Three speeds, ranging from 10 to 45 kilometres per hour, and a reverse motion are provided. The engine is located in the fore part of the frame, under the front seat. Interposed between the motor and the

longitudinal shaft *O* is a friction clutch *V*, which permits the motor to be instantly cut out from the transmission gear. The variable speed gear, which is enclosed in the box *C*, consists of a train of spur wheels meshing with corresponding pinions on a short parallel shaft. The latter transmits its power to the rear "live" axle by means of bevel gearing. The frame is of tubular construction, and is spring-suspended on the axles, both back and front. The motor and gear being entirely supported by the frame, any type of body—voiturette, coupé, delivery van, etc.—can be fitted thereto. In the four-seated car illustrated the front seat is reversible, so that all four riders can face the direction of progression if desired. The usual brakes are provided, viz., band brake acting on the hubs of the rear wheels, and a similar brake on the longitudinal shaft *O*, which it will be noticed is provided with universal joints.



THE "CHAUFFEUR."

THE International Motor-Car Company have lately supplied a motor dog-cart to the Right Hon. Lord Edward Spencer Churchill.

IN a local timetable we have observed an advertisement headed "Headquarters, Automobile Club." The announcement referred to the Reindeer Hotel, Milcheapeen Street, Worcester.

ON the exterior of the Transportation Building at the Paris Exhibition are a series of decorative figures symbolical of various industrial pursuits and pastimes. Among these is the figure—reproduced above—of the *Chauffeur*—in all the glory of special raiment suitable for automobile touring.

MR. VAN RADEN, Ellys Road, Coventry, in addition to his now well-known glass accumulators, has placed on the market a new induction coil, which is made in two sizes, the larger for motors up to 700 revolutions per minute, and the smaller for engines running above that speed. Both coils give a powerful fat flaming spark with very low consumption of current.

THE British Power, Traction, and Lighting Company, Ltd., has just been registered with a capital of £52,000, to acquire the businesses of the Engineer Cycle Works, Ltd., the Eclipse Brass and Copper Company, Ltd., the Anglo-American Motor Car Manufacturing Company, and the Power Transmission and Traction Company, all of Hull Road, York, to take over from the liquidator the assets of the Disc Hub and Components Company, Ltd., and to carry on the business of motor, motor-car, crane, lift, and cycle manufacturers, etc.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

Motor-Vehicles in the French Postal Service.

In a few months it is expected that postal motor-cars will be a feature of the Paris streets. M. Mougeot, who has already been identified with many useful improvements at the French General Post Office, is studying a plan for the utilisation of electrically-worked cars or voiturettes for the speedy distribution of letters and telegrams. The cars are to have four wheels, and will be in appearance something like the tricycles used by many tradesmen for the delivery of goods.

Leipzig Exhibition.

LIEPZIG is to have its automobile exhibition, and this, too, on no small scale, for every effort is being made to render the show of as international a character as possible, and to demonstrate to visitors that the industry, although but young in years, has already passed out of the stage of infancy. Friday, October 19th, has been selected as the date of the opening ceremony, and the exhibition will close its doors upon the evening of the following Tuesday. Automobilmism is progressing apace in Germany, and this exhibition has aroused the greatest interest throughout the country. While it is hardly probable that many foreign firms will be induced to exhibit, one may safely assume that all the leading German houses will be represented.

Racing at Lyons.

In spite of all doubts to the contrary, the Motor Club of Lyons ultimately received the necessary authorisation to hold their proposed race from Lissieu to Mâcon and back, a distance of one hundred kilometres, and the event was duly decided last week. A great number of local automobilists had sent in their names for one or other of the three categories provided, and in the big car class the vehicles entered were all extremely powerful, ranging as they did from twelve to thirty-two horse-power. But as is so often the case the most powerful car did not prove itself to be the most reliable, and the first place was secured by M. and Mme. Oillion, who were competing with a 12-h.p. racer. M. Pansu (16-h.p.) and M. Audibert (32-h.p.) finished second and third respectively. In the voiturette class M. Collin, the president of the local club, was successful in securing second place, the actual winner being M. Archinard, who drove a 3-h.p. car. Among the motor-cyclists, Berthet proved successful, and was followed home by Jacob and Rival in the order named. The course was followed by a banquet, which was largely attended.

For Electromobilists.

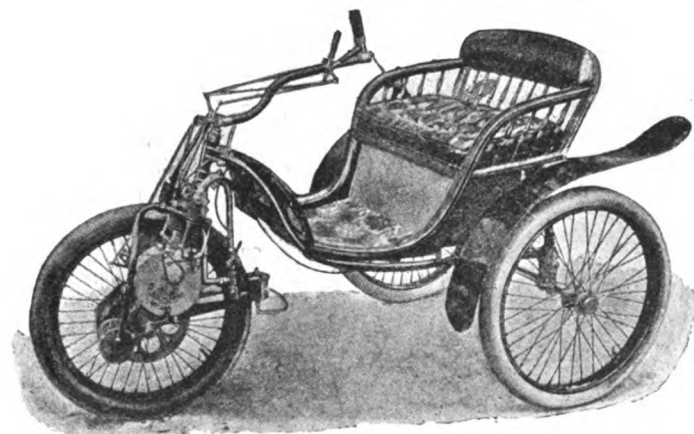
SOME time ago I mentioned in these columns that the Touring Club had in course of preparation a map of France especially designed for owners of electric vehicles, and I am now able to give some indications of the progress made. To-day, thanks to the efforts of the T.C.F., the electromobilist can set out on ten distinct itineraries with the certain knowledge that he will be able to recharge his accumulator every hundred kilometres. These itineraries are:—1. Paris to Lille; 2. Paris to Givet; 3. Paris to Belfort; 4. Paris to Dijon; 5. Paris to Auxerre; 6. Paris to Saint Nazaire (Escoublac); 7. Paris to Brest (by the Côte Bretonne); 8. Paris to Caen; 9. Paris to Havre; 10. Paris to Dieppe. It is anticipated that in some eight months the work will have been completed, and that a great number of routes will have been traced throughout the country. As time progresses the preparation should be facilitated, for with the improvements so continually being made the electromobile's field of action should widen accordingly, and whereas to-day the compilers of this work must select their itineraries on the basis of a hundred kilometre run as

a maximum, in a few months' time they should be in a position to calculate the energies of the electric vehicle at one hundred and fifty kilometres. Electromobilists should be infinitely grateful to the T.C.F., for already they have the option of ten capital itineraries and the comforting assurance that the efforts of a great and powerful organisation are at work to further their interests. Founded for cyclists, the T.C.F. never hesitates to extend its field of action when a demand is made upon its services, and touring automobilists have to thank it quite as much as the A.C.F. for many of the privileges which they enjoy. It is interesting to learn that upon August 1st last the number of members enrolled upon the books of the T.C.F. was 73,433, a unique record among the world's clubs, I should fancy.

An Italian Voiturette.

MESSRS. MAROCCHI BROS., of Milan, Italy, have recently introduced the little voiturette herewith illustrated. The vehicle is a three-wheeled affair, having seating accommodation for two persons side by side. As will be seen, the single

front wheel serves the double purpose of steering and driving. The car illustrated is fitted with two motors, each of 1½ h.p., one at each side of the front wheel. The motor is of the air-cooled type, and is provided with electric ignition and Longuemare car-



burettor. The speed of the car is controlled through the motor, no variable speed gear being fitted. Messrs. Marocchi claim that the double-engine car can attain a speed of 30 kilometres per hour. They are also making a similar vehicle fitted with a single 1½ h.p. motor, for which a speed of 20 kilometres per hour is claimed. The makers state that they have brought out the little vehicle, which has been named the Aquila, with the view of meeting the demand for a cheap but reliable automobile.

The Siemens and Halske Electrical Omnibus.

MESSRS. SIEMENS AND HALSKE, one of the leading electrical engineering concerns in Germany, have for some time had an electric omnibus, very much on the lines of the Lombard-Gerin described in the last issue of the *Journal*, in service in Berlin. The Siemens and Halske electrical omnibus is adapted to run by current from its own batteries or by current taken from an overhead trolley. The batteries may also be charged from the trolley wire. The 'bus has an extra pair of wheels just forward of the front driving wheels, which act as guide wheels to keep the omnibus on the line when running as a trolley car. As soon as the omnibus leaves the track, these wheels are raised from the ground and the trolley is tied down. The steering gear is of the usual kind, but fitted with ball bearings, and is capable of turning the omnibus in a very narrow street. The brakes are of the ordinary shoe variety, and in addition there is an electric emergency brake. Four motors of 4 h.p. each are used. The total weight is about seven tons, of which the batteries are responsible for 3,300 pounds. The chief value claimed for this combined vehicle is that it can be used in connection with a tramway system for a route, a part of which runs through streets too narrow for tram lines, or on which they may be prohibited for other reasons.

Voiturette Gymkhana.

It is announced that *Le Sport Universel Illustré* intends to repeat the voiturette fête and gymkhana, as organised last autumn at the Rond Point de Longchamp. The selected date is Saturday, October 20th, and the profits accruing will be handed over to the poor of Paris. The idea is excellent, but if the fête is to secure the success which all automobilists will wish it, steps must be taken to render the organisation more perfect than it was last year. Upon that occasion the meet was noteworthy for extreme unpunctuality, and as any number of the privileged public were permitted to promenade within the enclosed space, those behind the railings saw but little or nothing of several events. With good management a fête in the Bois is certain to command a great success, for there will be no lack of people in Paris, and the beauty of the woods alone at that time of the year is always sufficient to attract. The programme will be announced at an early date.

THE HENSCHEL ELECTRICAL VEHICLES.

REFERENCE has previously been made in these columns to the electrical vehicles of the Berliner Maschinenfabrik (Henschel and Company), of Charlottenburg, Berlin. We are now able to illustrate several types of electromobiles lately turned out by this concern. Fig. 1 shows a droschke capable of seating two or four persons exclusive of the driver. The car can, it is claimed, traverse a distance of 50 kilometres on one charge of the batteries; it represents a type which is being used in Berlin as a public conveyance in

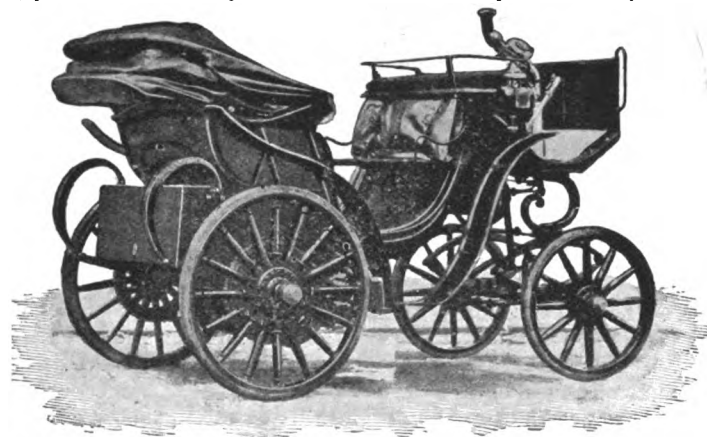


FIG 1.—THE HENSCHEL ELECTRICAL DROSCHKE.

competition with the horse-drawn cabs. Messrs. Henschel claim that where facilities are at hand for the charging of the batteries their cars can be run at a daily cost much less than that of horse-drawn vehicles.



FIG 2.—THE HENSCHEL PHAETON.

Fig. 2 shows a neat, two-seated Phaeton, which is claimed to be well adapted for doctors' use. The electro-motor in this vehicle is fitted about the centre of the frame, and is

connected by a flexible shaft and bevel gearing to the rear axle. The battery of accumulators, which are of the Hagen type, is stated to have a capacity sufficient for a run of from 30 to 70 kilometres on one charge, according to the roads traversed. It is carried in a receptacle at the rear in such a way that the discharged battery can be withdrawn and a fully-charged set substituted in from two to three minutes. The



FIG. 3.—THE HENSCHEL DELIVERY VAN.

construction of delivery vans propelled by electricity has also been taken up by the Henschel Company, one type being illustrated above in Fig. 3. A feature of the Henschel vehicles is the combination of the steering handle and the speed controller. The steering standard is hollow and encircles a flexible shaft which is connected with the controller switch.

THE Capital City Automobile Company has been incorporated at Washington, U.S.A., with a capital of £20,000.

HITHERTO it has been necessary for automobilists to obtain a license to drive a steam car in New York. One of the city magistrates has, however, just given a decision to the effect that no licence is necessary if the car is of less than 10 h.p.

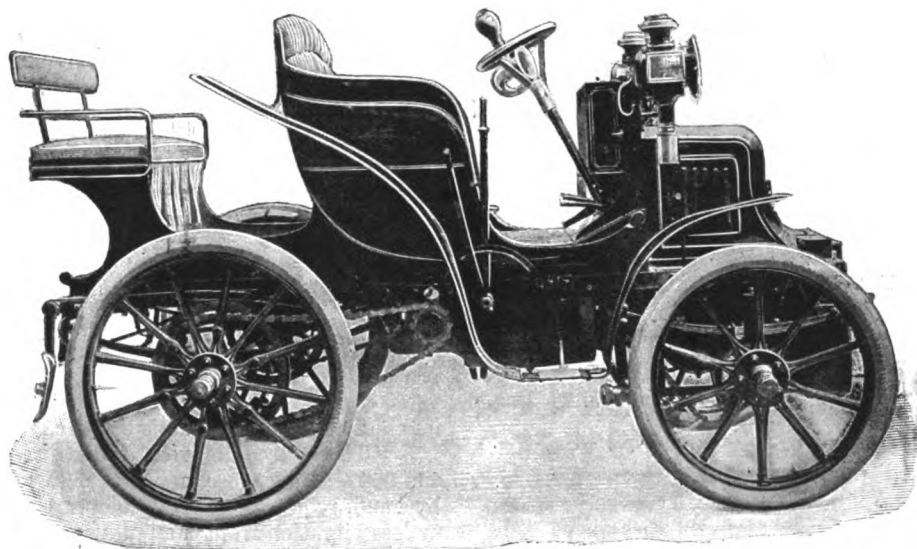
MR. A. SIMPSON, motor-car proprietor, was sued in the Ipswich County Court last week by Mr. W. Cooper to recover £8, alleged damages. Plaintiff stated that defendant's car smashed the rear wheel of his cart on the Derby Road. His Honour thought there was fault on both sides, and gave judgment for plaintiff for £2 10s.

MESSRS. MALICET AND BLIN, of Aubervilliers, France, have lately introduced a worm and wheel reduction for steering gears. This appliance is intended for use in connection with a steering hand-wheel and an inclined shaft. A worm, keyed to the steering shaft, engages with a worm-wheel sector. On the shaft of the worm-wheel sector, outside the case, is keyed a one-armed lever, which connects to a lever arm on one of the steering spindles. The gears are enclosed in an aluminium case, which is also filled with heavy grease. This case may be placed either inside the body or below it. The worm has four threads, cut either right-handedly or left-handedly.

THE Crest Manufacturing Company, of Cambridgeport, Mass., whose Duplex motor has already been referred to in these columns, have recently brought out a new type of single air-cooled cylinder petrol motor, rated at $2\frac{1}{2}$ h.p., for tricycles and quadricycles. The heads, cylinders, crank-cases, pistons and rings are stated to be cast from steel for the greatest possible strength and lightness. The pistons and rings are ground, and the hardened steel crank pins and shafts are brought to size in the same manner. The flywheels, which are inside the crank case, and constitute nearly half the weight of the motor, are the only cast iron parts. The crank case is split horizontally instead of vertically, thus enabling the shaft, flywheels, rod and piston to be quickly removed for inspection, without taking down any of the piping. No compression cock is used, the exhaust valve being lifted instead, and one handle controls both this appliance (when starting) and the subsequent lead of the ignition.

THE CANELLO-DURKOPP MOTOR-CAR.

IN our issue of February 23rd last we published a detailed description of the Canello-Durkopp car, which, while closely following the lines of the Panhard type of vehicle, comprises some special features. The car, which is becoming very popular in Germany—one being used by the Empress Frederick—has recently been introduced into this country by the British and Colonial Motor-car Co., of 14, Baker Street, London, W. The standard type of car is fitted with a 8-h.p. two-cylinder vertical motor. The engine is located under a bonnet at the front, the carburettor being of aluminium, and of the Phenix float-feed type. The variable speed gear, which is enclosed in an aluminium box, is adapted to give four speeds forward—six, twelve, eighteen, and twenty-four miles per hour, and a reverse motion. The special feature of the car is the water-cooling tank carried in the fore part of the frame. It takes the form of a metal tank 1ft. 10in. deep, 1ft. 6in. wide, and 5in. deep, between the sides of which are set 1,200 tubes, one-quarter inch bore, through which air is drawn by a large helical fan running on an extension of the motor-shaft. The temperature of the heated water from the cylinder water jacket is rapidly reduced in passing through this radiator, whence it is returned to the tank by means of a centrifugal pump. Wheel steering is fitted, while three brakes are available, two hand brakes on the hubs of the rear road wheels applied in the usual way by a hand lever, and a positive grip brake on the countershaft. The British and Colonial Company hope to receive a 16-h.p. 4-cylinder car of this type within a few days, and we understand that Mr. J. H. Adams, the managing director, intends to enter and drive it in the next quarterly 100-mile trial of the Automobile Club.



GENERAL VIEW OF THE CANELLO-DURKOPP 8 H.P. PHAETON.

THE Federation of French Automobile

Artificers and Conductors is this week holding a congress at the Bourse du Travail in Paris, to discuss labour questions.

AT the North Shields Police Court, last week, Henry Luttart, Newcastle, was fined 10s. and costs for driving a motor-car on the wrong side of the road on the Grand Parade at Tynemouth.

THE Kaiser's Daimler car has been damaged, and has been sent for repairs to Cannstatt. It served well during the manoeuvres, but the other day, near Cadinen, in West Prussia, it upset in going uphill, and was damaged.

THE French automobile industry is likely to receive further impetus as the result of the experiments made at the recent manoeuvres. An officer of high rank states that the vehicles were useful beyond all expectations, and the artillery has already decided to supply with motors certain carriages used in the transport of baggage and ammunition.

IN the report of the Superintendent of Cleansing of the Glasgow Corporation for the year ending May, 1900, it is stated that a deputation representing the Cleansing Committee attended important trials of motor-vehicles for heavy traffic, held in Liverpool in July, 1899, under the auspices of the Liverpool Self-propelled Traffic Association, and that the results of the trials proved conclusively that motor-wagons are well suited for heavy traffic, and entirely justified their adoption in connection with the removal of city refuse.

MOTOR-CAR TRIP.

FROM NOTTINGHAM TO NEWARK.

MANY who have for a long time been rather sceptical as to the advantages of motor-vehicles are beginning to freely admit that they form one of the most pleasant means of locomotion hitherto adopted. Recently it has become popular in Nottingham, and there seems to be still a wider field of popularity for it in the future. The formation of the Universal Motor-Car Company in Nottingham is a step in that direction. Although the company has only been inaugurated a short time, it has already established a car service from the Theatre Royal, Nottingham, to the Round House at Wilford, which, during the few days it has been in operation, has been exceedingly well patronised. The main object, however, of the company is to afford better facilities to people living in the city to visit nature's beauty spots in the surrounding districts, and trial trips are being arranged to Lincoln, Matlock, Dovedale, Newark, and other places of special interest. One day last week, for instance, one of the cars travelled to Newark, conveying a party of eight, including the manager of the company, Mr. J. B. Sheldon. The party started from the Clarendon Hotel about three o'clock, and the route taken was through Carlton, Burton Joyce, Oxtun,

Fiskerton, and Kelham. It was a delightful ride, and at no point did the passengers have to dismount, for the car was equal to carry its freight safely either up hill or down dale. On the way many lovely glimpses of nature charmed the eye, and as one passed village after village in quick succession, viewing here and there the silvery Trent wending its way onward, ever onward, towards the sea, gazing upon its fertile valley, rich in autumnal tints and luxuriant vegetation, also occasionally obtaining a peep at ancient churches nestling in the bosom of a

cluster of trees, the ride became increasingly enjoyable. Another feature, which caused some amusement to the passengers, was the startled appearance of some, and the intense eagerness manifested by others of the rustics at the sight of the horseless car. Tea being taken, a visit was afterwards paid to the historic castle in the town. On leaving Newark the car went at a good speed, which was maintained until the welcome lights of the city of Nottingham burst upon one's vision. No hitch occurred on the return journey, which was made in an hour and twenty minutes.

ONE of the Thames Valley Motor Company's wagonettes had a collision near New Cross the other day, and was severely damaged.

THE *Horseless Age* states that Mr. E. C. Stearns, vice-president of the Anglo-American Rapid Vehicle Company, of New York, has secured all the American rights of the said company, and will manufacture under their patents. He has secured the Frontenac and Barnes plants in Syracuse, and organised the Stearns Automobile Company, with a capital of £200,000.

MESSRS. R. SCAIFE AND Co. have now got into their new premises at the Reliance Motor Works, Armley Road, Leeds. They have a staff of experienced workmen and a good plant of machinery, and are in a position to undertake any description of motor work. The works are within three minutes' walk of Holbeck station.

SOME NEW VARIABLE-SPEED GEARS.

SEVERAL variable speed gears, the feature of which is the employment of expanding and contracting pulleys, have already been described in these columns. The latest device of the kind is of French origin and is due to Messrs. Waché and Krieger. The apparatus, which is on view at the Paris Exhibition, consists of a pair of expanding pulleys, each capable of varying its effective diameter in the ratio of 2 to 1. The arrangement (Figs. 1 and 2) only differs from other similar devices in details. V and V' are the two shafts, the one driving and the other being driven, upon which are mounted two expanding lattice-work pulleys. Six arms are pivoted upon a spider which is keyed to each shaft; these arms are provided at one end with a toothed quadrant, which gears with a circular rack mounted on a feather-key upon the shaft, and at the other end with a curved slot, through which pins connected to the pulley lattice pass. A hand wheel is mounted upon a shaft which carries, at either end, a gear wheel working into a circular rack; this rack is connected by a sleeve with the circular rack previously mentioned. The

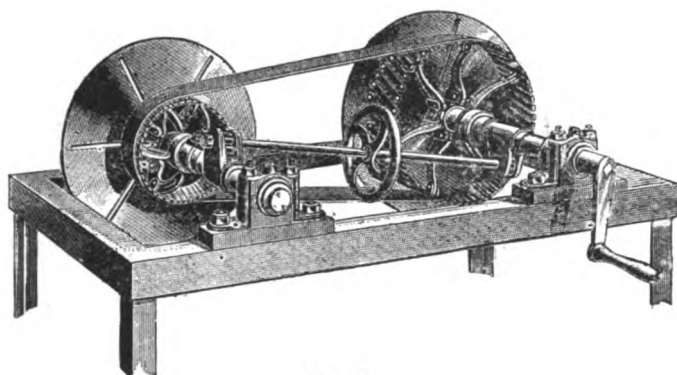


FIG. 1.

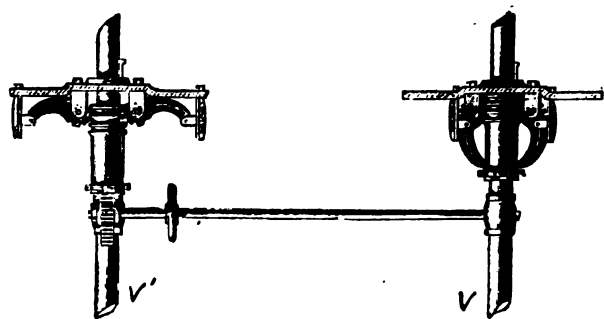


FIG. 2.

action of the gear is clearly seen from the illustrations; by rotating the wheel, in one direction or the other, the one pulley is caused to expand and the other to contract, and *vice versa*, and thus the relative speed of the two shafts, A and B, can be varied in the ratio of 4 to 1.

There is also exhibited at the Paris Exhibition another system of extensible pulleys by M. R. De Montais, of Beauvoir (Eure et Loire). The hubs of the pulleys are in two parts, and by approaching or withdrawing these two parts from each other the diameter of the wheels is increased and decreased respectively. The two hub parts of one of the pulleys are regulated by turning a shaft with a right and left thread. The diameter of the other pulley is varied automatically by the tension of the belt, and by springs. The springs on the shaft tend to increase the diameter of the pulley, which latter is limited by the length of the belt.

FROM January 1st to August 30th this year no fewer than 1,500 licences were issued for motor-cars of various descriptions in Belgium,

AN AMERICAN AUTOMOBILIST'S OPINION OF PETROL AND STEAM MOTOR-CARS.

MR. GEORGE F. CHAMBERLIN, vice-president of the Automobile Club of America, has in turn owned and operated both petrol and steam motor-cars. In the recent run of the members of the club to Philadelphia he made the best-recorded time with one of the former. He is one of the most experienced *chauffeurs* in America, and has driven vehicles of these two types over thousands of miles of country roads. Comparisons are not always invidious, and Mr. Chamberlin's brief summarisation of the advantages and disadvantages of each type may be of service to those who are interested in the vehicle which, it is prophesied, will be a distinctive feature of the travel and traffic of the next century.

"The petrol car has, in my opinion, a few advantages over the steam, although I think the latter style of machine is preferable for heavy work, and the field of one is just as wide as that of the other. Where the petrol vehicle excels is not in strength or durability, but in small details. In the first place it has no steam boiler and no fire in connection with its driving mechanism. The motive force is supplied by a simple engine, and there are no water, steam, or air gauges to watch, or to be shattered in rough going. The petrol car is, consequently, capable of a much quicker start, as it is not necessary to get up steam, and no care to keep it up during stops is needed. On the score of safety there is little difference, as the number of safety appliances render the possibility of an explosion in the steam carriage a very remote possibility, and the ridiculous ordinance requiring a user of this type of vehicle to take out an engineer's license is no more needed than one requiring the same of the driver of any other type of machine.

"Compared with the electric vehicle, the radius of action of either steam or petrol cars is much greater. One charge of petrol will last for a long trip, the ordinary use being about five gallons for every 100 miles. The economy of running is also much greater. At the present price of petrol, the cost of running a car is about a farthing a mile. The ease with which petrol is procured, and the distance to which one charge will carry the vehicle, makes it pre-eminently a touring carriage, and constitutes its chief advantage over the electric.

"There are, however, some disadvantages connected with the petrol vehicle. One is the necessity of starting the carriage by hand, requiring considerable muscular effort. There is more or less vibration from the pulsations of the piston, and while this is not particularly noticeable when the machine is in motion, it becomes exceedingly unpleasant when it is at a standstill. Another objection, which is common to all explosive engines, is a slight odour of petrol, noticeable under certain weather conditions. The chief disadvantage, however, is the difficulty of controlling the speed of the engine, not the vehicle. That may be stopped almost instantly by throwing off the clutch and applying the brake, but it takes longer to diminish the speed with which the engine is working.

"There are three important points to be looked to when running a petrol car. First, that the ignition is uniform; otherwise the vibration of the engine will be irregular and very annoying, and will cause the vehicle to make sudden stops and starts. Fuel is the next important point. It is not pleasant to find the petrol tank empty and the machine at a standstill at sunset on some lonely country road. It is easy to procure petrol, however, at almost every village, and I have never experienced any inconvenience from lack of it. Lastly, the speed gear should be carefully adjusted, and, above all, thoroughly lubricated. On a long trip it is easy to create hot bearings, and that means an hour or more of annoyance and delay. The best gear for road work is that by which a maximum speed of eighteen to twenty miles is attained."

DR. DAWSON TURNER, of Edinburgh, is disposing of his well known 10-h.p. Delahaye phaeton.

HERE AND THERE.

At Grimsby, at the latter end of last week, I discovered that the tramway service is about as irritating a so-called public convenience as any I know. Between that fishing town and the pleasant little seaside resort of Cleethorpes is enough traffic to demand a decent, orderly and regular service. There are trams which crawl along and sometimes run off the lines, and there are dozens of wretched wagonettes with drivers who seem disposed to drive hard bargains with strangers. But, alas! the jolting and the jumping that is caused by those fearful vehicles is sufficient to cause one to stay away from the district altogether. An electric tram service will probably be opened next season, but there is certainly a chance of success for one or two motor-vehicles, which might be profitably employed to ply between Cleethorpes and the few interesting villages in the vicinity. Those concerned in the development of motor-car services should make a personal study of the local conditions.

ONE thing that has somewhat damped the enthusiasm of motor-vehicle advocates at the seaside has been the tendency on the part of some drivers to "show off" the points of their

ON the Thames Ironworks track, at Canning Town, Mr. C. Jarrott has been having some preliminary trials prior to his attempt on the hour record. Mounted on his 6-h.p. racing De Dion tricycle he broke the five and ten miles motor-tricycle record, covering the former distance in 7 mins. 22 $\frac{1}{2}$ secs., and the ten miles in 14 mins. 48 $\frac{3}{4}$ secs. Mr. F. T. Bidlake took the times, which would probably have been even better but for the high wind prevailing at the time.

POETS are dangerous, and often libellous people. They seem to keep such a person in the office of the *Bournemouth Guardian*, for he has just written some rhyming jingle on the progress of the motor-car. The following specimens will suffice—full quotation might be painful.

Belching and wheezing and gurgling and groaning,
Hiccoughing, coughing and spitting and moaning,
Hissing and screeching and tottering and shaking,
Booming and pounding and staggering and quaking,
With a rumble and roar and a thousand things more,
And the smell of petroleum all the road o'er,
With a clatter and bang and a hoot on the horn,
And that's how the motor goes down into Bourne.

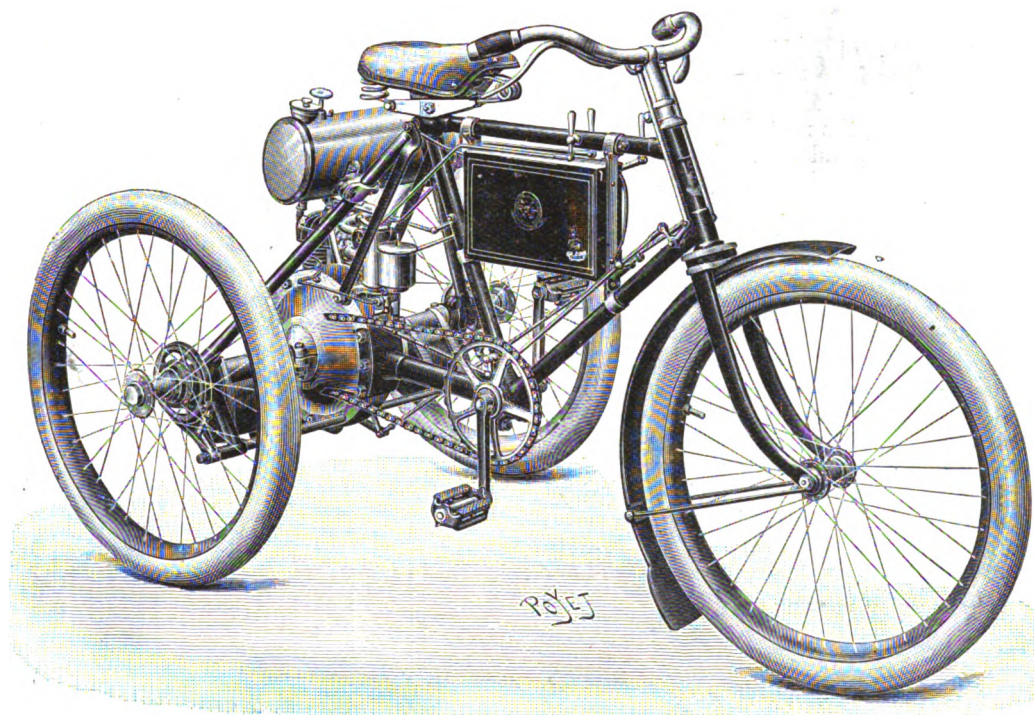


FIG. 1.—GENERAL VIEW OF ROCHET MOTOR-TRICYCLE. (For description see next page.)

machines by going as near to the kerb as possible, running close to pedestrians, and similar antics, which sensible people do not care about. I hear that some feeling has been caused at certain places on the north-east coast owing to this silliness. Certainly the proprietors of services should be very explicit in their instructions to drivers.

THE movement among motor-car manufacturers in the direction of appointing official repairers of their machines in every district is growing, and the Motor Manufacturing Company, Limited, is now willing to consider applications for such appointments. There is no doubt that engineers in the provinces—particularly those whose works are on the main country roads—will find it to their great advantage to become well acquainted with the technical details of the automobile. That many are already studying the matter with a view of getting practical knowledge of the various types of cars, etc., is proved by the subscription list to the *Motor-Car Journal*. Mention of the Motor Manufacturing Company reminds me that the Daimler-Hampton char-a-banc at Brighton, to which I referred last week, is one of their cars.

I LEARN that the De Dion-Bouton Syndicate have received more than a hundred applications for the appointment of official repairers.

IN connection with previous remarks as to the advisability of running motor-cars in connection with train services, I learn that the Newport Pagnell Motor-car Company make a connection between the London and North-Western Railway at Newport Pagnell and the Midland Railway at Olney, passing through two villages on the journey. Commercial travellers find this service to and from Bedford an excellent one, as they can get there in an hour—half an hour on the motor-car and thence by train. This is much cheaper than the train journey by the London and North-Western Railway, which takes two hours or more. The Newport Pagnell Motor-car Company have now been running motor-car services nearly two years—making five journeys daily during the summer and four during the winter months. During all this time they have never had to suspend the service through actual breakdowns.

ESSEX is getting an unenviable name among motorists because of the discussions on speeds which take place so frequently at its local boards, and even at the county council. These, however, are not deterring many would-be purchasers of motor-cars, and hardly a week passes without some new automobile enterprise being announced. Among Essex firms who are pushing the motor-car business, Messrs. J. Green and Co., of Loughton, are favourably situated and able to offer good assistance to all touring in Epping Forest.

MR. A. J. BALFOUR takes all his pastimes seriously, and the close attention he gave to the intricacies of golf until he attained distinction in the game was being given to the motor-car until the General Election upset all calculations. He was enjoying himself immensely in Haddingtonshire before going to his election campaign in Manchester, and journeying to and from the golf links on his voiturette. His sister, Miss Balfour, is quite as enamoured of the automobile as her brother, and will probably soon become an expert motorist. Probably, when the excitement and strain of his campaign is over, Mr. Balfour will brace himself for more political work by a week or two's tour by motor-car in Scotland.

MESSRS. R. COLES AND Co., of Bedford, Middlesex, are keen motorists, and a party of four from the firm have had a run on their last new car, which also carried the necessary luggage. In five days 500 miles were covered, the route being from London to Yeovil, Exeter, Plymouth, Bristol, and home again. Truly a capital trip, and one made all the more pleasant by the fact that the car gave no trouble whatever.

PUSHING the motor-car business in the provinces is no easy matter owing to the keen prejudice that exists. Every little mishap to a car is magnified, whereas accidents to horse-drawn vehicles are usually ignored or regarded as commonplace. I have just heard of a firm trying to establish a motor business and only getting the first order after six months' running about the district. Certainly the locality was quite a new one for the industry; but this illustrates the uphill work that is essential to ultimate success. But when there are half-a-dozen motor-vehicles privately owned in a town they quickly dispel the illusion as to their uncertainty which impractical people seem fond of entertaining. My correspondent, who has just made his first motor-car sale, will have to continue his enterprising methods—and I shall be glad to have news of further developments in his district.

LOLLIUS.

THE Discount Motor-Car Company, of 145, Euston Road, London, are arranging to act as agents for the sale of second hand motor-cars, and in connection therewith are about to issue a little publication to be known as *The Motor Mart*, giving particulars of cars for sale. The first number of the new list will be issued on the 1st prox.

AN American automobilist has lately devised a water-level indicator for use in connection with the water tanks in Locomobile steam cars. The *Scientific American* thus describes the device:—"To the longer leg of a brass rod, bent at right angles, a brass float is secured which rises and falls with the water in the tank. The short leg of the rod passes through a brass sleeve which bridges the space between the carriage body and the tank, and which is held in place by a nut screwing upon the threaded end of the sleeve. The short leg of the rod projects from the sleeve, and its squared outer end receives a finger or pointer which plays over a scale graduated in gallons. As the float falls in the tank, the pointer is turned a corresponding distance and indicates on the scale the number of gallons of water still left in the tank. The float consists merely of an ordinary brass box, 1½ inch in diameter at the ends and 1¼ inch high, the cover being soldered to the body to form an air-tight joint. The brass rod is likewise soldered to the box. It will be observed that all the parts, including the sleeve, are made of brass to resist the action of the water. The pointer is made preferably removable, so that it can be detached whenever it is found that the float is not absolutely air-tight.

THE ROCHET MOTOR-TRICYCLE.

THERE are several new features in the latest model of motor-tricycles made by La Compagnie Générale des Cycles et Automobiles (Rochet-Petit), of Paris, so that the following brief description may not be without interest. Either a motor of the De Dion or Automoto type is fitted as desired. Fig. 2 shows a section of the carburettor which is now being used with the engine. The device is very similar in general respects to the well-known Longuemare, but combines the "spray" and the "constant level" systems. The petrol flows from the tank by the pipe *T* through a metal

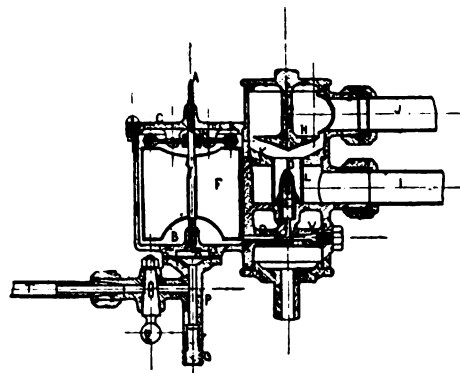


FIG. 2.—SECTION OF ROCHET CARBURETTOR.

gauze filter *R* into the constant level tank *F*. From this tank the petrol passes along the passage *D*, and up the dome-piece *E*. Warm air is drawn in through the pipe *I*, and is intimately mixed with the petrol as the latter is sprayed against the inverted *H*. Before entering the outlet pipe *J* the carburetted air passes through two adjustable valves, one of which controls the quality and the other the quantity of carburetted air allowed to pass to the motor. Another new feature is an automatic circuit breaker, which acts in such a manner that the operation of putting on the brake first of all breaks the electrical circuit with the ignition device. The object of this provision is to make the use of the brake more effective and at the same time to reduce the wear on the same by

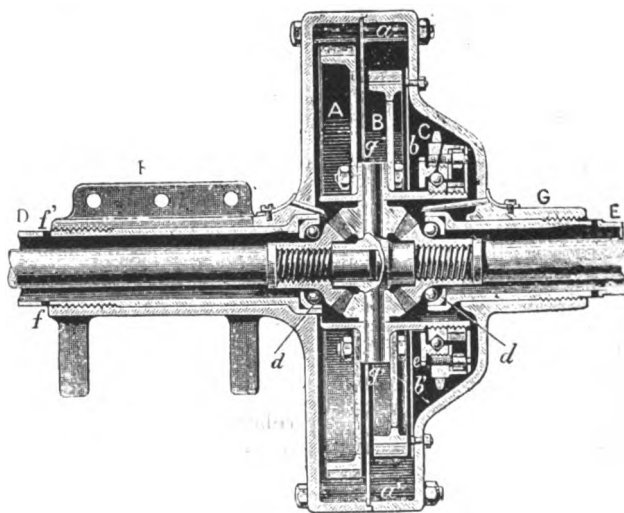
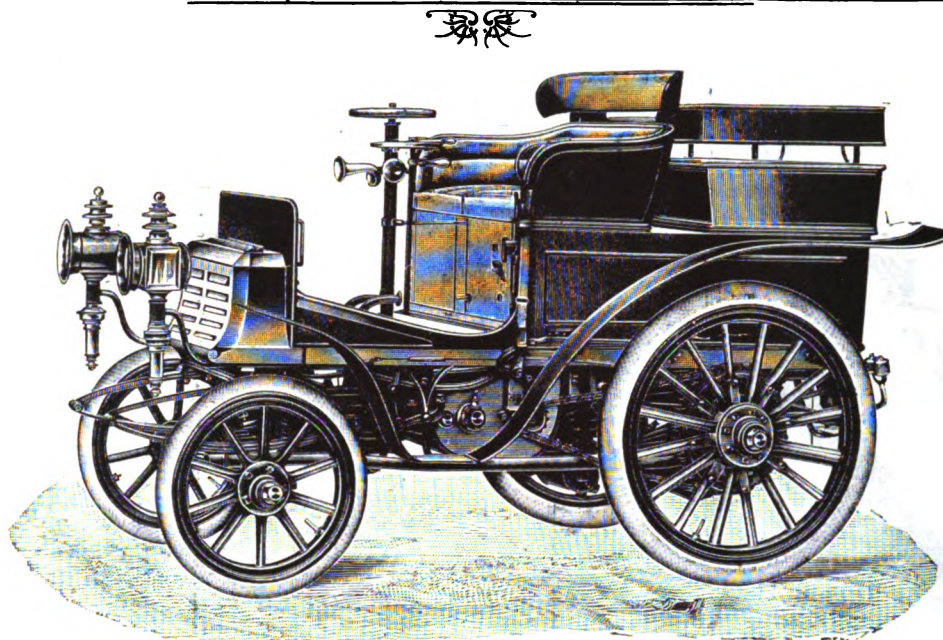


FIG. 3.—THE ROCHET REAR AXLE.

causing the motor to be inoperative ere it is applied. Fig. 3 gives a sectional view of the rear axle showing the differential gear, the driving pinion *A*, the band brake *B*, and the free chain wheel, *C*. These four parts are all enclosed in an aluminium gear case. This case is made in two parts and is fitted with an internal disc or partition *g*, which divides it into two compartments and thus prevents the grease in *A* from coming in contact with the brake *B*. The precise construction of this portion of the driving axle is clearly shown in Fig. 3, from which it will be noticed that the ball bearings *d* are provided with special lubrication tubes. It is stated that these machines will run 1,000 kilometres without requiring any further lubrication in the gear case.

The Benz Four-seated "Tonneau."



THE BENZ "TONNEAU."

HEREWITH we give an illustration of a four-seated "Tonneau," a type of motor-carriage body which is just now very popular in France, the latest production of Messrs. Benz and Company, of Mannheim. The vehicle has seating accommodation for four persons; it is fitted with a horizontal two-cylinder engine of 9 h.p. The crank shaft works in an oil-containing case, while a central lubricator supplies the oil for the working parts. The ignition is electrical, and the cylinders are water-jacketed, the water tank being located in the fore part of the frame. Four speeds forward and reverse motion are provided, the car being, it is claimed, able to maintain an average speed of twenty-one to twenty-five miles per hour. Steering is controlled by a horizontal hand-wheel.

MOTOR-CARS and the French military manoeuvres formed the subject of a page of interesting pictures in the *King* last week. The snapshots included the special carriage for the German attachés and that used for the transport of army officers, as well as for the commissariat department.

THE Manchester Wedge Tyre Company, Limited, is the name of a company which has been registered with a capital of £10,000 to acquire from J. Shepherd and G. Walthew certain patents granted to the said J. Shepherd in relation to improvements in wheel rims and elastic tires, and to carry on the business of manufacturers of and dealers in wheel rims, elastic tires, etc., for wheels used for road locomotion. The registered office is at Soho Works, Pollard Street, Manchester.

MOTOR-CAR owners using petroleum spirit will appreciate a new form of can for storing purposes which is possessed of two valuable features. In outward appearance the can resembles those generally used, but inside there is a pipe which extends from the outlet to the bottom and is pierced with holes throughout its entire length. Round this pipe is a gauze covering, which acts like the covering of the Davy miner's lamp in preventing flame coming in contact with the spirit. A new form of plug or cork is used, which has a brass cap held in position by a fusible solder which will melt in case of an outbreak of fire, and so allow any gas generated in the can to be liberated and prevent explosion. The can is made by Messrs. Henze and Co., of Salzkotten, Westphalia.

A DOCTOR'S EXPERIENCE WITH A STEAM CAR.

DR. A. FRANCIS STORZ, of Natick, Mass., U.S.A., who has used a Locomobile steam car for about eleven months, thus describes his experience with the same in one of our American contemporaries.

The car was one of the first turned out, but has nevertheless done very excellent service. I have covered altogether over 16,000 miles, and the carriage is as good as new. Slight repairs are, of course, necessary from time to time, but my total expense to date has been but £10. Even the tires, which are small two-inch pneumatics, are still in good condition and have yet a long life before them. The car was used throughout the winter in all kinds of weather, and in my professional business I had no trouble in operating the carriage over snow and mud, and, by winding the pipes properly, have no difficulty with freezing. Since I have received the car I have travelled throughout all the mountainous and sandy roads in Massachusetts, Connecticut, and Rhode Island. My last trip was from Boston to New York, by way of Springfield, Hartford, and Bridgeport, and returning by way of New London and Providence. Though the roads were sandy, it was accomplished without a mishap of any kind. The difficulty in most cases with steam carriages is due to the carelessness of those who have been running them, and not to the fault of the carriage. I do not pretend to be an expert operator, nor do I think I have run the machine in any unusual manner, but I think that, with regular inspection and careful operation, the steam carriage would give the best results for a physician's use, particularly in localities where roads are bad and hilly.

THE *Caterer* considers that the wealthy automobilist is likely to become one of the best paying patrons of the hotel-keeper, a fact that we have insisted upon ever since the members of the Automobile Club went a-touring.

MESSRS. W. W. BANNISTER AND Co., of Crawley, Sussex, inform us that they have now moved into larger and more convenient premises on the south side of the railway crossing and on the opposite side of the road from their old depot. Messrs. Bannister are district agents for Carless, Capel and Leonard's petrol, which may be had at any time. They also carry a stock of motor accessories and oil, and can undertake repairs of any kind to motor-vehicles.

A NOVEL AUSTRIAN MOTOR.

REFERENCE has already been made in these pages to the voiturette built by Herr Josef Kainz, of Vienna. The power of the motor is transmitted by cog wheels to the rear axle. The change of speed gearing and reverse are secured

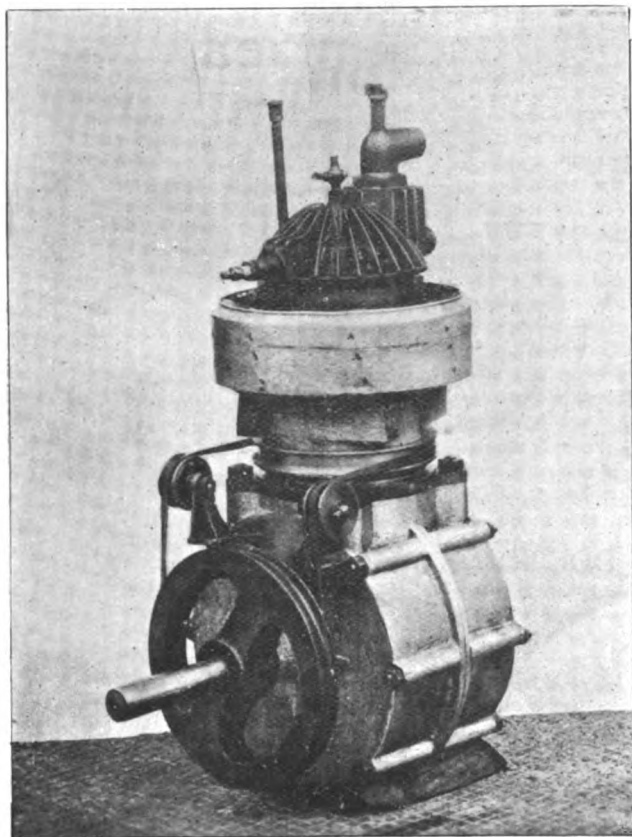


FIG. 1. -- GENERAL VIEW OF KAINZ MOTOR.

with only one friction clutch working on the engine shaft, so that when running idle the engine is perfectly free. The leading feature of the car is the motor, which, as will be seen, is of the single vertical cylinder type; it has electrical ignition, and at a speed of 800 revolutions per minute can develop $4\frac{1}{2}$ h.p., the bore of the

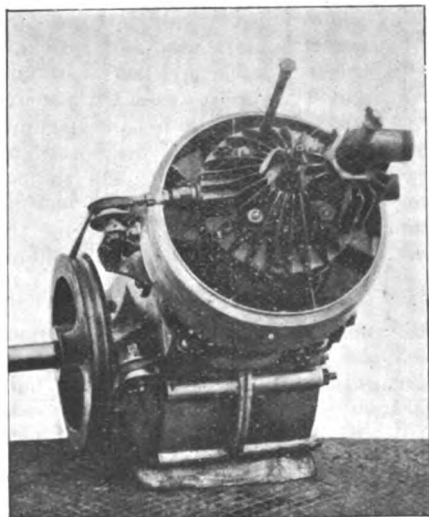


FIG. 2. -- TOP VIEW OF KAINZ MOTOR.

cylinder being 96 mm., and the stroke 96 mm. It is in the means adopted for the cooling of the cylinder that the novelty of the engine lies. As will be seen from the illustrations, for which we are indebted to *La France Automobile*, the cylinder walls

are surrounded by rotating fans, which are driven by a band off the motor shaft. The lower fan draws in cool air and forces it around the cylinder, the upper fan dispersing the heated air at the top. It will be noticed that the faster the engine runs the greater is the cooling effect. The fan is made of aluminium, and runs on ball bearings. It is said to have proved itself very efficient in practice, dispensing entirely with the necessity for a water-jacket with the attendant tanks and radiating coils.

IGNITION AND IGNITION TROUBLES.*

THE electric ignition devices in actual use on the engines of motor-vehicles may be divided into two classes—viz., those in which the make and break of an electric circuit takes place inside the cylinder, and which gives the so-called contact spark; and those in which the make and break of an electric circuit occurs outside the cylinder, and which gives a jump spark inside the cylinder. The former class may again be divided into two sub-classes—igniters in which there is an end contact between electrodes, and igniters in which there is a wipe or scrape contact between electrodes.

The simplest form of end contact igniter, and one which was formerly much used with stationary engines, is shown in Fig. 1. A plug screwing into the cylinder head has an insulated bushing, through which passes one of the electrodes. This electrode has a collar, and it is held by a spring against the end of the bushing. The other electrode is a stud screwed into the piston. The two

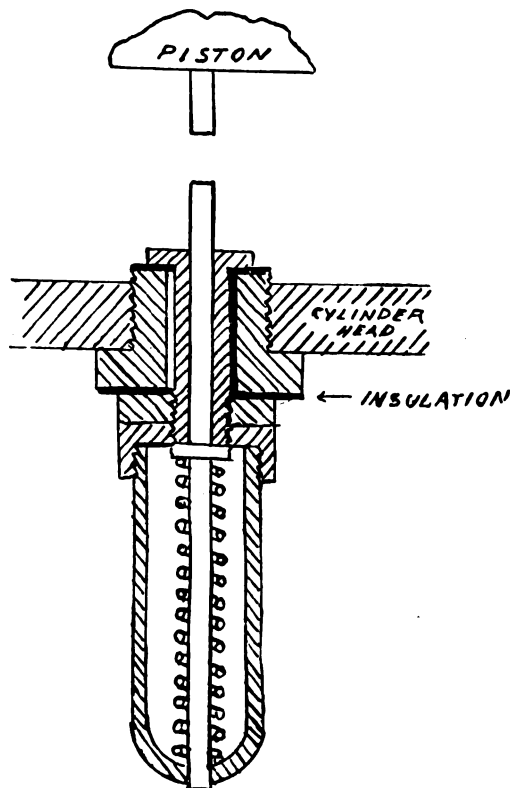


FIG. 1.

electrodes are in line. Every time the piston comes back the electrodes touch and there would therefore be a spark at every revolution, were it not for a contact maker or switch operated from the crank shaft, which closes at the proper time every second revolution. This form of igniter is ill adapted to small high-speed engines, for the reason that the spark passes always a little after dead centre, whereas an ignition a little before dead centre gives the greatest power. On the other hand, the electrodes are in contact only for a very short time, which prevents the current from attaining its full value and reduces the volume of the spark and the certainty of ignition.

* By P. M. HOLT in *The Horseless Age*.

A modification of this igniter is shown in Fig. 2. Here a double-armed lever is interposed between an insulated electrode in the cylinder head and a stud screwed into the piston. Normally the lever is held against the insulated electrode by a spring outside the cylinder, but on the back stroke of the piston the stud in the piston strikes the lever, and brings it out of contact with the insulated electrode in the cylinder head. The spark occurs therefore always a little ahead of the dead centre position of the crank. The time of ignition can, to a certain extent, be regulated by advancing or withdrawing the electrode passing through the insulated bushing. In this type of igniter the

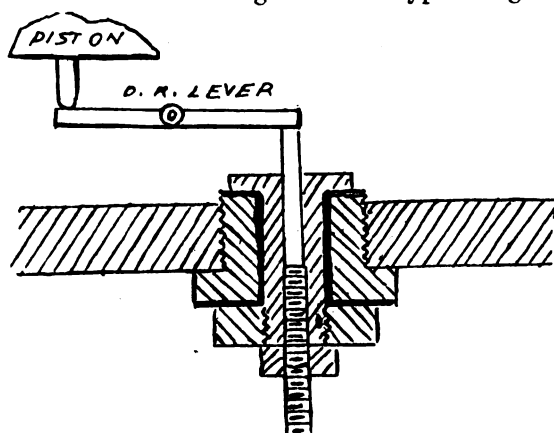


FIG. 2.

difficulties of the type illustrated in Fig. 1 are overcome. It is, however, not very desirable to have the first ignition occur before the dead centre, as the engine is then liable to start backwards.

Any igniter which is actuated by the piston must operate either before or after dead centre, as at the dead centre the piston is not moving. To overcome this difficulty end-on-contact igniters are now often actuated from mechanism outside the cylinder geared to the crank shaft. Fig. 3 shows one form of igniter in which the electrodes are thus operated. The two electrodes inside the cylinder are held apart by a spring outside the cylinder. One of the electrodes is free to move around a shaft passing through the cylinder or valve chamber wall. On this shaft outside the cylinder there is a pawl which engages with another pawl on the igniter actuating rod. When this rod moves

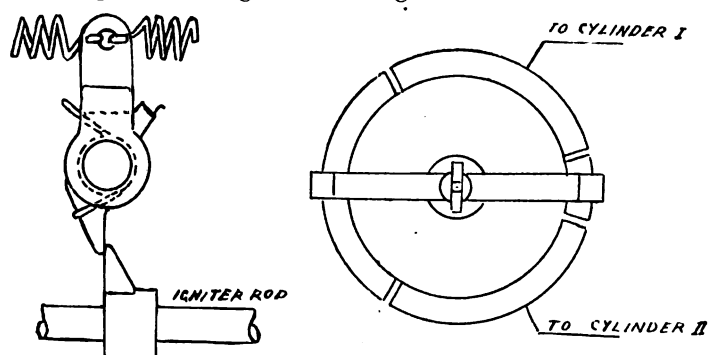


FIG. 3.

back the pawls engage and the electrodes come in contact. When the pawls disengage or snap the spring on the electrode shaft causes the breaking of the contact, and the return of the movable electrode to its original position. With this form of igniter, ignition can be made to occur at any point of the stroke. The electrodes also remain in contact for a sufficient length of time to assure a full strength of current before the circuit is opened. The igniter actuating rod is operated from a secondary shaft, geared to the crank shaft in the ratio of two to one. It may be operated either by a crank, an eccentric, or a cam. In the latter case the return of the rod has to be effected by a spring. This form of igniter in its various modified forms is used on a number of marine and motor-vehicle engines.

The wipe spark is always more reliable than the end-on spark, but there are certain difficulties in constructing these wipe spark igniters, and they are comparatively little used. It may here be stated that a wipe spark is often claimed when an end contact spark is being had. The wipe spark requires a spring inside the combustion chamber, and it is often thought that steel will not retain its temper when exposed to the heat of the explosion in the cylinder. Fig. 4 shows a wipe spark igniter which with various modifications is used on a number of stationary engines and also on one vehicle engine of which the writer knows.

As here shown, a blade of spring steel is riveted into a rod and forms one of the electrodes—the insulated one. The pin of a little crank wipes this blade during a part of the revolution of the crank. The blade is deflected by the pin, and when the deflection has about reached its maximum the pin comes to the end of the blade, the blade snaps off from the pin and thus produces the spark. The rubbing of the pin and blade together always keeps the contact surfaces clean. The spring pressure of the blade always produces a sharp break, which is conducive to better results as regards the volume of the spark. The crank is driven through gearing from the cam shaft, and revolves once for every two revolutions of the engine crank. If the engine should start the wrong way through a premature explosion the crank pin would turn up against the blade and might break it. This danger is guarded against by driving through a ratchet. The

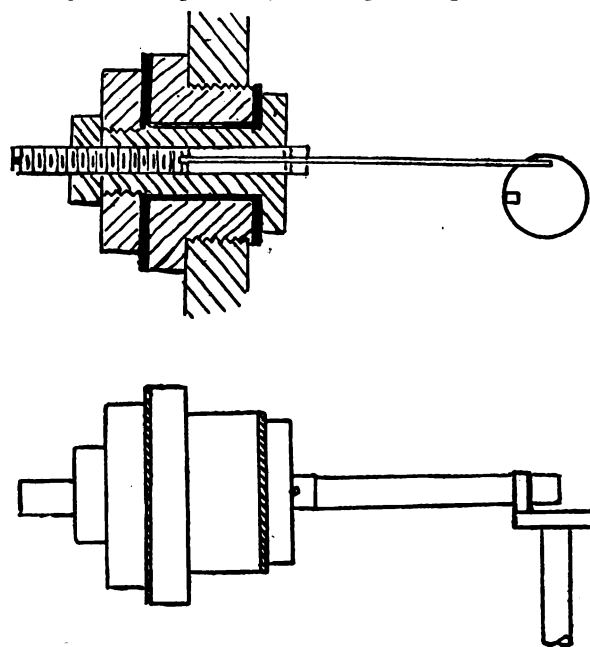


FIG. 4.

point of ignition of such igniters may be adjusted on both electrodes. The blades for this igniter should be made of machine steel, and when they are so located that the draft of the incoming charge fans them they will retain sufficient temper to serve the purpose. The writer has found this igniter to be very reliable and efficient, and it is also comparatively simple.

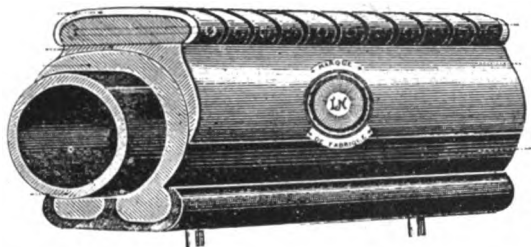
For the insulation of the parts of an igniter either mica or asbestos is used. The former has the best insulating qualities, but many makers prefer asbestos because it does not crumble like mica. The mica, however, only crumbles when used in pieces of very small width. The surface of the insulation inside the cylinder becomes covered with carbon deposit after the engine has been running a while, and the surface of the insulation on the outside is also liable to become dirty. These layers of dirt and carbon cause leakage of the electric current and reduce the volume of the spark. To reduce this leakage the length of the leakage path should be made as long as possible. To this end the diameter of the plug is made larger than the diameter of the flanges of the insulated bushing and the insulating washers of the same diameter as the plug. This is indicated in Fig. 1.

(To be continued.)

THE HÉLÈNE IRONCLAD PNEUMATIC TIRE.



WHEN rambling through the Transportation Section of the Paris Exhibition a few days ago we noticed that several of the motor-vehicles were fitted with a novel form of pneumatic tires. It is known as the Hélène, and, as will be seen from the illustration herewith, its principal feature is an endless band of rubber provided with small juxtaposed plates of iron and



secured to the envelope by vulcanisation. The tire is a double tube one, to the outer cover of which is cemented a sort of shield. This shield has a flat surface on its outside, to which is fastened a belt. To this belt are riveted the metal sections, which form the main protection of the tire. This construction is claimed to do away entirely with punctures, while at the same time the tires are said not to make any more noise than the regular pneumatic tires.

TRIUMPH CYCLE COMPANY v. THE MOTOR-CAR COMPANY.



In the list of matters for hearing on Wednesday last week before Mr. Justice Buckley, sitting as Vacation Judge in the Chancery Division, was a motion for an injunction restraining the defendants in this action from using the word "Triumph," but Mr. Henderson, for the plaintiffs, said the defendants had agreed that the injunction should go against the use of the word, and also that they would pay twenty guineas in respect of costs. By consent, an order was made to that effect.

FURIOUS DRIVING CASES.



ARTHUR HARD, proprietor of a private motor-car, was charged at Swansea, on Wednesday last week, with driving it furiously in Mount Street. The constable said the car was going at the rate of fifteen to eighteen miles an hour. The defendant's solicitor said it could not go more than ten. A fine of 20s., including costs, was imposed.

At the West Hartlepool County Police Court on Wednesday, Christopher Macadam was charged with furiously driving a motor-car on the Grantham Road on August 27th. Mr. Luck, of Darlington, appeared on behalf of defendant, and, after the hearing of evidence on both sides, the chairman of the Bench said they had been unable to agree, so they would dismiss the case.

At the Stockport County Petty Sessions, last week, William Rothwell, of Whitefield, near Bolton, was summoned for furiously driving a motor-cycle in Wilmslow Road, Cheadle, at midnight on the 3rd inst., contrary to the regulations of the Local Government Board. Defendant pleaded not guilty. P.C. Richardson stated that on the night in question he saw the defendant driving a motor-cycle on the road near the White Hart Hotel at the rate of eighteen or twenty miles an hour. A man named Fred Guff Hogg, of 30, Barr Lane, Bolton, was riding four yards behind on a free-wheel machine, which was tied to the motor. Witness called out to the defendant to stop, and he called out "Good-night," but subsequently stopped. He stated that he wanted to get home, having travelled from Bolton to the other side of Shrewsbury and back, a distance of 180 miles, in the day. Inspector Skirr gave corroborative evidence, and Superintendent Oldham said the drivers of motor-cars were apt to take advantage of the police and refuse to stop. Defendant said he was travelling at the rate of about nine miles an hour, and there was no danger. Hogg gave similar evidence, and said it would have been extremely dangerous to ride behind a motor travelling at that pace. A fine of £3 and costs was imposed.

At Llangollen on Tuesday, A. E. Crowley, Elgbaston, Birmingham, was charged with riding a motor-tricycle on the Holyhead Road at Llangollen on September 15th furiously and to the danger of life and limb. Sergeant Wyse said that defendant put on speed when passing the brewery, until he should say he was going at the rate of thirty miles an hour, and he seemed to be out of sight directly he had passed. They were relaying the main drains at Llangollen, and at the place in question, as the road was up, it would have been impossible for two vehicles to

pass each other. Had anyone come down this part of the road at the time they would have found it impossible to get out of the way of the defendant. When the motor-car had passed witness proceeded to the telegraph office and wired to Corwen, the next town along the road, giving instructions to the officer there to stop defendant. This was done, and computing the time between sending off the wire from Llangollen and when defendant arrived in Corwen he must have traversed the distance between the two places at the rate of twenty-five miles an hour. Defendant said he had ridden 6,000 miles this year, and this was the first time he had been cautioned. The motor-tricycle was under complete control, and could be pulled up within ten yards. He did not go more than at the rate of eight miles an hour through the streets, but when he had a clear road before him he saw no harm in putting on pace. It was nonsense to talk of his having ridden at the rate of thirty miles an hour, for it was impossible to do so on such a machine as he used. The magistrates said they had come to the conclusion that there might be a question whether the defendant did endanger life and limb, and if he did not do this the case must be dismissed. They were all friends of the motor-car, and thought the motor-car was bound to "come," but they counselled prudent riding, and dismissed the case. The Deputy Chief-constable asked the magistrates to state a case with a view to appealing.

At the Bedford Borough Police-court last week, Percival E. Thornley, of Cambridge, was summoned for driving a light locomotive to the common danger of passengers in St. Mary's Street, on September 3rd. Defendant pleaded not guilty, and was represented by Dr. Cooper, barrister-at-law. Francis Taylor said that on Monday he was driving down St. John Street. He was driving at six miles an hour. The motor-car, driven by defendant, came along at fourteen to fifteen miles an hour. He pulled up, but defendant did not slacken the motor, which hit his horse on the chest. Defendant refused his name and address until a policeman asked him for it. The motor was coming out of Cardington Road to go into Cauldwell Street. Witness did not hear the horn blown. Cross-examined: If successful that day he was going to sue for damage to his horse. Defendant could have pulled up, but when asked he said he had no right to do so. The mud-guard to the motor was broken, and defendant said, "If I hear any more from you about the horse, I shall have compensation for damage to my car." Arthur Rogers said that he was in Cauldwell Street when he saw the motor coming. Before coming to the corner he heard the horn. The motor was going at ten miles an hour, but he could not judge at what rate the horse was going. Cross-examined: Taylor was going at six to seven miles an hour. He did not think that if Taylor had driven on he would have avoided the car altogether. P.C. Steer, of the County Police, said that on September 3rd he was in St. Mary's, when he heard a crash. He turned round, and saw the motor go down Cauldwell Street at a great rate. Cross-examined: He saw Taylor before the collision, and he was driving at five miles an hour. He did not see the motor before he heard the crash. Dr. Cooper, for the defence, said the charge was not one of excessive speed, but was that he drove the car to the common danger of the passengers. He would also draw attention to Taylor's evidence, which was in many ways contradicted by the witness Rogers. He would call the defendant and his friend, who would prove that they were travelling with proper caution and were not going at more than six miles an hour. Defendant, on oath, said he was an undergraduate at Trinity Hall, and on the day in question he was driving the car, with a Mr. King. He had driven a car for several months, and he had also driven in London. When he approached the crossing he slackened speed to 6½ miles an hour, and sounded the horn. He saw Taylor when he was at the crossing, and was four yards away. As he was passing he put all the speed he could in order to get out of the way. Taylor also put on speed. Harry Heath King, a non-collegiate student at the University, gave similar evidence. The Bench fined the defendant 30s. and the costs, 14s.

MR. J. J. MANN can be seen at the showrooms of Messrs. Kesterton, in Long Acre, where the Marshall car is on view.

THE Mazawatee Tea Co., Limited, have, through Messrs. Julius Harvey and Company, engaged a fleet of four motor-cars to convey members of the staff and clients between their offices and dépôt in the City and the large new works just completed at New Cross. A first car—a Motor Manufacturing Company's phaeton—has just been put in service. We ourselves had occasion not long ago to visit the site of the Mazawatee factory at New Cross, and think the company have done well in establishing their own means of rapid communication with the City.

THE Liquid Air Power and Automobile Company of Great Britain, Limited, has been registered with a capital of £200,000, to adopt and carry into effect an agreement made between T. J. T. Hutson of the one part, and this company of the other part, and, generally, to carry on in all or any of their respective branches the businesses of manufacturers of and dealers in liquid air and all the apparatus and things used in connection therewith; as electrical and mechanical engineers, motor-car, cycle, and carriage makers, etc.

THE Motor-Car Journal.

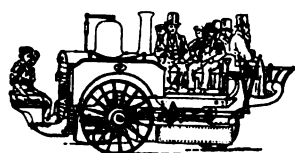
VOL. II.]

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COMMENTS.



WE have already referred to the rather general use of the automobile during the General Election, and now give two or three miscellaneous items of news which may be of interest to our readers. Mr. O. Stanton has been helping Mr. L. Harmsworth on

his motor-car in the latter's candidature for Caithness. At least one Yorkshire candidate, Mr. A. W. Black, in the Doncaster division, declared himself in favour of the taxation of motor-cars. In London constituencies the motor-car has not been so largely employed as might have been expected. Mr. Ridley drove round South-West Bethnal Green on a car on Tuesday, and in Battersea both candidates had friends who had commandeered similar vehicles. Mr. Mark Mayhew drove Mr. Burns about the constituency on his Peugeot car, which was able to overlap the coach and horse employed in the interest of the opposing candidate. In West Marylebone, Mr. Leopold de Rothschild lent a motor-car to Sir S. Scott, and Mr. H. Allhusen, the candidate for Central Hackney, rode a motor-car on Thursday. The Hon. J. Scott Montagu's motor-car did good service at Christchurch. As might have been expected, motor-vehicles were popular in Coventry on the day of the election. On the day after a driver was charged with furious driving, and when the magistrate asked the pace at which it went he was informed by the defending solicitor that it had gone for the 1,070 majority—the plurality obtained by the candidate in whose interest it was engaged. The General Election has had the effect of confirming many public men as to the reliability and utility of motor-vehicles for both private and public service.

The Second Ascent of Porlock Hill.

WITH regard to the ascent of Porlock Hill by a Benz car, to which we referred a fortnight ago, and which has occasioned much comment, we are glad to be able to publish an authoritative statement from Mr. H. N. Hickley, of Taunton, who was the owner of the car in question. Writing on the 27th ult., he informed us as follows:—On Monday week last, leaving Castle Cary about 10 a.m., I drove through Ilminster, stopping there about an hour, and coming on to Taunton, calling at the Newton Electrical Works, of which I am manager. There I filled up with petrol, etc., and started for Porlock at about 4 p.m. I believe I am right in saying that, out of the many attempts which have been made, one car only had previously got up this hill, and it with a certain amount of preparation. I made no preparation whatever, not even stopping in Porlock, and reached the top of the hill at about five miles an hour, stopping once in the ascent. I met the Lynton Coach, due in Porlock at seven, at the summit. I returned to Taunton the same night. There were two of us in the car, which was fitted with a Benz twin-cylinder motor of 5 h.p. and weighed 11 cwt.

Horse v. Motor-Car up Porlock.

INTEREST in Porlock Hill is likely to be quickened by a forthcoming event, full particulars of which we hope to publish when the definite arrangements are made. During the next few weeks, probably on the first Saturday in November, there will be a race between a motor-car and a horse. Mr. Mark Mayhew will be the champion of the automobilists, and will most likely drive his 16 h.p. Napier car, which is just about ready. Captain Harvey Jay, the well-known racing man, will ride a horse up the hill. The car will start up Porlock Hill five minutes after the horse, and both contestants will be timed with chronometers at each end. The event should prove of great interest to sportsmen of every description, and the victory of the horse will probably be assumed by a great many people.

Tintern Abbey.

ELSEWHERE we give some particulars of the autumn tour of the Automobile Club, with the names of suppliers of petroleum spirit by the way—names that will be useful for reference by all motorists. The visit to Tintern Abbey comes almost immediately after the welcome assurance that it has been purchased by the Government. Nor is it the abbey only, unrivalled as it is even among the ecclesiastical ruins of England, that changes hands. The estate of 5,334 acres of land has been acquired, including nearly 3,000 acres of woodland, the most picturesque portions of which are the lofty wooded hills and slopes with a frontage of not less than eight miles to the River Wye. The famous Moss Cottage and Wyndeliff, from which seventeen counties are said to be visible, form part of the purchase. The estate is near the extensive woods of the Crown in the Forest of Dean, to which it will form a most valuable addition. At the same time, the Crown has also purchased the whole of the Duke of Beaufort's farms surrounding Raglan Castle, 3,169 acres in extent. These will be seen by the automobilists after the luncheon at Lord Llangattock's house.

Motor-Bicycling over the Alps.

THE enjoyments of his motor-bicycle trip from Paris to London via the Alps are being described by Mr. Joseph Pennell in the *Daily Chronicle*. The first article appeared on Saturday and should do something to dispel the idea that it is not possible to purchase a motor-bicycle which is a practical vehicle. Incidentally the writer remarked that every French town now boasts its repairer of automobiles "as every English town seems to glory in his absence"—a reproach now being rapidly removed; and although at Salins, Mr. Pennell ascertained the recognised repairer was away, he had help from the local coal merchant, the chemist, the wine grower, and the hotel proprietor, all of whom owned motor-cars. Having crossed the frontier into Switzerland he ran out of petrol at Sion, and the chemist's jar of benzine proved an excellent substitute. All the hills were climbed successfully, and the rider seems to have had a splendid time.

The Exercise of Motor-Bicycling.

REPLYING to those who say that the motor-bicycle allows no opportunity for exercise, Mr. Pennell writes in a strain which will probably cause some discussion. Hence we give his views, and his criticisms of other automobiles, in full. "The motor-car," he says, "is either the advertising medium of the manufacturer and the racing man, or the latest mark of pecuniary superiority that the rich can exhibit. The quadricycle and most tricycles I have seen are the snare by which the would-be motorist is trapped. They possess all the disadvantages of the car, and many more of their own. The trouble with all these forms of motor is that, if anything breaks, owing to their weight, they must be either repaired on the spot or dragged away by horses. On the other hand, the motor-bicycle—and I speak of the Werner, which I alone have really driven straight away for about a thousand miles—is a heavy safety bicycle, with a strengthened frame, over the front wheel of which an auxiliary motor is placed. This motor, of one horse power, is capable of various speeds, from three miles an hour up to about thirty-five, and the driving of it requires the same, or, rather, a great deal more care and attention than the driving of an ordinary safety bicycle. As a matter of fact, however, by pedalling up hill, and there is no real work in it, you can assist the motor, actually doubling its speed. Recently, in riding from Newhaven to Brighton over the very hilly coast road, I pedalled almost the whole way, just for exercise, and I was fifteen minutes going from one town to the other. On the level, too, you help the motor, and a considerable amount of pedalling is done in a day's ride. So, if exercise consists in working your legs, on a motor-bicycle you get a good deal of it. But the advantage of this machine over all others is that, in case of the breakdown of the motor from any cause, the driving belt can be disconnected, and the machine ridden as an ordinary safety, which is very little more difficult than riding an ordinary tricycle."

The Forthcoming Trials of Electrical Vehicles.

ARRANGEMENTS are well in hand for the trials of electrical vehicles which the Automobile Club is organising for the first week in November. The trials will comprise:—(i.) A run over a given course for an unlimited distance on one charge. The driver to declare to the observer when the run is to be considered as finished; (ii.) A course of thirty miles to include considerable gradients; (iii.) A course of thirty miles of average road; (iv.) A course of thirty miles of flat or nearly flat road. The cars will remain throughout the trials under the supervision of the Club judges, and the energy consumed, number of passengers carried, average speed, etc., will be recorded on the certificates. The Judges' Committee will meet shortly to determine the courses and to consider a suggestion that the Trials should be extended to include prolonged battery-tests.

A Run on a Locomobile Steam Car.

ONE of the latest additions to the ranks of automobilists is Mr. S. Dakeley, of Blaenau Festiniog, whose choice of vehicle has fallen on a Locomobile steam car. Mr. Dakeley took delivery of his car in London lately, and on the 21st ult. set out for home, accompanied by an instructor. Mr. Dakeley describes the run as a most enjoyable one, the 350 miles being done comfortably in three days. On one of the days over 135 miles were covered, notwithstanding that in places the roads were in a very bad condition. The last twenty-five miles of the journey lay right over the Welsh mountains, but the little steam-car took the hills with ease.

Another Steam-Car Enthusiast.

ANOTHER owner of a steam carriage, who has driven his vehicle but a few weeks, but who has in that period, he declares, experienced all the disadvantages, speaks very strongly in favour of that type of carriage. He says: "For touring and pleasure vehicles, unrestricted to town use, the steam carriage is

the best of any. It is not only the lightest and most comfortable, but goes along with the least fuss and noise. Little energy is wasted and the control of the machine is marvellous. The speed is so easily regulated that a half mile an hour can be added or deducted by the use of the lever. The speed of which they are capable is almost unlimited. I know that my machine will go much faster than I dare to run it, and this reserve force gives it hill-climbing powers that neither the petrol nor electric carriages possess. I don't believe in looking for perfection in everything, and there are disadvantages connected with the steam carriage. In the first place the machine is a little too complicated and delicate. In reducing the weight I think some of the strength and ruggedness has been sacrificed. There are too many gauges and delicate bits of machinery to get out of order. I am forever smashing the water glasses on my machine. They are a nuisance, and I hope to see them superseded by a bell or whistle to inform the *chauffeur* when the water needs replenishing."

Police and Automobiles.

ITALY is making progress—automobilistically, if the printers' reader will allow such a lengthened word. Not only have motor-cars been successfully introduced into the post-office and the army, but the police of Rome are about to experiment with automobiles. Seeing the acknowledged utility of the patrol and the policeman on bicycles, there is every reason to hope the automobile can be employed in the detection of crime with even more satisfactory results. Not only will such an innovation secure greater facility in covering the wide area which the rural police have to patrol, but it will also prove useful in many smaller matters.

A Capture by Motor-Car.

IN confirmation of the foregoing a Dalziel's telegram from Paris on Wednesday evening is interesting. The capture of a welsher at Bernon by means of a motor-car is reported. Two Americans, having won, proceeded to look for the bookmaker who had the wagers with them. He was not to be found on the course, but the Americans learned that he had left in time to catch the next train to Paris. There was only eight minutes before the train was due to start, and the Americans, securing the assistance of a police officer, mounted a motor-car, and drove full speed to the station. The car attained a speed of fifty kilometres an hour, and raced so furiously through the village that the police officer had to hold on with both hands, and could not return the salute of his inferior officer passed *en route*. The car reached the station two minutes before the train, and secured the welsher. The next day he was sentenced to a fortnight's imprisonment, and the police officer is proceeding against the Americans on a charge of furiously driving their vehicle.

Motor Dust-Carts for the City of London.

WE notice that the Streets Committee of the Corporation of London are again taking action with regard to using motor-vehicles for the removal of dust and trade refuse, etc., from the City to the Corporation Depot at Letts's Wharf, Lambeth, S.E. On the present occasion the committee only proposes to hire a "mechanically-driven" dust-cart, and they announce that they are prepared to consider proposals from firms or persons experienced in the manufacture and use of automobiles. It is very surprising that the City authorities should have bungled so completely in the matter in the first instance. Why did they not make inquiries of some of the other local authorities, and thus have saved themselves the trouble of advertising for an electric dust-cart? In our advertising pages this week will be found an announcement on the subject, and we hope that now, at the third time of asking, success will attend their efforts. Manufacturing firms and others should render every assistance,

Excessive Speeds.

THE outbreak of the racing fever, which has followed the return of some wealthy Americans from foreign shores, seems to be leading to dangerous excesses in the United States. One of these multi-millionaires has been amusing himself by mounting his German racing machine and smashing records over the roads from Newport to Boston to the consternation of the citizens and the discomfiture of the authorities *en route*. Time and again the young Croesus has been brought before the magistrates and fined for reckless driving; but what does a multi-millionaire care for a police-court fine? He is perfectly willing to pay one every day for the privilege of indulging in this sport, which for the nonce pleases his fancy. But what, asks the *Horseless Age*, of the automobile industry, which must bear the stigma of his bad example and be still further restrained of its rights upon the road? Fortunately the number of mad motorists in this country is ridiculously small, but in America it is growing to such an extent that imprisonment will have to be threatened to make the punishment fit the crime.

Automobilmism in Holland.

ALTHOUGH not so much is heard of automobilism in Holland as in France, Germany, and several other countries, yet the movement is slowly but surely progressing in the country. At the recent general meeting of the Automobile Club of Holland it was announced that the membership list showed a total of seventy-five names. The club has succeeded in establishing sixty-one depôts for the sale of petroleum-spirit in various parts of Holland, and has made special arrangements with a number of hotels.

The Wellington Voiturette.

WHEN visiting Mr. Frank J. Wellington's depôt at Chalk Farm, a few weeks ago, we were shown a new motor-voiturette in course of construction. As the work was then only in an elementary stage, we made no mention of the matter, but we are now able to give a few particulars of the car, the body of which takes the form of a three-seated spider. Recognising the fact that many of the light cars on the market are under-powered, Mr. Wellington is employing a 5 h.p. Aster water-cooled engine. The feature of the new car is, however, the patent silent variable-speed gear that is adopted, which, it is claimed, will give any speed from 4 up to 30 miles per hour, and also a reverse motion. Mr. Wellington has been a long while testing this special gear, and finds he will save a good deal of power, there being so few bearings. We are promised drawings and full particulars of the vehicle, as also a trial run on it at an early date.

Repairing Firms.

THE subject of repairs to motor-vehicles is a very important one, and not only are the leading motor-car firms appointing repairers to attend to the requirements of special types of machine, but the Automobile Club is also about to consider the subject. Already a list of repairing firms is in circulation among members of the Club, and criticisms as to the ability of those on the list are being invited so that only really competent persons shall be officially recognised. Those repairing firms who have not yet applied to be placed on the list should do so without delay, and also forward to the Club certificates from members concerning their capabilities.

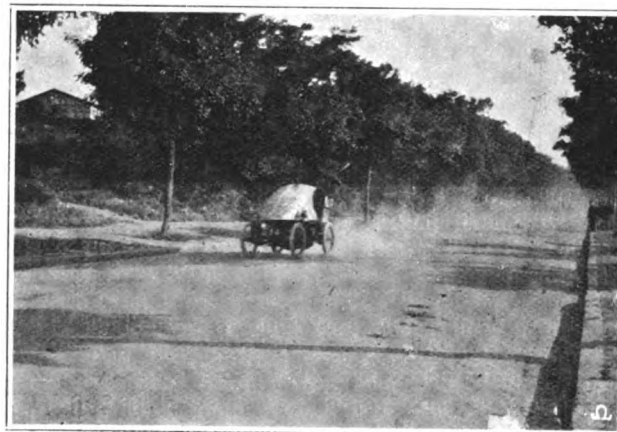
The Need of Education.

AN accident has occurred in Manningham Lane, Bradford, in which a motor-car, a butcher's cart, and a Parliamentary candidate's carriage were involved. The motor-car belonged to the Yorkshire Motor Vehicle Company, and collided with the butcher's cart sustaining some damage. The horse bolted and galloped away at a furious rate, dashing against a

horse and trap belonging to Mr. W. E. B. Priestley. The coachman was precipitated to the road, and sustained two scalp wounds, which were attended to by Dr. Waddington. Why cannot owners of horses secure them a proper and complete education with a view to avoiding such exploits as those detailed in the foregoing lines? Had that horse been carefully educated and taught to behave with propriety nothing of the kind would have happened.

Petrol on Sunday.

THERE is often great difficulty experienced in obtaining supplies of petroleum spirit on Sunday, and motorists who have neglected to replenish their stock on the preceding day have frequently been stranded. Hence we are glad to hear of the arrangement made by Mr. F. S. Frampton, of Winchester, which will meet the wants of motorists who are likely to go through that city on the Sabbath. He has arranged with the proprietors of the Market Hotel and Royal Hotel that each will keep a two-gallon can of petrol for emergencies, and will also receive any quantity that may be ordered from Mr. Frampton in advance on Saturday before sunset. Thus a difficulty is bridged in a way that should commend itself to other dealers in petrol who have scruples with regard to Sunday trading.



THE VALLEE "SHOE" CAR TRAVELLING AT FULL SPEED.

American, of course.

THE fact that automobiles do not defile the streets is a strong argument in favour of their extended adoption. Municipal authorities would quickly realise their advantages in a reduction of the cost of street cleaning. Emphasising this point, we notice that a Chicago newspaper suggests that the time may come, in a not distant future, when cities may require a licence for the privilege of using a horse in the streets, so as to require owners of horses to pay the expense which their use imposes on the public. For the horse is not only dirtier in the streets than the automobile, but he is also more destructive of the roads.

Motor-'Buses.

THE vestrymen of Lambeth, anxious to secure rest and quietude for the residents of that sylvan locality, have decided to call the attention of the Chief Commissioner of Police to the noise made by the motor-'buses which run that way. There was a little discussion on the matter, and, despite the fact that one observant gentleman pointed out that some motor-vehicles were worse than others, it was decided to appeal to Scotland Yard. We believe there are one or two noisy motor-'buses in London, but they must not be made the reason for an attack on new systems. Lambeth vestrymen should remember that this method of locomotion has not reached its best developments, and should try and compare the noise of motor-cars to-day with that they made two or three years ago. They are becoming less irritating to the dweller in quiet streets.

Cost of Horses.

IN the South African War rather more than 200,000 horses have been employed. At least, that is the number of horses and mules exported from various foreign countries to the order of the British Government for transport use and for remounts in connection with the Transvaal. According to one authority, had such an order been placed solely in the hands of the British farmer the average price would have risen to not less than £150, or an outlay of £30,000,000. As it is, the 45,000 horses and mules purchased by our agents in New Orleans average only £21, while the Continental nags cost £80 apiece. Seeing that an automobile could be found to take the place of several horses in the work for which they were required in South Africa, is it not time more was heard with regard to the intention of the War Office in the matter of automobiles for military purposes? In addition to the *King* we are glad to notice in this connection that the *Graphic* and the *Black and White Budget* have been illustrating the automobiles employed in the French manoeuvres.

**Dismissal
of a
Motor-Car Case.**

WE congratulate Mr. Frank H. Butler, the hon. treasurer of the Automobile Club, and his solicitor, Mr. Bannon, on the dismissal of a charge of furious driving alleged against him at New Romney. At the local police-court Mr. Butler was charged with driving his Panhard car at the rate of eighteen miles an hour. He appeared personally to rebut the evidence of two constables in plain clothes, and the magistrates then dismissed the case. This is noteworthy and demonstrates the advisability of defendants in such cases appearing to give evidence. For the magistrates naturally are inclined to give greater credence to the sworn evidence of riders and drivers than to the speeches of solicitors only.

**Enterprising
Journalism.**

ONE of our most interesting automobile contemporaries is the *Automobile Magazine* of New York. Its September number was exceptionally good. There were several splendid articles and some effective illustrations, among the best being several taken from our columns without the acknowledgment that courteous journals generally give. From our issue of February 23rd, a description of the Canello-Durkopp motor-carriage, with four illustrations, an article on new English voitures, with two illustrations, another on an English motor-omnibus, with a special photograph, and also one on a French motor omnibus have been taken without any recognition of their origin. In order that its readers should also have less modern news, our contemporary has reproduced in the same issue for September an article on the Hugot motor-voiturette which appeared in our columns in October of last year. It is some tribute to the interest and value of our technical articles that they should thus obtain wide publicity across the Atlantic. Of the apparently original contributions to the *Automobile Magazine*, a seven-line article on automobiles used for towing is perhaps the most notable.

ONE of the latest converts to automobilism is Count Hermann Hazfeldt, son of the German Ambassador to the Court of St. James.

THE MASSACHUSETTS ELECTRIC CAB CO. has placed two electric cabs in service and established a regular stand in Court-square, Boston, U.S.A.

MESSRS. TURCAT and MERY, of Marseilles, have just commenced the manufacture of motor-cars on Mors-Panhard lines. The motor will have four cylinders, which will be carried in front of the car, and will develop fourteen horse-power at a speed of 800 revolutions per minute. Magneto-electric ignition on the Bosch principle is to be adopted, as also water cooling by means of radiators fore and aft with fans on the Cannstatt Daimler principle. Five speeds forward and reverse motion will be available.

PARIS EXHIBITION NOTES.

(FROM OUR OWN CORRESPONDENT.)

(Continued from page 503.)

DIRECTLY facing the De Dion and Bouton exhibit at Vincennes, but upon the other side of the road, is found the main building of the automobile section, the interior of which presents a truly desolate and unkempt appearance. The majority of vehicles shown are occasionally utilised for trial trips, etc., and as they are invariably driven direct from the road to the stand they are usually to be seen in a thoroughly dirty condition. Most of the exhibiting firms have long ago ceased to retain a representative, so there is now an absolute dearth of attendants, and the visitor must obtain as best he can any information he desires. This is not rendered any easier by the fact that with the attendants all printed matter has disappeared, and catalogues are now seldom if ever seen. All this, to the man who takes a genuine interest in the automobile, whether from a sporting or industrial point of view, is very annoying, and he is to be excused if he says things about the exhibition, the exhibitors, and all connected with them.

The first stand that one sees upon entering is that of M. Jeantaud, who exhibits one of his well-known cabs and a couple of Panhard cars. Both these latter carry 8 h.p. motors; but, whereas the one car is of the dog-cart type, the other is a large six-seated carriage, fitted with a canopy. M. Georges Richard exhibits but a single car, and this is also the extent of the display made by M. Ripert, of Marseilles. Both these types of vehicles employ a combination of belts and cog-wheels for the purpose of transmission. La Compagnie Générale des Cycles show one of their Rochet quadricycles, fitted with an Aster motor and the wonderful Rochet carburettor. M. Fernandez exhibits one of his Sirène 3½ h.p. voitures, some of which have already been seen in England. The Créanche Company have upon their stand a voiturette fitted with a 3½ h.p. water-cooled De Dion engine, and a quadricycle also carrying a De Dion motor. There is also to be found on their stand a neat little electric voiturette, of which the motor and accumulators bear the well-known mark B.G.S. MM. Mildé and Cie exhibit an extraordinary-looking electric car, provided with three wheels. The motor is attached to the rear of the frame, between the two back wheels, and the vehicle is built very low indeed. The battery of accumulators consists of forty elements, and has a capacity of 65 ampère-hours, its total weight being about 220 kilos. Some 85 kilometres, or 53 miles, can be covered on one charge. The car weighs 520 kilogrammes and measures 2m. 50 in length by 1m. 30 in breadth. Other electrical companies exhibiting in the vicinity of MM. Mildé and Co.'s stand are the Compagnie Internationale de Transports Automobiles (Jenatzy) and the Compagnie des Voitures Electriques (Krieger). The former society shows a large delivery van, but M. Krieger's exhibit consists only of a *coupé* body.

MM. Emile Ouzou and Cie exhibit a tricycle and a quadricycle both fitted with "Soncin" motors. They have also upon their stand a pretty, albeit rather too showy, voiturette, also carrying a "Soncin" engine. The carriage work of this little car is of polished aluminium edged in brass, and under the sun's rays it doubtless presents a dazzling appearance. The motor is attached behind, but a sloping bonnet in front gives one the impression that the motor power is generated at that end of the frame. The wheel steering is mounted upon a sloping pillar. By the side of this, and attached to it, is a second pillar carrying five small regulating levers. The general appearance of this little car is particularly smart and attractive. Place is also found upon MM. Ouzou and Co.'s stand for a 5-h.p. water-cooled Soncin motor. MM. Ed. Molas, E. Lamielle, and A. Tessier exhibit the large delivery van propelled by compressed air, recently described in the *Journal*. A feature of this vehicle is the pivoting of the fore-carriage, which permits of the accomplishment of extraordinary steering feats. Only a single specimen of the Raouval car, built by the Société Anonyme Mécanique Industrielle d'Anzin, is exhibited by the makers, but it is a really

handsome carriage. The motor is placed in front, and one notices at once the large fly-wheel and clutch which are characteristics of this type of car. The wheel steering, too, is carried on a very sharply inclined pillar. Four people, all facing forward, can be accommodated in the smart carriage body built by Felber. La Société L'Automotrice de Bergerac, whose represen-

is entirely devoid of any such combinations, rejoicing as it does in a direct drive, is that constructed by the Etablissements Hautier, of Auteuil (Seine). This vehicle is provided with a Soncin motor. A carriage which attracts considerable attention is found upon the stand of M. Amedée Bollée. This is the famous steam-car built in 1878, and known as La Mancelle. That this

doyen of cars is still in good order was amply demonstrated at one of the recent fêtes, when, under the guidance of M. Amedée Bollée père himself, it careered gaily round the Daumesnil track. As a curiosity the vehicle shown by M. Albert Deschamps, Lisieux, at once attracts attention. It is certainly labelled "voiturette de démonstration du Nouvel Avant-train moteur directeur," but why such an uncomfortable vehicle has been selected to demonstrate Mr. Gouchon's system I cannot conceive. A four-wheeled car, the seat for a couple of passengers is placed right at the rear and directly above the two back wheels. At the other extremity is a vertical two-cylinder motor, with the flywheel placed between the two cylinders. This motor is attached at its base to a metal ring, which moves easily within a second ring. From the motor shaft a leather belt drives on to a second shaft, carrying at each extremity a pinion which engages direct with the road wheels. These latter are very small, and can pass well beneath the framework of the machine. By means of a pair of bicycle-like handle-bars, they can be turned to

any angle, the motor moving with them, and the vehicle is therefore capable of steering feats quite out of the common. How either of the persons placed upon the only seat can reach the handle-bars I know not, but possibly that seat is but a dummy, and the driver is accommodated upon the footboard which runs between the front and back wheels.

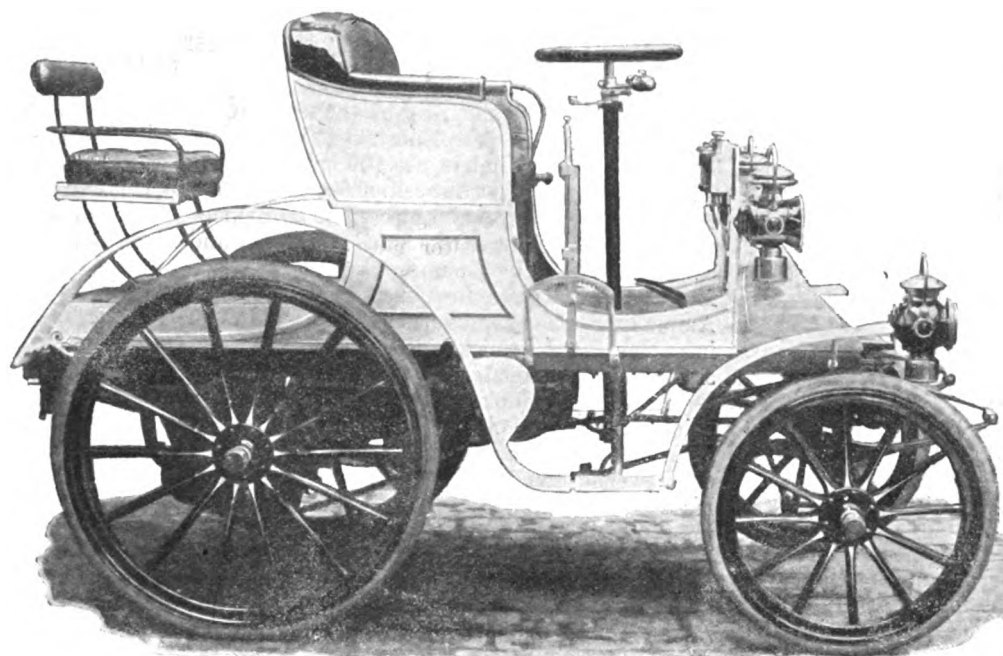


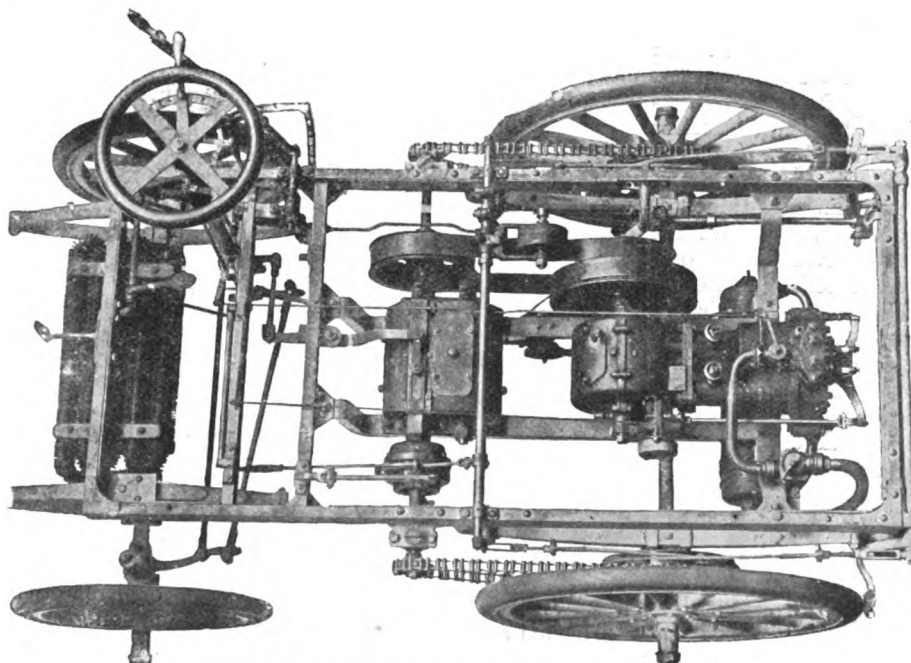
FIG. 1.—GENERAL VIEW OF PENELLE CAR. (See next page.)

Cliche de]

[Le Chauffeur.

tative at Paris is M. Alleron, show a car built on Benz-like lines, but fitted with a Popp motor. The cylinder head of this horizontal motor is at the rear of the car, and below the motor shaft runs a second shaft, the drive between the two being effected by a very short length of belt. Other voiturettes are shown by M. Th. Klauss, Boulogne-sur-Seine, and M. A. Query, of Paris, but neither make presents any features of interest. A rather effective display is made by the constructors of the Stella cars, whose works are situated at Levallois-Perret (Seine). They show three voiturettes, one of which is fitted with an air-cooled Aster, another with an air-cooled De Dion, and the third with a water-cooled De Dion motor. In each case the motor is carried behind, and the speed change gear lever passes through the centre of the tubular steering pillar. The Compagnie Bardou, of Paris, exhibit a *coupé*. Driver and footman find accommodation on the front seat of this car, while a couple of passengers can be carried inside. The Bardou cars are built at Puteaux, in the works formerly occupied by the Gaillardet Company. Upon the Decauville stand one finds four voiturettes, too well known to require description. These little cars enjoy an ever-increasing popularity in French automobile circles.

MM. Panhard and Levassor's exhibit consists of five cars, but several are of types now somewhat old. A couple of the vehicles are of large dimensions — one, indeed, finding room for a dozen passengers. An old friend is recognised in the shape of a 4 h.p. dogcart, a type of carriage that one does not now often see. MM. Mors, Delahaye, De Dietrich, Gobron and Brillié, Darracq and Peugeot are all represented, but their exhibits are not numerous and present no novelties. The well-known Lyons firm, MM. Audibert and Lavirotte, have upon their stand a car and a frame, the latter giving the inquisitive an opportunity of studying the means employed to transmit the propulsive power by a combination of belts and gears. A car, or rather a voiturette, which



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FIG. 2.—PLAN OF PENELLE CAR. (See next page.)

[Le Chauffeur.

MM. Gardner and Serpollet, Rochet and Schneider, Turgan and Foy, and La Maison Parisienne are represented by various types of carriages, and M. Chaboche, Paris, exhibits a large "tonneau" wagonette with accommodation for six people. In this case steam is the motive power.

Those English automobilists, who have made the journey by

road from London to Paris, *en* Havre, will assuredly examine with interest the car exhibited by MM. Tourand et Cie, for probably one and all of them have met the head of the firm at Havre, and ascertained what an enthusiast he is on automobile matters. The vehicle which he shows is a *tonneau*, built to accommodate four persons. The motor is carried in front, and a single lever actuates the forward and reverse gears, and changes the speeds. It is a smart and workmanlike carriage. MM. Brouhot et Cie, Vierzon (Cher), exhibit a couple of carriages and a delivery van, of which the feature is the absence both of chains and differentials. The two voituresses shown by M. Penelle, of Melun (Seine et Marne), are both fitted with the motor known as the "Touriste," constructed on the system of Mr. J. Bouché. MM. Brissard et Fils, Paris, exhibit a tricycle fitted with a De Dion motor, but carrying a water-cooled cylinder head. In place of the ordinary long petrol tank placed beneath the cyclist's seat, there are two tanks—one containing petrol and the other water. The quantity of water carried is but small, and is passed through a cooling coil placed on the left of the motor.

Other French constructors exhibit, but there is nothing calling for special attention, and one can proceed to the foreign sections without loss of time. The first is Italy, but beyond a pretty little pavilion there is no sign of Italy's existence. As for America—well, a couple of Riker cars, four Stanleys, and two carriages from the American Electric Vehicle Company, of New York, make up the sum-total of exhibits emanating from the other side of the water. Not famous, you say, but what about England's share in the show? As far as carriages are concerned, just on all fours with Italy's display, that is to say, nothing at all. The sole representative of the English industry is the Mossberg Roller Bearings Company, and the wide extent of blank space testifies as to the amount of interest taken by English automobile constructors in the Paris Exhibition of 1900. Germany, on the other hand, is fairly well represented, and the section is handsomely installed. Daimler does not show unfortunately, but both Dietrich, of Niederbronn (Alsace), and Benz, of Mannheim, make capital exhibitions, and much interest is taken in the first petrol motor-tricycle constructed by the latter firm, and which occupies a prominent position upon their stand. A magnificent electric vehicle is shown by Kühlstein, of Berlin, a sort of combination of coach and omnibus. This firm also exhibits a gear-driven two-seated car carrying a petrol motor in front. An electric tramcar, carrying its passengers on two long back-to-back seats, is shown by Die Gesellschaft für Verkehrs-Unternehmungen, of Berlin, and by way of contrast there are placed immediately in front of it a couple of motor-bicycles made by the Ateliers Ducommun, of Mulhouse (Alsace). Upon these machines the motor is carried above the front wheel, but by means of a long belt the drive is made on to the back wheel. The Vulkan Automobil Gesellschaft, Berlin, exhibit a couple of electric dog-carts, and a motor-lorry is shown by the Luxsche Industriewerke Gesellschaft, Ludwigshafen on Rhine. Other exhibitors are the Motorfahrzeug Gesellschaft, Berlin; Heinrich Scheele, Cologne; Frederick Hering, Gera-Reuss. The last-named exhibits an interesting collection of wheels. I hope to give some supplementary notes relative to this section at an early date, for it is the only one in the Vincennes annex which in any degree presents an appearance worthy of the Paris Exhibition for 1900.

(To be continued.)

MR. C. J. FIELD, of the De Dion-Bouton Motor Company, of Brooklyn, accompanied by Mr. Andrew Binker and Mr. F. H. Ball, recently took a trip down Long Island on a De Dion voituress. A considerable portion of the roads was found to be very dusty, owing to the fact that there had been practically no rain for two months. The average time of the vehicle was over 15 miles per hour and was maintained throughout the trip, except for about 10 miles in crossing the Island from East Cove to River Head, where, owing to the deep sand, it being eight and ten inches deep, much slower time was made over these 8 miles. The total distance of the route travelled was about 120 miles.

THE PENELLE MOTOR-CAR.

THE illustrations, Figs. 1 and 2, on page 519, show respectively a general view and a plan of the light car which has lately been put on the market by M. Penelle, of Melun (Seine-et-Marne), France. The frame is built up of channel steel and wood, and carries the motor and the whole of the transmission gear, thus forming a standard under-carriage to which any type of body may be fitted, Fig. 1 showing a three-seated spider. As will be seen from the plan, the engine is located centrally in the rear of the frame; it is of the two-cylinder horizontal petroleum-spirit type, and is known as "Le Touriste." The cylinders are 105 mm. diameter and 160 mm. stroke, and running at a speed of 600 revolutions per minute the engine is said to develop 6 h.p. The ignition is electrical, while the cylinders are water-jacketed, the circulation of the water being maintained by a pump. A radiating coil is fitted in the fore part of the frame in connection with the water circulation. Ample lubrication arrangements are provided for, and the sparking plugs can be quickly removed, they being mounted on a single detachable plate.

Three speeds forward and one reverse are available, the car being capable, it is claimed, of maintaining an average speed of 30 kilometres (nineteen miles) per hour. From the motor-shaft the power is transmitted by a single belt to a short countershaft. No fast or loose pulleys or friction clutch are employed, but instead a jockey pulley is provided by means of which the belt can be tightened or slackened as desired. The countershaft carries, in an oil-containing case, a train of spur-wheels, any one of which can be made to mesh with corresponding pinions on the differential shaft, from which the power is transmitted to the rear axle by the usual duplicate set of sprocket-wheels and chains. Steering is controlled by a wheel mounted on an inclined or vertical column as desired. A foot pedal operates a hand brake on the differential shaft, while a hand lever operates the jockey pulley on the belt, and at the same time applies band brakes on the hubs of each of the rear wheels.

A 6 H.P. STOEWER petrol car set out from Stettin on the 17th ult. bound for Paris, the passengers being Messrs. Stoewer, Dobberwitz, and Zimmermann.

M. ORLOVSKY arrived in Paris on Monday, having ridden on his motor-tricycle from St. Petersburg. With no intention of record-making, the ardent motorist covered about 1,800 miles within a fortnight.

THE exhibition of motor-cars at Sheffield in connection with the 1,000-mile Trial gave a decided fillip to motoring in the district, the number of motorists having more than trebled since the event.

It is not difficult to imagine that the commercial traveller will ere long be travelling by motor-car, making the trip not by railway schedule, but at his own convenience. Road maps, distances and conditions of roads will then be studied in the place of railway time-table, and the subject of roads will take the place of politics and the weather for general conversation.

WRITING to an American contemporary, Mr. L. D. Shaw, of Everett, Mass., U.S.A., states that in the year of 1866, when the old velocipede fever was on in Boston, he built a successful steam road carriage, of which the following is a brief description: It had a pair of reciprocating reversible engines, with 3 x 6 in. cylinders. The engines were secured in a horizontal position upon the frame or perch of the carriage, acting upon the crank shaft, which had a pinion gear, geared into a large spur gear, secured to the hubs of the rear wheels. The boiler was built on the plan of an Amoskeag fire engine boiler. It was 18 in. in diameter and 30 in. high, and rested upon springs on the frame back of the carriage body. Under the seat was a water tank holding 15 gals. of water, with a fuel box. The steering was done by turning the forward axle and wheels. A rack was attached to the axle, running through a rack box gearing into a small pinion, upon the end of a shaft extending up in front of the seat with a crank upon the top to operate the same.

TO MONMOUTH AND BACK.

GREAT interest is being taken in the Autumn Tour of the Automobile Club, which commences on Friday, the 5th inst. A large number of members have intimated their intention of participating in the event, and a start will be made from Horse Guards Avenue at 2.30 p.m. The route for the first day will be *via* Pall Mall, St. James's Street, Piccadilly, to Hyde Park Corner, through Hyde Park (except cycles), *via* Barracks and Albert Memorial, Kensington, Hammersmith Broadway, Turnham Green, Gunnersbury, Kew Bridge, Brentford, Hounslow, Colnbrook, Slough, and Maidenhead, Henley, Nettlebed to Wallingford, where a stay will be made for the night, the George Hotel and the Town Arms Hotel providing the necessary accommodation. This will be a forty-eight miles run, and among the petroleum spirit-stores on the way are the following:—

Brentford—Box and Co., High Street. Slough—J. Fulbrook and Co.; F. Parker. Maidenhead—Thompson and Walton; E. C. Smith. Henley—Hickman and Son. Wallingford—The George Hotel.

On Saturday the tour will be resumed at 10 a.m., and the road will be taken *via* Harwell to Wantage, a distance of fourteen miles. Then through Faringdon, Lechlade, and Fairford the party will go to lunch at the King's Head Hotel, Cirencester, 27½ miles. Leaving there the way will lie through Gloucester (17½ miles) and Ross (16½ miles) to Monmouth (10½ miles), making a total mileage of 85½ for Saturday.

Firms supplying petroleum spirit on the way are the following:—Faringdon—G. E. Liddiard, Grocer. Cirencester—J. H. Cock and Co. Gloucester—Pitt and Son, Barton Street; Clark and Morgan, 1, Worcester Street; W. J. Newth, Lady Bellgate Street. Monmouth—W. and J. Honeyfield, Agincourt Square; Taylor and Jones.

After leaving Gloucester the road is slightly hilly, but the surface very good. Between Ross and Monmouth there is a dangerous hill at Whitchurch. The gradient is 1 in 10. Arrived at Monmouth, the Beaufort Arms Hotel and the King's Head Hotel will accommodate the party, and Sunday will be spent according to individual tastes and preferences. On the 8th a start will be made at 10 a.m. for Tintern Abbey, which has just been purchased for the nation, and the beauties of which will call for a brief stay. The road is a capital one and the distance about eleven miles. Near the Abbey the gradient is 1 in 16, that being the steepest part of the way. From thence the trip will be continued to The Hendre, where at 1 p.m. luncheon will be enjoyed by invitation of Lord and Lady Llangattock, the return to Monmouth being *via* Raglan, a distance of nearly eight miles. During the stay at Monmouth those who are interested in industrial pursuits will be able to visit the Blaenavon Iron Works—an opportunity kindly provided by Mr. Edward Kennard, J.P.

On Tuesday, the tour will be continued to Oxford, a distance of 86½ miles. Luncheon will be taken at the Bell Hotel, Gloucester, and the following list of petroleum spirit stores will indicate the route:—

Cheltenham—Clark and Morgan, 22, Clarence Street. Eynsham—Sawyers and Son. Oxford—R. Foort, 19, Queen Street; Oxford Cycle Company, 68, St. Giles. The hotels at Oxford catering for the automobilists are the Clarendon and the Randolph.

Wednesday, the 10th, will be the last day of the tour. At 10 a.m. a start will be made for Stokenchurch and High Wycombe, where, at the Red Lion Hotel, lunch will be taken, R. C. R. Potter, the Corn Market, replenishing petrol supplies. Then *via* Beaconsfield, Uxbridge (Grainge and Grainge, 43, High Street, for petrol), and Ealing the party will proceed to the Club headquarters, *via* the Marble Arch. At Ealing Pratt's motor-spirit can be obtained from the following quartette of firms:—

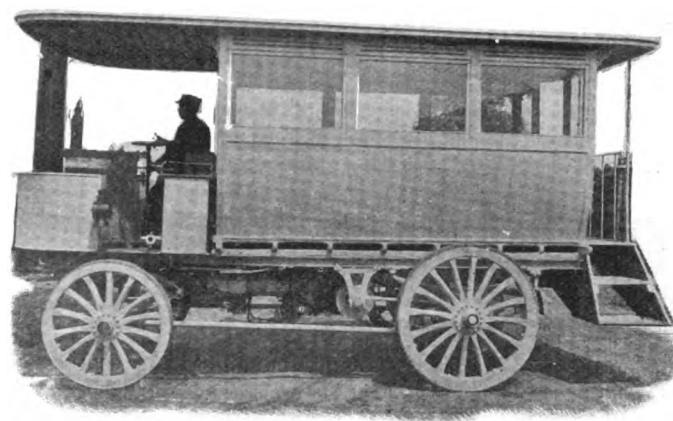
Brewster and Co., 20, The Avenue, Castle Hill; Bruce, Wallace, and Co., Broadway; G. M. Foden, 132, Uxbridge Road; F. W. E. Ryde, St. Mary's Road.

In connection with the tour it is of interest to note that the outward control for London will be at the tramline station at Hammersmith, and the inward control at Uxbridge Road Station.

Otherwise all towns and villages are controls and within them passing or speeds in excess of eight miles per hour are prohibited. Controls commence where houses stand at the road side, and end where houses cease to stand at the road side. The committee of the Automobile Club hope that members will respect the law as to speeds, will use every caution in turning corners and passing through towns and villages, and will show every consideration for other users of the road, especially those in charge of restive horses.

A THORNYCROFT STEAM OMNIBUS.

HEREWITH we illustrate a steam omnibus lately completed by the Thornycroft Steam Wagon Company, Ltd., of Chiswick, for service abroad. Although Thornycroft vehicles for the transport of goods are now fairly numerous, this is, so far as we are aware, the first one that has been built for



the conveyance of passengers. The omnibus has seating accommodation for fourteen persons, carries half a ton of luggage on the roof, and averages a speed of about nine miles an hour. It is fitted with a Thornycroft water tube boiler, which may be fired with coal, coke, or oil, and a Thornycroft high-speed, enclosed, compound engine of standard design.

THE Australian Dunlop Tire Company have acquired the Australian rights in the De Dion motor vehicles.

MOTORISTS in Cheshire would do well to make a note of the fact that petroleum spirit is now being stocked by Messrs. H. Cragg and Son, of the Central Cycle Dépôt, 55, Railway Street, Altrincham. The firm are also in a position to recharge accumulators and to carry out repairs to motor-vehicles.

THE first examination of applicants for licences to operate motor-cars on the streets of Chicago was held on February 17 last. Since that time examinations have been held at stated times, and a total of 303 certificates has been granted, no less than 225 of these being for electric-vehicle operation. A large proportion of the applicants were licensed as public-vehicle operators for the two public companies located in the city.

THE postmaster of Boston, U.S.A., expects within a short time to replace the five wagons and one collection cart in use in the Back Bay district with three petrol motor-cars. The postmaster brought this matter to the attention of the Washington authorities on his recent trip to that city, and the Government is planning merely to hire the vehicles, so that the contract will call for all needed repairs to be made by the motor car companies.

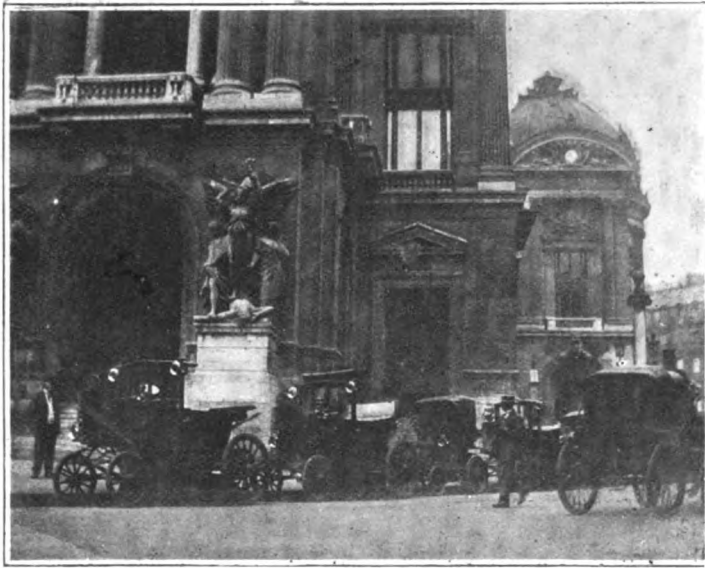
IN a recent issue we referred to the fact that an early extension of the business of the Locomobile Company of America was contemplated. We now learn that in addition to the dépôt at Sussex Place, South Kensington, large premises comprising over 5,000 sq. ft. have been secured at 81, Page Street, Westminster. These new premises will be used both as works and for the storage of large two and four-seated steam cars, it being the intention of the company to have a large stock on hand so as to be able to supply vehicles at a week's notice.

A VISIT TO PARIS.

BY PHANOMEN.

TO remove any misconception that might arise from the above title, I may say at once that this is not an account of a motor-car excursion to Paris, but merely a few cursory observations made during the course of a brief visit to the French capital the other week. No, much as I might wish to make the journey to the gay city leisurely *en automobile*, that pleasant experience has not yet been mine, and I had to content myself with, at present, the more general means of conveyance—train and steamer.

Where shall I begin my cursory notes? At the Exhibition, of course, for it is there the newly-arrived visitor immediately makes his way. I do not propose to describe the motor-car exhibits at the Champ de Mars—this has already been done by the Paris correspondent of the *Motor-Car Journal*, and by means of the useful information he sent a few months ago I had no difficulty, notwithstanding the large area the Exhibition covers, in finding the automobile group in the Transportation section. And what an interesting department it is. For two or three hours I was simply lost to the outer world in examining the latest productions of Panhard, Peugeot, Mors, [Jeantaud, [Serpellet, and many other concerns



THE MOTOR-CAB STAND AT THE OPERA, PARIS

too numerous to mention. Every type of automobile is represented—petrol, electric, and steam. Of the first-named the exhibits range from motor-bicycles up to huge wagonettes and char-a-bancs. Of electromobiles one can see at a glance voiturettes, cabs, and delivery vans, while the steamers range from the huge Scotte tractors to small two-seated cars. Without wishing to make invidious comparisons, the *bonne bouche* of the whole collection is to my mind a 12 h.p. Panhard with a body by Labourdette on exceedingly novel lines. First we have the motor in front under the usual bonnet, then there comes a seat having accommodation for three persons, all three being sheltered by a glass screen which can be raised or lowered at will. Then comes another glass screen, behind which are two single seats with a passage between, this passage giving access to a seat wide enough for three persons. The body is carried up high at the rear, and although the vehicle is open at the sides it is provided with a roof extending from front to back. Needless to say it is handsomely upholstered, and as a family touring car I have, so far, seen nothing to equal it.

It has frequently been said that the motor-car has still the appearance of being a horseless vehicle—that is, a vehicle to which a horse needs adding to give an idea of completeness. However justifiable this statement may have been in the past, it can safely

be said, judging from what I saw, that those French carriage builders who have seriously taken up the automobile industry, or at least the motor-car body building portion, have not overlooked this matter, for some of their designs are quite radical departures. Jeantaud, among others, is responsible for some designs which for the moment appear somewhat strange, but which, when we have grown accustomed to them, will no doubt meet with approval.

One could spend many a week at the Champs de Mars and not see all that there is to be seen, so, my visit being but a short one, I had, much against my will, to be content with but a brief examination of the Transportation Section. Not long afterwards I found myself in the Palais des Armées, where another automobile feast awaited me. For it is in this section that the military motor vehicles, recently described and illustrated in the *Journal*, are exhibited. Grouped together in one corner of the building one finds no less than ten cars, including a Scotte steam tractor, a De Dion steam tractor, a Panhard omnibus, a Decauville voiturette for the use of the état-majors, a postal and telegraphic car by the Mors Company, a fast Mors car for the use of état-majors, a travelling office car for the use of the General Commandant, by the Peugeot Company, a postal car by the Georges Richard Company, an ambulance van by the De Dietrich Company, and a telegraph service wagon by the Koch Company. In view of the great part the motor-car has played in the recent French manoeuvres it would be interesting to know what our own War Office is doing in the way of experimenting with motor-vehicles for military transport purposes. Judging from past experience, our military authorities will wake up to the advantages of motor-vehicles, and begin to inaugurate experiments therewith, when such means of transport have found a permanent place in Continental armies. This year has been a busy one in the organisation of carnivals in aid of the war fund; a carnival to raise a fund to send a commission from our War Department to France, to read, mark, learn, and inwardly digest what is being done by our neighbours, would have an object no less meritorious and useful.

So much for the Exhibition, time unfortunately not permitting a visit to the annex at Vincennes. And now what about the automobile movement in Paris. I was told not to expect to see a very large number of cars, for the leading lights of the automobile world are, just now, holiday bent, touring in various parts of France, Switzerland, Italy, and even Algeria. Be this as it may, there are still sufficient left at home to cause one to make odious comparisons with London. Hardly a moment passes but a motor-car or cycle whizzes by as one promenades the boulevards or streets, for, independent of the many private vehicles, there are large numbers of both electrical and petrol cars plying for hire. At almost any of the cab stands one is sure to find three or four motor-vehicles awaiting a call. The accompanying illustration, reproduced from a snapshot of the stand at the Opera House, shows both electric and petrol cars. The electrics, which form the great bulk of the motor-cabs in use, are very similar to those which ran for some time in London, while the petrols are small Peugeot cars. The speed at which the cars, both private and public, fly about on the smooth roads of the boulevards would raise the hair of the average London policeman, and cause the correspondence columns of the daily papers to be filled with letters on the subject of the excessive speed of motor-cars, or the slow speed of our handsome horse-drawn "growlers."

On the Sunday afternoon I made my way along the Champs d'Elysées to the Bois de Boulogne. Just as in London, the toot-toot of a horn gave the signal that a motor-car was approaching, but instead of an occasional toot-toot, as at home, one tooter had hardly got out of hearing than another took its place. My arrival at the Bois was somewhat delayed, for the Avenue de la Grande Armée intervened. This thoroughfare is the Holborn Viaduct of cycle and motordom in Paris, and with almost every other dépôt devoted to automobiles the cause of the delay is not far to seek. It was consequently somewhat late when I found myself within the Bois. Yet, despite the fact that the dining hour was close at hand, the automobiles turned up in good force. Taking a seat near the Porte Maillot I counted within the short space of ten minutes no less than fifteen cars, ten voiturettes,

fifteen trikes and quads, and a Bollée. The way the cars and cycles were handled was admirable; as for the speed—well, all I can say is that had they been dashing through the Marble Arch at the same speed as they passed through the Porte Maillot the drivers would have all had to appear at the police-court on the following day, on a charge of furious driving. Some of the cars had only been out for a short spin, but the dusty appearance of several indicated that they were returning from a long trip. And here I may mention a dust-catching device which appears to be coming into use by *chauffeurs* in Paris. One knows what a dust is created at the rear of the car when travelling at a fair speed. To prevent this rising and inconveniencing the rear passengers, two poles are being fitted, projecting from the top of the rear portion of the body parallel with the ground. Across these poles, which project about a yard, is stretched a cloth, usually of a colour similar to that of the carriage body. I saw three or four cars fitted with the arrangement, and while it did not strike me as being very elegant, yet I have no doubt that it fulfils its object of preventing the rear passengers being smothered in dust. And if motor-cars and cycles are being largely used in Paris, it is only natural that facilities for the storage and repair of the same should be available. And so they are. *Garages*, where one's car or cycle can not only be stored, but cleaned and repaired when necessary, are rapidly increasing in number, while accessories and *essence* are to be found on every hand. As an indication of this, the fact that such articles as sparking plugs, current interrupters, etc., are included in the trays of goods exposed for sale outside one of the large miscellaneous bazaars on a leading Boulevard may be instanced.

The Parisian no longer wastes time in debating the question as to whether the motor-car has come to stay and whether he should defer his purchase lest the present vehicles be superseded by improved designs in time to come. Having settled the first question in the affirmative, he is taking—no, has taken, the motor-car as it is. True, it may not be perfect as yet, but the extensive adoption they have met with has shown the weak points of the vehicles that have hitherto been built, and as these are discovered attention is devoted to their elimination. Thus both makers and users of motor-vehicles are working hand in hand in the task of evolving the ideal automobile. In England, on the other hand, the old spirit of conservatism still prevails, many possible users of motor-cars, who would undoubtedly find them more economical than their present means of transport and conveyance, still holding back from taking the step of adopting horseless vehicles.

On all hands one finds in Paris evidences of the hold the automobile has already obtained on the people. Used both by the Government and in the public service, those who cannot afford a vehicle of their own are able to, and do, take advantage of the facilities offered them for a drive *en automobile*, and even the children can, for a 10 centime piece, have a ride in a motor-car round-about, one of which formed a leading attraction at the recent fair at St. Cloud.

While there can be no doubt that the automobile movement in England is progressing, its progress is not so rapid as I, like

many others, would like to see it, and a visit to Paris only emphasises the fact that we have still a long way to travel ere automobiles and automobilism become such general features as they are at the present time in France.

EXPERIMENTS with a motor street-sweeping machine are again being carried out in Paris.

WE hear that Lord Saville, of Rufford Abbey, Notts., will shortly be the possessor of a 6-h.p. Daimler.

THE Marot-Gardon voiturette, illustrated and described in a recent issue, is now being fitted with a 6 h.p. motor.

A MOTOR-CAR has just been despatched from France to M. Cagnan, director of the Phosphate Mines, at Gafsa, in the south of Tunis.

THREE 50 h.p. Napier cars will probably be made for next year's Gordon-Bennett race. They will be ready in March, and one will be for Mr. S. F. Edge.

THE well-known Soncin motor, by means of which so many tricycle records have been broken, is now being made by Messrs. Ouzou and Co., of Paris, in larger sizes up to 6 and 8 h.p., these engines being, of course, water-cooled.

THE cry of the members of the London Salvage Corps when going to fires will be heard but a little while longer, for a gigantic cycle bell is to be fitted to the splash-board of the engine and worked by the driver's foot.

ON Wednesday morning a De Dion voiturette skidded on Waterloo Bridge, and ran into a van that was passing. Strange to say, the incident has not yet been exaggerated into a "Motor-car smash" by the Fleet Street liner.

THE other day a bicycle ridden by Mr. Wm. Chapman, of Raynes Park, collided with an

automobile driven by a gentleman from Ealing, near Window's Bridge. The cyclist escaped with a few bruises, but his machine was somewhat damaged.

THREE Scotch motorists, Messrs. A. K. Dempsey, J. S. Miller, and T. R. Outhwaite, have just completed a trip from Birmingham to Edinburgh on motor-cycles. Travelling *via* Derby, Nottingham and Newark, the North Road was joined at the latter place, the journey being continued *via* Doncaster, Selby, York, Newcastle, and Berwick.

THE Dow Portable Electric Assistant Co., of New York, have just placed on the market a three terminal coil, a four terminal and a combination coil. The four terminal coil, made especially for motor-bicycles, is only 10 inches long and 2½ inches in diameter, and can be fitted snugly under the top bar of the frame. The combination battery and coil measures 8 by 11½ by 3½.

SOME twenty or thirty members of the Cycle Engineers' Institute accepted the invitation of Messrs. Thomas Firth and Sons, Limited, to visit their steel works at Sheffield on the 27th ult. The next general meeting of the Institute will be held at Coventry on the 11th inst., when Mr. C. T. Crowden will read a paper on "Motors and Motor Cars, their defects and remedies."



A PARISIAN ELECTRIC CAB.

THE DAIMLER MOTOR AND TRANSMISSION GEAR.

IN the last issue of the *Automobile Club Notes* there appears a letter on the above subject from Mr. W. Worby Beaumont. As the question is of interest to the large and ever-increasing number of users of motor-vehicles of the Daimler type, we reproduce the letter below:—

"A discussion has been raised as to the sufficiency of the gear of a 6-h.p. Daimler car for use on a 12-h.p. car. The question was raised by Mr. Ernest Hutton, who added a 6-h.p. to the front of his 6-h.p. car, thus converting it into a 12-h.p. car without making any change in the gear. On the one hand it is argued that if the gear is sufficient for the 6-h.p. motor with its frequency and intensity of impulse, then it must be sufficient also when the second motor is added, because the intensity of the impulses remain the same, only the frequency being altered, the impulses of the two motors never being simultaneous.

"On the other hand it is argued that inasmuch as the gear with the added motor conveys 12 h.p. instead of 6 h.p., and imparts to the chain double the pull, the stress upon the gear must also be doubled. Both these arguments are in part true, but both are incomplete. If the gear received the explosive impulse direct, then it would probably fail by broken teeth, even with one engine, and the addition of the second engine would

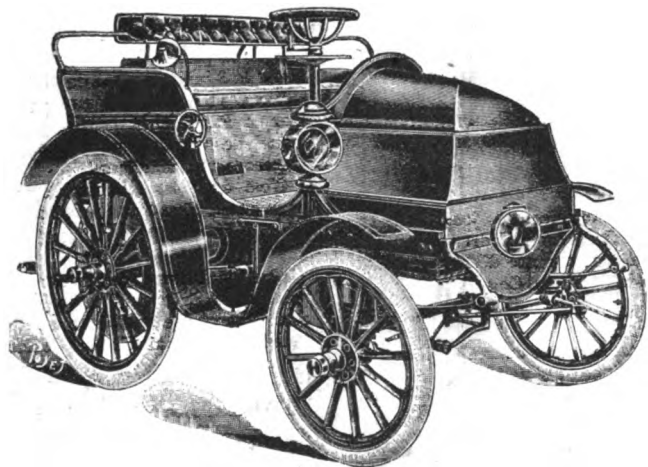


FIG. 1.—GENERAL VIEW OF MEYNIER-LEGROS ELECTRIC CAR.

only expedite the failure by introducing double the number of impulse shocks in a given time. If the gear were made originally strong enough to receive the direct impulse, then the introduction of the second engine would only add to the wear by doubling the wear effort of work done.

"Inasmuch, however, as a fly-wheel is interposed between piston and gear, its inertia has first to be overcome. It receives the piston impulse during a small part of a revolution and, acting by momentum, serves as an accumulator which gives off the absorbed work in a large part of one or more revolutions. The intensity of the shock is proportionately lessened, and may be looked upon as spread over a number of the gear teeth instead of one, as would be the case in the absence of the fly wheel.

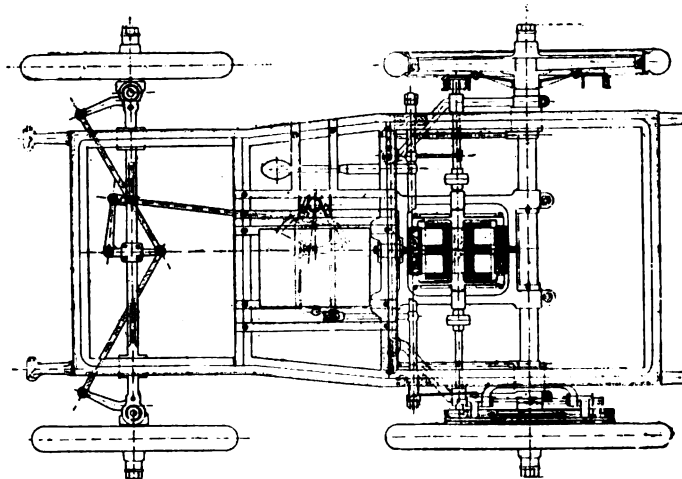
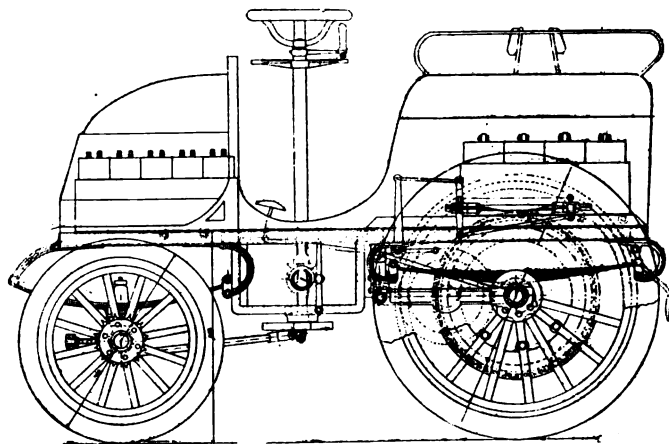
"The impulse effect per impulse thus remains unaltered by the addition of the second engine. The latter, however, doubled the number of impulses, and the energy imparted to the fly-wheel is doubled, and it does double the work on the gear, and the wearing power is doubled. The actual or the extra wear may, however, be masked, or may be less than that due to doubling the engines in a car which generally runs in easy country. The 5 or 6-h.p. motor may have been nearly enough, and the two motors may together, as a rule, only do 7 or 8 h.p., and the wear, therefore, not be sufficiently increased to make it perceptible in a short time.

"In changing speed, however, with wheels which slide into

gear laterally as in most cars, the damage done when the wheels dig each other's tooth corners, or only slip part way into mesh, may easily be more than doubled with the double motor in the hands of an unskilful driver."

THE MEYNIER-LEGROS ELECTRIC CAR.

AMONG the electric vehicles exhibited at the Champ de Mars, Paris, is the car shown by Messrs. Meynier and Legros, of which illustrations are given herewith. Carrying some of its Fulmen accumulators in a case placed on the fore part of the frame, this carriage consequently resembles somewhat in appearance the ordinary Panhard type of petrol car. Its motor, which weighs about 100 kilogrammes, develops 8 h.p., and is supported from the frame and back axle. It drives on to each of the back wheels through the medium of a single set of



FIGS. 2 AND 3.—ELEVATION AND PLAN OF MEYNIER-LEGROS ELECTRIC CAR.

gear, consisting of leather and iron gearing, with an internally-toothed aluminium wheel, the teeth of which are of bronze. The motor works at 80 ampères, and the controller switch permits of six forward and reverse speeds. Three electric brakes for both forward and backward driving are also available, as also is a very powerful pedal brake, the application of which cuts off the electric current in addition to braking the car. The speed is controlled by a handle on the steering column underneath the hand-wheel. The constructors claim that their vehicle can run from 80 to 100 kilometres, at an average speed of 24 kilometres per hour, without recharging, and that it can ascend hills of one in twelve at a speed of 10 kilometres per hour. Wheel-steering on the Lavenit system is employed. Summed up, the car is a smart and an attractive one, and the makers should find a ready market for their production.

HERE AND THERE.

VERY gravely and seriously do many of the gentlemen sitting on rural councils inveigh against the motor-car as though it were an unwieldy monstrosity indeed. That may be forgiven them—at their time of life. But when they leave a motor and attack the motorist I feel inclined to write something.

It is alleged that automobilists are uncouth, ill-mannered creatures whose minds cannot rise above mechanical things and whose manners are those of the peacock combined with the pig—the strutting proudness of the bird associated with a grunting disposition that inclines to insolence. They decline to stop when asked, they run over ducks with glee, and would knock ladies down without stopping to inquire the damage done. Altogether, according to several local magnates, automobilists are a bad lot. Such accusations seem to invite the *tu quoque* argument. Are there uncivil drivers of horse-drawn vehicles? Do coachmen ever get on the wrong side of the road? Have horses ever been seen to gallop along a road to the inconvenience of the public? Of course these things have happened, and even in the most immaculate set of drivers that could be produced such black sheep would be found.

THERE are a few automobilists who do not do the things they ought to do, and there are some whose manners need polishing, but if those who make such assertions as those mentioned would only think awhile the silliness of general attacks on such slight foundations would be apparent. There would be less friction if all who drive horses or motor-cars and who ride bicycles would go through a thorough training in passing traffic. When cycles were introduced their riders were ignorant of steering through traffic; clubs and experience have removed the lack of knowledge, and similar institutions are proving of equal service in connection with automobilism. It is not a very easy matter to steer clearly through traffic, and both motorists and drivers of horsed vehicles have to learn their way about. But to say that one is worse in that respect than the other is, as Euclid observed on more than one occasion, “absurd.”

THE other day I took a short trip through London with young Cusins, who was a familiar figure on the Napier car during the 1,000 mile Trial. We were on a Clement-Panhard voiturette that ran easily and well, proving itself a very comfortable and roomy vehicle. Voiturettes are frequently regarded as carriages for two persons and no baggage. But the long wheel-base of this voiturette allows for a fair amount of luggage as well as its complement of humanity. From Holborn Viaduct we went into Holborn, and the way the car was steered—particularly in that portion of the road between Gray's Inn Road and Chancery Lane—afforded testimony to the ability of the driver in getting through traffic. On the wood pavement of Oxford-street we went at a good pace, and then into Regent-street and over that wretched road in Portland Place. Why is that not paved with wood, or, at any rate, why is the surface not kept level and decent?

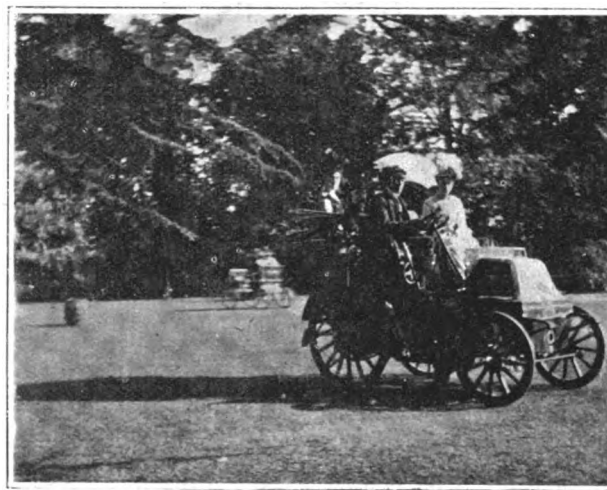
ALTHOUGH trips through the parks are familiar enough, a spin right round Regent's Park is not so usually given in connection with trial trips. It is a short run over a not too well prepared road, and presents an array of fine houses on the one hand and a most delightful display of foliage on the other. But when the road has been sprayed with rain for a good two hours and the wind is against the riders, the conditions are not wholly faultless. For the mud attacks one in the rear, and the backs of passengers become of a khaki hue that shows up very conspicuously on black raiment.

SHOULD anything go wrong with motor-cars when near Sandgate, Mr. J. Maltby will be pleased to set them right. He has had two years' experience in such work. Mr. Maltby is not a cycle agent, but served an apprenticeship as an engineer with Messrs. Maudslay, Sons, and Field. He has also had engineering experience with Messrs. Samuda Bros., Messrs. Penn and Co., and Messrs. Yarrow. In addition to doing repairing work he stocks petroleum spirit.

MOTORISTS going north will find the run from Sheffield to Bridlington a very enjoyable one of eighty-one miles. Doncaster is the first town of any importance that will be reached, and then there is a good road to Hatfield, over the canal at Thorne, and along a level surface to Rawcliffe. From thence the Goole road is followed for three miles. Rather more than forty miles from Sheffield is Howden, noted for its horse fair, and after a while a good run over the Yorkshire Wolds, through Middleton and Dalton, leads the motorist to Driffield. After that a series of interesting villages is passed through, until Bridlington Quay or Sheffield-by-the-Sea comes in sight.

NEARLY a year ago I wrote a fanciful sketch of the time when men would go to and from their work on automobiles. That time seems to have come in one city of California, where a leading firm of engineers has secured a passenger automobile carrying twenty-five people, which will be employed to take their workmen from home to factory, and from factory to home. It will call every morning between 6 and 7 o'clock at given points in the city, to pick up and carry the employees to their works. In the evening the car will return the men to the places at which they were collected in the morning, or, if possible, direct to their homes. This service has been established because of the absence of a tramway in the district in which the men live.

ON the lawn of a well-known patron of automobilism I recently saw several motor-cars careering about, and succeeded in getting a photo of one—a Motor Manufacturing Company's



Marlborough phaeton — with Miss Pursehouse and another lady and Mr. Lyons Sampson in the rear seats, Miss Ledger being beside the driver.

THE recent trip of the English Motor Club to Luton demonstrated that there are many automobilists to the north of London. Further evidence comes in a simultaneous notification from Messrs. Horle and Co. of Harpenden, and Mr. J. L. Thomas of High Barnet, that they can execute repairs to motor-vehicles. The former has also accommodation for the storing cars.

MOTOR-CARS have been useful in the elections, but they have occasionally led to platform gibes that have not been appreciated by the other side. One candidate has just declared that the only thing conspicuous about his opponent was that he had a motor-car. That was a very useful class of vehicle, continued the speaker, but somewhat eccentric. Comparisons between the candidate and his motor-car naturally followed.

HERE is an extract from a very luminous report on the trade of Coventry appearing in the *Birmingham Daily Post*:—“Business on the whole is not brisk. The motor industry is fairly active, and some of the cycle firms are well employed, but others are not.” Just fancy! “Some of the cycle firms are well employed, but others are not.” What a contribution to our knowledge of the state of business.

LOLLIUS.

CORRESPONDENCE.

EXPERIENCES IN WALES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reference to Mr. Geipel's letter in your issue of the 22nd ult., I feel it my duty to say that wherever I have toured in Wales on my Bollée or Daimler I have received nothing but the greatest courtesy and kindness. Indeed, Wales seemed to me to be an ideal motor-touring place. As regards the Welsh people, I have always found them very kind and hospitable. I sincerely pity Mr. Geipel in his affair at Llanrwst, and shall personally carefully avoid it, but I do not think it fair to condemn all Wales for one town's persecuting folly. Yours truly,
Northampton, 1st October, 1900. ALAN HICKMAN.

THE COST OF PETROLEUM SPIRIT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I read with interest the account of Mr. Knight's trip from Farnham to Bath in your issue of the 15th ult. With regard to the cost of petroleum spirit, I notice that Mr. Knight remarks that "a gallon of petrol can be bought for one shilling and threepence. . . . Of course when petrol is purchased in out of the way places in small quantities, eighteenpence is often charged for it." I am not going to dispute this, but I think it is a little unfair to people in the country to give the price of petrol so low as this. I am going to stock Carless Capel's petrol, and have just got their prices. I find with carriage here it just costs me 1s. 6½d. per gallon. Now, can any sensible man pay his way and sell this even at 1s. 8d. and take risks, etc., in stocking petrol? Yours truly,
Grove Cycle and Motor Works, J. E. JOHNSON.
Wilmslow, October 1st, 1900.

STEAM CARS IN ENGLAND.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was very pleased to see your paper referring to the Serpollet steam car. I have been connected with these cars since their introduction into England, and have been on several other motor-carriages. In my opinion, for simplicity and safety, there is none to compare with the Gardner-Serpollet; it is impossible for a novice to get on the car and explode it. One difficulty has still to be overcome in England—that is, getting things repaired and tempered to withstand the heat. I agree with you that before very long we shall see a good many steam carriages running in England. I am at present running the identical Serpollet car in the country that was exhibited at the Agricultural Hall in 1899. As the vehicle has been in continuous operation since that time, I think you will agree that the car has proved its qualities. Yours truly,
York, October 2nd, 1900. F. H. H.

CAR FOR SPAIN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am wanting a motor-car, and as I have an electric light installation on my premises, I think I cannot do better than buy an electric car. Before doing so, however, I should like to have the views of any of your readers on the subject. Yours truly,
Lisbon, September 27th, 1900. S. F.

FORTY MILES AN HOUR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice Mr. Jarrott has apparently relinquished the idea of making his forty miles an hour record on the Crystal Palace track, and intends to succeed on some new course at Canning Town. Is this quite fair? Up to the present the Crystal Palace track has been the recognised place for such records, and if we are to have several tracks for record making, discrepancies in the value of performances are bound to result.

Let the Automobile Club declare on which track records shall be made, and let all racing men stick to that one course.
London, October 2nd, 1900. Yours truly,
A. B. C.

RIGAL'S MOTOR-TRICYCLE RECORDS.

THE records recently made by the motor-cyclist, Rigal, and duly chronicled in last week's issue of the *Motor-Car Journal*, have not been permitted a lengthy existence, for on September 25th, at the Parc des Princes, the same rider improved considerably upon them, and set up new figures for a number of distances. It is extremely doubtful whether these fresh records will be beaten upon the Auteuil track, for the banking is not sufficient to permit of greater speeds being accomplished, and Rigal may be considered fortunate to have come through his trial without mishap. In taking the sharpest corner the one wheel of the machine lifted clear of the track each time, and this, too, in spite of the fact that the rider had cut off the current. How the tires resisted the enormous strain to which they were subjected was a source of astonishment to the spectators, the majority of whom had congregated at the most dangerous spot in anticipation of seeing Rigal come a prodigious cropper. It is a curious trait of the human nature which permits men, who cherish no sentiment of ill-feeling against the possible victim, to gather together at the spot most likely to witness an accident, with a sort of half wish that something will happen. But so it is, and the other Tuesday afternoon a crowd of cyclists, who were training at Auteuil, as well as many *chouffeurs*, assembled at the sharpest corner of the track to see a mishap. Fortunately this did not happen, and the spectators were only called upon to cheer little Rigal upon the completion of his performance. The machine ridden was a Perfecta built by MM. A. Darracq and Cie., of Suresnes, and fitted with two Buchet motors, each developing 6 h.p. A 12 h.p. tricycle! The days of the one and three-quarters are certainly over. Monsieur Gaudichart, who usually figures as timekeeper on these occasions, again officiated, and *en route* Rigal set up the following figures:—

The kilometre with flying start, 47½sec., which represents a speed of 77 kilometres 500 metres per hour.

The mile with flying start, 76½sec., which represents a speed of 75 kilometres 600 metres per hour.

Ten kilometres with flying start, 7min. 58½sec., representing a speed of 75 kilometres per hour.

Twenty kilometres with flying start, 16min. 11½sec., representing a speed of 75 kilometres per hour.

The entire official return is as follows:—

kilo- mètres.	min. sec.	kilo- mètres.	min. sec.	kilo- mètres.	min. sec.
1	1 4½	11	9 2	21	17 10½
2	1 52	12	9 50	22	18 0½
3	2 40	13	10 38½	23	18 50
4	3 28½	14	11 26½	24	19 39½
5	4 16½	15	12 15	25	20 30
6	5 3½	16	13 3½	26	21 20½
7	5 51	17	13 52½	27	22 10½
8	6 38½	18	14 42½	28	23 1½
9	7 26½	19	15 31½	29	24 4½
10	8 14	20	16 21½		

MRS. VICTORIA CLAFFLIN WOODHULL, of the *Humanitarian Review*, has, we understand, joined the ranks of the automobilists.

THE Mid-European Motor Car Club held its annual meeting in Berlin, on Sunday, the 30th ult. The club, which started with fifty-one members in September, 1897, has now a membership of nearly 600.

MR. JOHN BRISBEN WALKER, a well-known American *chouffeur*, ascended Pike's Peak, Col., recently in a motor-car. He did not go to the very top, but made an ascent of 11,000 feet, thus making a record. The road was in very bad condition, or the top would have been reached. The descent is said to have been an exciting one.

THE TALE OF A TOLL.

WHAT fun motorists can have with tollkeepers who have to open the way to motor-cars for the first time! "And what exorbitant charges are made for the passage of such vehicles!" says the automobilist who vainly imagined he would not be classified other than as an ordinary person, vehicle or thing.

Mr. Alf. Vare, the captain of the King's Lynn and District Wheelers' Club, has had a little adventure which is worth the telling, and may lead others who have suffered to send us accounts of their struggles with tollmen. With two or three friends, like himself mounted on motor-tricycles, he was recently enjoying a trip through the Fen country—that long stretch of level roads with hardly a hill and scarcely a gradient; certainly nothing calculated to deter the automobilist from challenging any other form of locomotion. On the road between the cathedral city of Peterborough and Whittlesea is a tollgate. The tollhouse is, like most buildings of its kind, unpretentious and the man in charge has the usual uniform of shirt-sleeves. Arriving at the gate, the motor-cyclists found it was open—a trap having immediately preceded them. But the tollkeeper rushed into the road and stopped their progress. With his hands raised and his face presenting a scared appearance he was a sight for gods and amateur photographers. It was evident he had never seen a motor-tricycle before. Observation satisfied, a look of melancholy settled on his countenance as the thought of a new problem in rating crossed his mind.

To show they were merely human, the riders dismounted and asked the man the price of the toll. He was quite non-plussed, said he did not know, declared he would have to find out, etc. But how to consult his bookish authorities and keep an eye on the travellers was a dual position he did not relish. At length a bright thought struck him and he went indoors, sending his wife outside. She watched and he consulted.

Meanwhile, the motorists prowled around and read the list of tolls on the board. The last item was "Bicycles and tricycles of any kind, 2d." That decided them as to their future course. They each got 2d. ready and awaited the return of the tollkeeper, while Mr. Vare secured a favourable spot from whence to "snap" the scene when payment was tendered—with the result that the accompanying picture adds interest to our columns.

The man demanded 9d. each for allowing the motor-tricycles to pass. The riders referred him to his notice-board—a photo of which was taken by Mr. Vare to the utmost amazement of the



ENCOUNTER WITH A TOLLMAN.

poor fellow in charge. The board is fairly antiquated, and has the appearance of having served since the early days of the Queen's reign. Insisting that the clause "of any kind" included tandems, sociables or motors, the motorists at length conquered and with great reluctance the man accepted twopence from each, together with their cards.

And then the triumphant riders pursued their way with

lightness of heart and smiling countenances, and as they went into a field to rest after their encounter a further photograph testified to their satisfaction with the experience through which they had



THE TRIUMPHANT MOTORISTS.

passed. Riders of motor-tricycles between Peterborough and Whittlesea must remember that there is a precedent for a charge of 2d.

A NEW society has just been formed at Versailles to be known as the Moto-Club de Seine-et-Oise.

WE understand that the plant, etc., of the Liquid Fuel Company, at Cowes, Isle of Wight, will be sold by auction at the end of this month.

MESSRS. DELAUGÈRE AND COMPANY, of Orleans, are now making a 3 h.p. water-cooled Romain motor, in addition to the air-cooled engine described in our issue of June 16th last.

AT their premises in Shaftesbury Avenue the Motor-Car Co. have a new 6 h.p. motor-car with "tonneau" body of fine finish.

MESSRS. DENNIS BROS., of Guildford, have taken possession of their new premises at the corner of Onslow Street and Bridge Street. They intend to make a speciality next season of a four-seated car with a De Dion motor.

ON Friday, the 5th inst., the sale conducted by Mr. Ernest Owers at Rosemont-road, Finchley-road, N., will include a 4 h.p. touring-car, 3 h.p. Bollée, 6 h.p. Parisian Daimler, an Enfield quadricycle, a 3 h.p. Benz Ideal car, and several motor-cycles. Another sale is announced by Mr. Owers for November 2.

ON Saturday, the 22nd ult., the members of the Automobile Club of America enjoyed a run to the grounds of the Larchmont Yacht Club, Larchmont, New York, where they were the guests of that club at their annual "clam bake," whatever that may be.

AT Falkirk last week, before Sheriff-Substitute Liddell and a jury, Donald Mackenzie, motor-car driver, Melville-street, Falkirk, was sentenced to two months' imprisonment for having, on the road at Carron, assaulted Matthew Halfpenny, nine years, by kicking him on the right leg and fracturing his thigh bone.

MR. FRANK F. WELLINGTON, of St. George's Square, N.W., is now carrying a stock of parts of Panhard and Levassor, Aster, De Dion, and Daimler motors, and is making a practice of supplying any parts required by return of post. He is also now making a speciality of the manufacture of wheel steering, and the fitting of Daimler and other cars with this favourite arrangement.

A DAY or two ago the motor-car belonging to Mr. F. C. Gould, of the Windsor Hotel, Barry Dock, met with a singular mishap. The car was being driven along Court Road, Cadoxton, in the direction of Barry Dock, and when nearing Hannah Street the driver found himself placed in an awkward position. To avoid running over a child he changed the course of the car, and came in contact with the district council's steam road roller, which was passing at the time. The local paper reports that considerable damage was done to the motor-car by the collision.

MOTOR-CARS ON THE CONTINENT.

The Moto-Club de France.

At the committee meeting of the Moto-Club de France held last week it was announced that the membership now stood at 658. It was decided to organise a race for motor-vehicles propelled by alcohol motors for the 28th inst., the course being from Paris to Rouen, via St. Germain, Mantes, and Gaillon—a distance of about 136 kilometres. Three prizes of respectively £40, £12, and £8 are being offered. So far three entries have been received.

A Motor-Car Auction.

A SALE by auction of motor-cars was held at Chéri's Mart at Neuilly, near Paris, last week. There was, however, but a light attendance, and the result of the proceedings was that out of twenty-six machines offered but few were sold. It is surprising that, with M. Raymond Chéri Halbronn's new system of warranty, dealers do not step in or agents buy for foreign account, as when MM. Charron, Girardot, and Voigt's experts have passed a machine as being in "good going order," the buyer can be sure that such is the case. Of the automobiles which found new owners were two Panhard and Levassor omnibuses, Baron Henri de Rothschild giving 2,250fr. for the first and M. Vigna 3,850fr. for the second. A "duc" by the same makers was secured by M. Barbier for 3,050fr. These were all warranted. Vicomte d'Arsigny's Panhard 4 h.p. phaeton went to M. Waucquez for 2,050fr.; M. Carriat secured M. Souvestre's 7 h.p. Mors car for 1,000fr., and M. Germe purchased M. Pinon's little voiturette for 1,050fr. Bidding for an electric brougham by Jeantaud was run up to 10,000fr., at which figure it was bought in.

Motor-Cycling in the Alps.

MOTOR-CYCLING in the Alps is apparently to become a popular pastime. The other day an Italian motorist, Signor E. Columbini, of Pinerolo, set out from that town on a 1½ h.p. tricycle and succeeded in mounting the Colle di Sestrieres, 6,670ft. above the sea.

Another Long-Distance Race in Germany.

IN view of the success of the recent automobile race between Berlin and Aix-la-Chapelle, the West German Automobile Club is now considering the organisation of a race about twice as long. No definite plans have been made as yet, but Insterburg-Aix-la-Chapelle is spoken of as the probable course.

Track Racing in Berlin.

THE automobilists in Berlin are following Ostend's example, and are organising a motor-car track racing meeting. The use of the horse-trotting track of the Trab-Verein, in the west end of the city, has been obtained, and here it is proposed to run off a number of races, both for amateurs and professionals, on the 21st inst.

The "Poids-Lourds" Competition.

So far only four entries have been received for the Poids-Lourds, or heavy vehicle competition, which, under the auspices of the Automobile Club, starts on Monday next, the 8th inst. Messrs. Panhard and Levassor and M. Pantz, of Pont-à-Mousson, have entered petrol wagons, M. H. Say an electrical wagon, and M. Le Blant a steam wagon. The French Minister of War has delegated several officers to follow and report upon the competition.

MOTORISTS touring in Dingwall can obtain motor-car spirit and lubricating oil from Mr. A. Henderson, 5, High Street.

IGNITION AND IGNITION TROUBLES.

(Concluded from page 513.)

IF the engine is started by a ratchet crank, it is quite desirable that the first explosion should not occur before dead centre, as otherwise the engine may start in the reverse way, against the exertion of the starter, which may lead to accident. But to obtain the maximum of power from an engine running at high speed it is essential that the spark pass before the dead centre. The combustion of the explosion mixture begins at the point where the spark passes, and from there spreads to all parts of the combustion chamber. But the propagation of the flame takes some time and the pressure in the cylinder rises therefore gradually and not instantaneously to its maximum value. This is well seen from an indicator card taken from an engine running at high speed. The effect of the lag in the process of combustion is to shift the point of maximum pressure, which in a slow-speed engine lies near the beginning of the stroke, further ahead. It may thus happen that the pressure at the time the exhaust opens is greater than when the piston starts on its forward course. If such be the case, then the ignition should

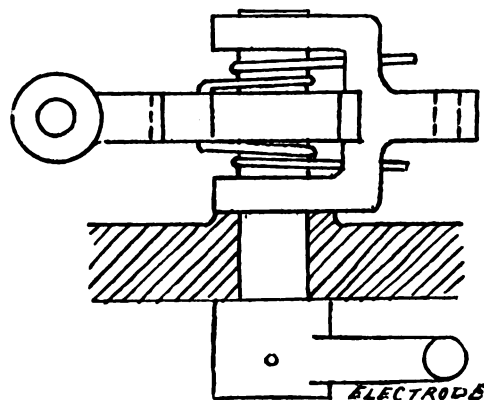


FIG. 5.

take place at an earlier period to obtain the maximum power. To satisfy the two requirements just mentioned it is necessary to have an adjusting attachment on the igniter, by means of which it can be given a lag when starting and a lead when running at full speed. This adjustment may be effected either by hand or automatically, the latter being the more desirable arrangement.

The writer prefers to locate the igniter in the valve chamber, where the draft of the incoming charge may cool it. This lessens the danger of burning the contact parts and keeps the temper in the spring if there be one inside the combustion chamber. It is sometimes suggested that the explosion might be more instantaneous and more effective if the ignition took place in the cylinder proper; but if the ports are large, as they should be, there is no loss of power from this source.

The difficulties with igniters are many, and the writer has heard the remark that if your gas engine stops, the first thing to try is the spark. The faults to which ignition outfits are liable and which will prevent them from working properly are the following: The source of current may run down, the connecting wires may loosen or break at some point, the connecting wires or insulated electrode may ground, the contact of the electrodes may become burned and not permit the passage of the current, the springs may break or become weakened to such a degree as not to produce a good metallic contact. Finally, it may happen that in readjusting the igniter it may be timed wrong.

The running out of the batteries on the road is a source of great difficulty, but this and the remedies therefor have been discussed and need not here be gone into. Going over to the second of the faults mentioned, it may be stated that it often occurs that a binding screw rattles loose, or that a connection wire is broken, the latter being mostly caused

by carelessness in work around the engine. The loosening of the binding posts can only be guarded against by seeing that they are firmly screwed down when the connections are made. For the connections between batteries, spark coil, and engine incandescent lamp cord of one of the larger sizes should be used. The ends fastening to the binding screws should be soldered. The lamp cord consists of a large number of fine wires, is very flexible and not easily damaged.

A ground on the insulated part of the igniter is usually a puzzle for the inexperienced motor operator. When it has been found that no spark passes when the engine is turned over by hand, the following proceeding should be gone through with to locate the difficulty. Turn the crank to a point where the electric circuit should be complete—that is to say, nearly up to the point where the spark should pass. Now detach the wire from the insulated electrode and brush it over this electrode. If there is a spark the batteries, coil, and connections are intact and insulated part of the igniter is grounded—i.e., in metallic connection with the engine frame. If, however, there is no spark, then the electric circuit is incomplete and the break should be looked up. The stationary electrode of an igniter should always be the insulated one. Occasionally both electrodes are insulated, and in this case the grounding of one will not interfere with the working of the igniter. It is, however, not advisable to insulate the movable electrode, as the pressure and strain due to the power applied to it would soon throw it out of line and eventually short circuit it. The igniter springs must always be kept in good condition, especially in such igniters where the pressure of contact depends upon the force of these springs. Coming now to the last-named source of trouble, the improper timing of the igniter, it may be that the mentioning of the possibility of such an occurrence provokes a smile upon the countenance of some reader, as even the novice knows that a proper timing of valves and igniters is necessary to secure good results with an explosive motor. The writer would not have mentioned this subject were it not for the fact that he has actual knowledge of cases in which days of time of people who claimed to be more than mere amateurs were wasted simply because in reassembling an engine they had meshed the valve operating gears incorrectly. Such a mistake as this should ordinarily be easily discovered; but when, as in one of the cases above referred to, some other changes or additions are made at the same time the valve operating gears are dismounted and reassembled, the cause of the difficulty is likely to be assigned to these new parts.

It is always well to have a plug directly over, or at least somewhere near, the place where the spark occurs, so that, when withdrawing this plug and turning the engine by hand, the spark may be observed. In larger engines a plug with a small mica window is sometimes placed directly over the igniter, thus permitting the spark to be observed while the engine is in motion and without removing the plug; but it is hard to find room for such a device in a small engine.

The negative electrode of an igniter is not affected nearly as much by the action of the spark as is the positive electrode, and in connecting up an engine the electrode which is easiest replaced should therefore be made the positive one. If primary cells are used for ignition the positive terminal is the one connected to the carbon plate.

The igniter circuit should be provided with a hand switch so located that the circuit may be opened and closed by the driver from the seat. If the engine is of the multiple-cylinder type this switch should preferably be made so that any one and all of the igniters can be switched in at will, which greatly facilitates the testing of the cylinders. Fig. 5 shows a form of switch for a double-cylinder engine which will permit these various connections. If the switch lever is held down by a shoulder screw with a butterfly head it may easily be withdrawn when having the vehicle stand in the street, and thus protect it against mischievous designs.

The jump spark, which is very much used in France, has not as yet become very popular in America. The objection usually made to it is due to the difficulty of insulating against the high pressure necessary to produce a spark between terminals 1-16 in. or so apart. The outfit is also considerably more expen-

sive than the simpler forms of contact spark igniters. Jump spark igniters require a coil with two windings, and induction coil. One of these windings, called the primary, consists of a large number of turns of very fine wire. There is no electrical connection between the two windings, the current from the primary or other source of current supply is sent through the primary winding and interrupted at the proper moment by a switch or commutator driven from the crank shaft. When the circuit is broken the current suddenly ceases in the primary, which by inductive action produces an electro-motive impulse in the secondary winding. The terminals of the secondary winding are connected to the electrodes of the igniter. The electrodes of a jump spark igniter are sometimes both insulated, while again, one is grounded. The insulated electrode or electrodes pass through a bushing of insulating material held in a metal plug screwing into the wall of the combustion chamber. The electrodes have platinum points and they are bent so as to come very close to each other. The electro-motive impulse in the secondary coil will send a spark across the gap intervening between the two electrodes, and this spark ignites the mixture.

Where the engine has a single cylinder only, the current has to be sent through the primary coil once for every two revolutions of the motor, and where it has a double cylinder twice. These current impulses must, of course, be spaced the same as the explosions. For a multi-cylinder engine we also need a commutator, by means of which the spark can be distributed to the various cylinders. The adjustment for timing the spark of a jump-spark igniter must be made on the commutator making and breaking the primary circuit, and consists in giving an angular motion to the stationary part of the commutator.

STEAM ROAD VEHICLES.

THE success of steam in connection with the conveyance of heavy traffic by motor-vehicles, and the recent trips of the Prince of Wales on a steam car, have revived interest in a subject which, seventy years ago, was attracting considerable attention in this country. The Parliamentary Committee had made inquiry in 1831 into the matter and had come to the following conclusions:—

1. That carriages can be propelled by steam on common roads at an average rate of 10 miles per hour.
2. That at this rate they have conveyed upward of 14 passengers.
3. That their weight, including fuel, water, and attendants, may be under 3 tons.
4. That they can ascend and descend considerable inclinations with facility and safety.
5. That they are perfectly safe for passengers.
6. That they are not (or need not be), if properly constructed, nuisances to the public.
7. That they will become a speedier and cheaper mode of conveyance than carriages drawn by horses.
8. That, as they admit of greater breadth of tire than other carriages, and as the roads are not acted on so injuriously as by the feet of horses in common draught, such carriages will cause less wear of roads than coaches drawn by horses."

Vested interests prevented further experiments being conducted in that direction and later years have seen splendid developments of the petrol motor, but the long-continued search after steam vehicles for ordinary roads is by no means over.

ALTHOUGH Hyde Park is now practically deserted by carriage folks, automobilists are still using the circle for purposes of fresh air. The other day seven or eight vehicles were seen in the park at one time, two being driven by ladies, one of whom was unattended.

A FEW weeks ago we mentioned that H.R.H. the Prince of Wales had ordered two additional 12-h.p. Daimlers for use at Sandringham. These, we now understand, have been delivered to Messrs. Hooper and Company, the well-known carriage builders, to be finished. In one of the cars the motor is under the seat, the body being built to carry sixteen passengers.

A MOTOR-CAR TOOL OUTFIT.

THE British and Colonial Motor Car Company, Limited, 14, Baker Street, London, W., are introducing a most useful motor-car tool outfit, the sole agency for which in the United Kingdom they have secured. The tools, which include everything likely to be wanted by a motorist, each have their allotted



place in a kind of "hold-all" provided with buckles and straps, so that the outfit when not required may be stored away in a corner of the car.

FURIOUS DRIVING CASES.

At the Hampshire Divisional Petty Sessions, at Kingsclere, on Friday last week, the Earl of Carnarvon, of Highclere Castle, was charged with having, on Sunday afternoon, the 16th ult., driven his motor-car at a greater speed than twelve miles an hour, contrary to the provisions of the Locomotives on Highways Act of 1896. Mr. T. W. Staplees Firth conducted the case for the defence. Lord Carnarvon did not appear. Superintendent Harry Wakeford stated that at a quarter-past three o'clock on the afternoon in question he was on duty in plain clothes with his bicycle, in the parish of East Woodhay, and saw Lord Carnarvon driving his motor-car from the direction of Highclere Castle towards Woolton Hill at a very fast rate. He followed the car on his bicycle, and was himself riding at the rate of twelve miles an hour, but the further he travelled the further he got in rear of the car. (Laughter.) He and a constable named Dann, stationed at East Woodhay, had timed the progress of the car over a mile of roadway between a certain bridge and Woolton Hill Rectory. They afterwards measured it, and found that the car was being driven at the rate of one mile in two and a-half minutes, or twenty-four miles per hour. The progress of the car caused a very big cloud of dust, which rose as high as the neighbouring trees, and the wheels of the car repeatedly skidded. In cross-examination the superintendent said he had previously received complaints from residents in the neighbourhood as to the excessive rate at which Lord Carnarvon drove his car. Police-constable Charles Dann confirmed the statement of the superintendent. He denied that they went there to trap Lord Carnarvon, but simply to detect him if he broke the law. The car went round the corner like lightning. For the defence Mr. Firth called a youth named Edward Trotman, who said he was mechanic in Lord Carnarvon's employ. He described his lordship as a very careful driver of motor-cars. Witness had travelled with him on his motor-cars about 6,000 miles. He accompanied him on the afternoon in question, but did not see any vehicles in the district. To the best of his opinion, the speed at which the car was travelling was under twelve miles per hour, and it would be impossible to turn corners at great speed. In cross-examination, Trotman said that on the afternoon in question Lord Carnarvon drove the car to Ogbourne in Wiltshire and back to Highclere. Mr. Firth contended that it was an un-English and unheard-of proceeding on the part of the police to go scouting about the country in plain clothes, as in this instance, for the purpose of trapping Lord Carnarvon. Apart from the police, not a single independent person had been called as a witness. The Justices having consulted a few moments without leaving the court, the chairman said they had no hesitation in stating that they considered that the charge made against Lord Carnarvon had been proved, and they had decided to inflict upon him the full penalty, £10, and costs. The Justices, he added, desired him to state that they considered that the police had acted very judiciously in the matter.

At the Long Melford Petty Sessions last week, Arthur R. Vickers, Lavenham, engineer, was summoned for driving a motor-car on the highway at a speed of more than 14 miles an hour on September 11th.

Defendant pleaded not guilty. Police-constable Pawsey, Lavenham, stated he was near the Common on the 11th ult., when he saw defendant driving a motor-car. Complaints having been received, witness timed defendant over a certain distance—from one telegraph post to another. The distance was 78 yards, and this was done in 80 seconds, the rate being 20 miles and a fraction an hour. Defendant declared the car could not be driven more than 14 miles an hour. Inspector Watling gave evidence as to last witness pointing out to him the spot where he stood and the telegraph posts. He corroborated Police-constable Pawsey as to the distance. Witness had cautioned defendant several times, complaints having been received of his furious driving. His pace was all right in the town, but where defendant was on the day in question was a regular playground for the children on leaving school. Superintendent Peake put in a note from one of the principal residents, complaining of the fast driving of the car, which was understood to belong to Mr. Brigstock, of Brent Eleigh Hall. Defendant repeated that the car would not go more than 14 miles an hour on an incline. The Bench decided to convict, the Chairman saying it was a pity more care was not taken by the drivers of these cars, which were dangerously driven. Fined 40s., with costs, 9s. 4d.

THERE was quite a group of Coventry motorists at Coleshill, on Wednesday, when John Budge, of Coventry, employed at the Humber Works, was summoned by the police for furiously driving a motor-car on the highway at Coleshill. Mr. Maddocks appeared for defendant. Police-constable Randle stated that the motor-car moved along at seventeen or eighteen miles an hour, and threw the dust up as high as the house. Mr. Maddocks denied that the motor-car was going at such a rate. He remarked that there was a good deal of prejudice still against motoring. Lord Norton said a person could not go a dozen miles an hour through a town. He might go at that rate along a country road, but a man who did so in the Strand would be sent to a lunatic asylum. Mr. Maddocks suggested that the man would not get as far as an asylum—he would be carried off on a stretcher. He called defendant, Councillor Snape, and Mr. Edward Yates, who were passengers on the motor, and they all denied that the speed was excessive. Mr. Maddocks told the Bench that the motor-car was outside the Court, and he invited them to inspect it, adding that it was painted with Mr. Murray's colours, and was found very useful in the Coventry election. The Chairman: What pace did it go at yesterday? Mr. Maddocks: Well, we went for 1,070 majority. (Laughter.) After the magistrates had consulted together, the Chairman said that there was no doubt that some motor-cars went too fast, but they did not think that there was sufficient evidence in this case to convict, and they therefore dismissed it.

ALLEGED OVERCROWDING OF A MOTOR-CAR.

At the Aberdare Police-court, last week, Frederick Evans was summoned for carrying a greater number than eight in a motor-car licensed to carry only eight. Police-constable Tompkins proved the offence, he stating that ten persons were on the car. Cross-examined: It was late in the evening. The defendant offered to show him his way bill, showing that there were only eight in the car. Mr. Kenshole, having addressed the Bench, called the defendant, who said that Pugh and Evans rode with him on the front. Witness produced his way bill, showing eight passengers on the car. The eight got up at Aberaman, and they went through without stopping. Cross-examined: He did not notice the police-constable until he came up from behind the car. Enoch David Perkins, the conductor, also swore that six got in at Aberaman, and no one entered the car after that. He saw the police-constable get up at that moment. There was a crush of people to get in before the rest got out. The driver asked him how many were in, and he said six inside and two outside. Cross-examined: He did not check the number on his bell punch with the driver. The Bench at this point dismissed the case.

TAKING a spin to the north of London the other day we found the water splash at Chalfont St. Peter absolutely dry.

AMONG repairers of motor-cars in the eastern counties the Anglian Cycle and Engineering Company, Limited, of Stowmarket, is becoming well known.

MR. MULLINER, of Northampton, and Messrs, Salmons and Sons, of Newport Pagnell, were responsible for the carriage work of the two motor-cars which ply for hire at Newport Pagnell.

SOME correspondence has been going on in a Nottingham paper on the manners of motorists. The failure of the driver of a motor car to stop when desired was the cause of the letters, the first of which was written by the Rev. A. Lockett Ford, evidently no great friend of automobilists.

At Milverton last week, Mr. W. G. Hammond, Earlsdon, Coventry, was fined 5s. and 10s. costs for driving a motor-car at Kenilworth after dark without a light. Mr. George Drury, of Coventry, was summoned for a similar offence, but on his application the hearing was adjourned until the next sitting of the court.

THE Motor-Car Journal.

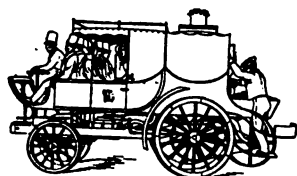
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COMMENTS.



PROBABLY one of the first cares of Lord Roberts on assuming command of the British Army will be to have a thorough investigation of the value of the automobile in military affairs. In South Africa he has seen the good work done by steam traction engines, and the recent experiments in connection with army manœuvres on the Continent have seriously impressed the officials of the War Office with the idea that automobilism may yet help the solution of the difficult problems in connection with transport. Anyhow the rumour to which we gave credence some time ago as to the early investigation of the subject has been revived, and something definite may be expected ere long.

Election Incidents.

DURING the last two or three weeks we have referred to several constituencies in which the motor-car has played its part in the General Election. To these should be added West Leeds, where a motor-wagonette carried batches of eight voters to the poll. At Hammersmith a passing motorist was hailed by some voters who wanted to be driven to the poll, and who seemed disgusted that no opportunity was given. Only one unpleasant incident in connection with the use of automobiles for election purposes has occurred. While Sir Mark Stewart, at the close of a meeting at Castle Douglas, was being driven to Kirkpatrick in a motor-car the vehicle was upset. The driver, in passing a wagonette, ran the car into the grass, and the ground being soft the motor-car plunged into a ditch and overturned. Captain Dunlop, who owned the car, got out and assisted Sir Mark to rise. In Mid Worcestershire Mr. Harmsworth's motor-cars were a perfect boon to him, the constituency being so widely scattered. His opponents laughed at them, but Mr. Harmsworth contented himself with the knowledge that he could cover an enormous quantity of ground with little or no trouble. In the Keighley division both candidates had the use of motor-cars. Motor-cars also played their part in the High Peak division of Derbyshire and in the North Norfolk constituency. Mr. L. Harmsworth found the motor-car very useful in his successful campaign in Caithness, on the result of which contest all automobilists will congratulate him.

Proud of the Speed!

MR. F. F. WELLINGTON sends us particulars of an amusing incident in which he was recently a party. Delivering a fast new car to one of his customers at a country town on the morning the poll was declared, he drove the new owner and his wife a distance of ten miles over very hilly roads, which were in bad condition from the rain, in about thirty minutes. Arriving at the Town Hall, where a cordon of twenty police were standing, the sergeant from the village from whence the party had ridden made kind and flattering remarks to the owners, and took a great interest in the new car, as did also his companions. The sergeant mildly inquired how long it took to accomplish

the journey. The lady, who was proud of her new car and its speed, at once replied, "Under the half-hour." Needless to say Mr. F. F. Wellington almost collapsed, and the police— The lady looked in wonder at them all until she remembered what she had done. No doubt the police for miles round will be on the look-out for this particular car, and Mr. Wellington fears that the road is blocked to him for some time to come.

Les Cloches de Corneville.

THE "Cloches de Corneville" have up to the present been nothing more than a name, for this Norman village, despite its stage fame in every quarter of the globe, has never yet boasted the possession of a peal of bells. The omission has been supplied by the Marquis de la Rochethoulon, whose efforts have been supported by other natives of Normandy. Funds were soon obtained sufficient to provide a carillon for this little township, and the inauguration ceremony on Sunday was made memorable by an open-air performance of "Les Cloches de Corneville," in the presence of 10,000 spectators. The interest to automobilists lies in the fact that the Marquis invited the members of the French Automobile Club to attend the fêtes, an invitation which was taken advantage of by a large number.

The Forthcoming Trials of Electrical Vehicles.

WE gave some particulars in our last issue of the forthcoming trials of electrical vehicles which are being organised by the Automobile Club. The trials will extend from November 5th to November 9th, and in addition to the tests already specified an additional optional trial for Friday, November 9th, is being arranged for, viz.:—A run over a given course for an unlimited distance on one charge, the driver to declare to the observer when the run is to be considered as finished. The same batteries will be used throughout, and during the course of the trials will be under the supervision of the Club. The energy consumed, number of passengers carried, average speed attained, will be recorded on certificates which will be granted by the Club to competitors, but no speed in excess of the legal limit of twelve miles per hour will be recorded or recognised. Competitors must supply drivers for their vehicles and must provide on each vehicle a seat for an official observer. The routes on which the trials will take place will be within fifty miles of London, but will not be made known to competitors until immediately before the trials. Competitors are required to fit to their vehicles reliable and accurate voltmeters and ammeters which can be read during the trials by the observers, and these meters must be fitted with terminals by means of which they may be tested by the judges.

English Motor Club.

THE next run of the English Motor Club will take place on Saturday, the 20th inst., and all particulars, including the destination, can be obtained on application to Mr. F. W. Bailly, 94, Oakfield Road, Anerley, S.E., or Mr. Charles Jarrott. Friends of members, as well as members of the club, are invited to participate in the event, and Mr. F. F. Wellington,

of St. George's Square, has offered to let members of the club have free stabling on the evening before the club run, so that country members coming up to town will not be inconvenienced.

Carnival at Chelsea.

CARNIVALS were plentiful in the summer, but have been fewer of late—many, including the great London pageant, being postponed till the return of the troops from South Africa. At Chelsea a very good carnival has just been held, the procession being organised on two evenings. Four motor-vehicles were in the procession, two Leyland vehicles belonging to the vestry being fitted up as an armoured train, a 5 h.p. Marshall car as the Demon Motor, and Mr. Frank Shepard's Daimler wagonette with the "Strolling Pierrots" in a trolley behind. The cars went well on the first day, but on the second evening misfortune seemed to dog their path. One of the Leyland vehicles broke a driving pinion, and the other ran out of water about half a mile from home. The Marshall car was also thirsty. At times there were over twenty persons on the trailer attached to the motor-wagonette. They gave an *al fresco* concert *en route*, and thus contributed materially to the success of the motor-car contingent.

Motor Tracks.

"A. B. C.'s" point raised in last week's correspondence in our columns has brought some replies this week and has been dealt with by some of our cycling contemporaries, one of which adds to our suggestion with regard to a motor track. It is suggested that "the track need not be formed in a complete enclosure, but should rather be arranged on the same principle as a railway, passing not only along the surface of the land, but through cuttings and over embankments, with slopes to go under or over public highways where necessary. The gradients requisite to pass under or over public highways would afford the vehicles the same undulating conditions as are experienced upon the highway; there would be no need to secure anything like a level surface throughout. The great cost of such a track has prevented its becoming an accomplished fact for cycle racing; but now that motor drivers are eager to experience the fierce wild joy of careering along at something over twelve miles an hour, it might be possible for the sinews of war to be forthcoming for the construction of such a track." Certainly the idea is not likely to be allowed to drop.

Nearly a Mile a Minute.

EXTRAORDINARY has been the speed attained by some of the leading automobilists, and at the recent Inter-Ocean tournament at Chicago many good performances were made. Steam vehicles were prominent in the various contests, and on his racing Locomobile Mr. T. E. Griffin went a mile around the track in 1 min. 6 sec. Seeing that the course was not a straight one, that its surface was rather loose, and that there was a good wind blowing at the time, Mr. Griffin will probably not be content until he has travelled a mile a minute on his Locomobile.

A Lengthy Trip.

THREE thousand kilomètres *en moto-cyclette* is a longish run, but such is the record of Mr. Orlovsky in making his recent trip from St. Petersburg to Paris. Coming to Paris to view the Exhibition, the tourist made no attempt at a racing performance, and took some fifteen days to make the journey. The route followed was by way of Louga, Pskow, Ostroff, Reijidsa, Dainsk, Kowno, Warsaw, Sloupszi, Posen, Schwerin, Kustrin, Berlin, Potsdam, Magdeburg, Braunsweig, Hanover, Minden, Hagen, Soingen, Bergheim, Cologne, Eupen, Verviers, Liège, Namur, Dinant, Givet, Rethel, Reims, Château-Thierry, Meaux, Lagny, and Vincennes. We believe Mr. Orlovsky had previously made at least one unsuccessful attempt upon the same voyage, bad roads and weather causing failure. But upon this last trip the Russian cyclist was favoured with glorious

weather, and he found the roads not very bad. Certainly, to make a journey of this length, fine weather, good roads, and absence of *pannes* are essential features, if any pleasure and comfort is to be secured. The train takes Mr. Orlovsky back to his fatherland, not that he fears the return journey *en auto*, but because time forbids.

A Queer Case at Swansea.

WITH reference to the alleged furious driving case against Mr. Arthur W. Heard, of the Century Engineering and Motor Company, Limited, Altrincham, reported in our issue of the 29th ult., we have been favoured with some correspondence which illustrates the uncertainty and, we might also add, the absurdity of the law. The case was heard at Swansea on the 19th ult., but the first intimation that the defendant had of the proceedings was a telegram from a cousin at Swansea (on the 18th) who had given a local solicitor the facts of the case on that day. Mr. Heard wrote at once giving the solicitor a full answer to the charge, but that letter did not reach him until the case had been disposed of. We cannot understand why Mr. Heard had had no official intimation of the summons, and why he was thus placed in an absolutely defenceless position. Surely this is not in accordance with the spirit of the English law.

Le Poids Lourds.

MONDAY last witnessed the commencement of the annual competition for heavy automobile vehicles, known as "Les Poids Lourds," and to-day will see its completion. The vehicles are required to follow two itineraries in the neighbourhood of Vincennes, the total mileage for the five days' work being some 157 miles. The object of the competition is to promote the industry in relation to public transport work, transport of merchandise and delivery services. The automobiles permitted to compete are—(1) Vehicles carrying at least ten passengers, independent of the driver, with thirty kilogrammes of baggage; (2) goods vehicles carrying at least one ton under the same conditions; (3) delivery vehicles transporting a load of at least 1,250 kilogrammes. Not only are the cars required to make their two journeys daily, but they are put to various tests on ascents and descents, on macadam and *paré*, to ascertain their facility of manœuvre. We hope to give some details of these interesting experiments in next week's issue.

"Motor-Car Smash."

A TYPICAL instance of what the general newspaper calls a "motor-car smash" is reported elsewhere in our columns as having occurred at Eastbourne. The examination at the inquest, which had, unfortunately, to be held in connection with the death of a lady thrown from a trap, revealed several facts which demonstrated very clearly that automobilism was not the cause of the accident, and the foreman of the jury was unprejudiced enough to make that point very clear. More than that, the jury endorsed his view, and placed the fact on record. Probably a few such cases would enlighten the public, and cause them to realise that motor-cars are not the cause of every mishap that occurs on the road.

Reckless Driving in Paris.

IF a repetition occurs of that reign of terror which followed upon the accident at Croix des Noailles in the spring, Parisian automobilists will have only themselves to blame, for many of them really appear to be utterly regardless of life and limb. Just as, in the cycling world, it is but very seldom that the better class of rider gives cause for complaint, so, in the case of automobiles, it is not the gentleman driver who "scorches" to the terror of pedestrians, but usually it is the young engineer or employé of an automobile firm, who makes a nuisance and a danger of himself with property which does not belong to him. But a cloud is again looming up, for as the result of a recent accident in the Avenue de Clichy, and the

subsequent flight of the author, Monsieur Edmond Lepelletier, the municipal councillor of the Batignolles district of Paris, has inscribed upon the agenda of the Council's first meeting after the vacation a question which he purposes to ask Monsieur Lepine, the Préfet of Police. Monsieur Lepelletier wishes to ascertain whether any preventive or repressive measures are taken to prevent the authors of automobile accidents from evading their penal and financial responsibilities. Only too frequently does one read in the Parisian papers that after knocking somebody down, or causing some sort of damage, the *chauffeur* took to flight, and little hope is entertained that he will be found. The most regrettable feature from an automobilist's point of view is that all must suffer for the errors of the few; but that is inevitable, as, of course, distinctions are obviously impossible. It is possible, too, that this action by M. Lepelletier will have a direct bearing upon the decision of the Préfet of Police and the Committee of Traffic, who are about to discuss the question of numbering all self-propelled vehicles. It will undoubtedly come to the marking of cars and cycles sooner or later, so automobilists may prepare themselves for the worst. Let us hope that the numbers will be smaller than those used in Belgium.

Motor Dust Vans.

EDINBURGH is so essentially a city of light and leading that no surprise will be felt at the suggestion that motor dust vans will be found in its thoroughfares ere long. Several members of the Town Council are reported to have declared in favour of such an innovation, and when their wish is gratified there will be plenty of experience with regard to motor dust vans to guide other municipalities that may be wishful to develop their municipal work to give the best results to the townspeople.

Heavy Motor Vehicles and Traction-Engine Builders.

"OBSERVER," in his Heavy Motor Notes in the *Liverpool Journal of Commerce*, draws attention to the apparent lack of interest exhibited by traction-engine builders regarding the Locomotives on Highway Act, 1896, under which motor-wagons live, move, and have their being. The reasons why the new field has been left to enterprising firms previously engaged in other branches of engineering are, considers "Observer," two in number. First, that there has been a very large business doing in traction engines for agriculture, export, and, recently, the war. Second, that tradition, custom, practice, or what you will, has made great weight part of the traction-engine builder's creed. These two factors have caused the construction of not a few promising vehicles to be abandoned for work of more immediate urgency and profit. Traction-engine builders, as a body, are, however, slowly beginning to realise that newcomers are finding a lucrative trade in the lighter types of road engine, that they are not, after all, the only wise people in the world, and that there is, notwithstanding their pessimistic prognostications, a demand for the motor wagon. One firm, at least, Messrs. Charles Burrell and Sons, Limited, of Thetford, Norfolk, who have had the question before them for several years, but have been unable to prosecute its solution through pressure of their standard work, intend to enter a vehicle in the 1901 heavy motor vehicle trials in Liverpool.

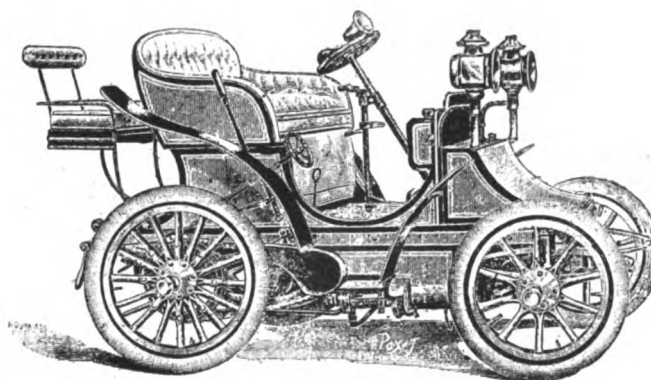
A Grease Story.

A BAD skid on a dangerous road is one of the ugliest experiences a motorist can have next to a downright accident. The writer recollects on one occasion when out with a well-known driver coming suddenly on an S-shaped curve with a good incline. The road was very narrow, and bordered by a gripe at each side fully 10 ft. deep. There being no expectation of mud we came to the corner too rapidly. The steersman not daring to touch his brakes slipped his gear, and braced himself over the steering wheel. It was a heavy car; we were four passengers, and there was no room on the road for playing about.

Straight through we glided for a bit. Then came a lurch, such as a boat gives in a choppy sea, and the car took a horrible slew towards the left ditch. It was a horrible sensation, this slithering. The driver let her slide till we were on the brink of the ditch, and then with a strong sharp swing of the wheel fetched her head in the opposite direction. We still had considerable way on, the road was downhill, and nothing short of grappels could grip in the slippery syrup under the wheels. Saved from one ditch, we rapidly glided towards the other. Again the driver coaxed her from destruction, and away again in a terrible zig-zag we slewed. It all lasted only a few seconds till we righted and held the middle of the road again, but it seemed painfully long. The second curve had nearly been our undoing, for at the critical moment, and judging all to be lost, the box seat passenger flung himself on the wheel in a wild desire to cling on to the steersman. It took fine skill and pluck for the driver to avert disaster, but by his judgment and coolness he nursed the car out of the zig-zags and got her fair again. And then he talked to that passenger!

Some New Voiturettes.

SEVERAL new types of voiturettes, of which we hope to say more anon, have lately been seen flitting about Holborn Viaduct. One is an exceedingly neat production by Messrs. Darracq, of Paris. It is built low, and is provided with the increasingly popular *tonneau* type of body, there being accommodation for four persons. Another light car of French construc-



tion which we saw on Wednesday is the Bardon, of which an illustration is given herewith. This car, a description of which was published in our issue of January 19th last, is fitted with a 4 h.p. motor of novel construction. The engine comprises one cylinder, there being, however, two pistons with a central explosion chamber. Judging from our brief view of the car in operation it appears to run very smoothly.

Repairing Firms.

WE have received several intimations from engineers and others with regard to the appointments of repairers now being made by the Automobile Club, and also by several leading firms. At present, however, no complete lists are available, and hence the publication of these names is being withheld till official notification is given of the appointments. This seems the fairest way of dealing with matters, the negotiations in connection with which have not been wholly concluded.

Motor-Cars for Medical Men.

MR. C. T. W. HIRSCH, M.R.C.S. Eng., L.R.C.P. Lond., Woolwich, has sent the *Lancet* an account of his experiences with a motor-car, from which we extract the following:—"The car I invested in was a Benz Ideal No. 2, with a hood An instructor was left for a week at the charge of 7s. 6d. a day plus his railway fare and meals. I am afraid I did not derive much benefit from him, and when I started driving myself I must confess I had a great deal of trouble, the car frequently stopping

in the street, due to my not managing the mixture properly. When this was mastered and the regulation of the coil's vibrator seen to, the car went splendidly, and in addition to my doing my work in this hilly district I have had some three trips to the south coast watering places, as well as many daily excursions of from 40 to 60 miles. The machinery on the whole is good. One of the carriage springs broke. . . . A fresh one was supplied, but a charge was made for the labour, the firm from whom I purchased the car supplying a new spring gratuitously. The tire on one wheel became loose, due to the wire breaking. This was also mended gratuitously, though the agent charged for the time he spent and the expenses incurred in taking the wheel to the maker's. The only other trouble of import was that the bush on the second speed loose pulley became worn, and as a result the pulley was not quite true and occasionally gripped the true pulley, and when driving on another speed a loud noise, violent vibration, and pulling up of the machine occurred. The wearing of the bush was said to be my own fault, as though I kept the grease-box well filled the hole in the lower part must in some way have been blocked. . . . I have heard that a car has run 35,000 miles without requiring attention. I am afraid I cannot say the same for mine. Motor-cars certainly are very useful, but liable to get out of order, and I question whether I would buy one again with my present experience. . . . We hope Dr. Hirsch will recover his spirits, and not continue long in the saddened frame of mind in which he evidently is at present. There is certainly no reason for discouragement. His first failures arose from neglect in managing the mixture properly, and he should have watched the wearing of the bush more closely than he seems to have done. These little omissions he does not deny, while he testifies to the quality of the machinery and the splendid runs he has had on the car. Why he should have written those last few lines we do not know.

An Automobile Meeting at Chicago.

THE first International Automobile Exhibition and Tournament was held in Washington Park, Chicago, towards the end of September. The exhibition may be considered a success from the standpoint of the builders, as they report many sales at the grounds. However, very little was shown which was new in principle, only the familiar types being exhibited. The principal exhibitors were: the Woods Motor Vehicle Company (electric), the Mobile Company of America (steam), the Chicago Motor Vehicle Company (petrol), the American Bicycle Company, several types of electric vehicles, a petrol car and tricycles, the Hewitt Lindstrom Company (electric), the Locomobile Company of America (steam), the St. Louis Motor Carriage Company (petrol), the Ohio Automobile Company (petrol), the Milwaukee Automobile Company (steam), the De Dion-Bouton Company (petrol), the Olds Motor Works (electric), and the Eastman Automobile Company. Chief interest was, however, centred on the attractive programme of races that had been drawn up. On Thursday, the 20th ult., in a 15-mile flying start motor-tricycle race, Champion beat Skinner, the time being 24 min. 47 $\frac{3}{4}$ sec. In the ten-mile race on the 21st ult. our old friend C. G. Wridgway came out successful, covering the distance in 15 min. 19 $\frac{1}{2}$ sec., as against 15 min. 48 $\frac{3}{4}$ sec. by Skinner, and 15 min. 55 sec. by Champion. On Tuesday, September 25th, Champion, however, beat Wridgway in a five-mile race, and afterwards covered an exhibition mile in 1 min. 19 $\frac{1}{2}$ sec. The racing events were, as a rule, not closely contested on account of the lack of racing machines in the United States at the present time. The motor-tricycle races seemed most interesting to the spectators on account of the sustained speed of the machines and the able manner in which they were handled by their riders. One of the most exciting events was the 50 mile race for motor-tricycles, in which Champion, riding a machine fitted with two Aster motors, snatched victory from defeat, when Skinner, after reeling off over 40 miles with that regularity of action which has made the De Dion motors famous among the air-cooled types, and leading the Frenchman by half a mile, was

unfortunately put out of the race by the setting of the inlet valve of his motor. Skinner used one of the large-sized cylinders, developing about 3 $\frac{1}{2}$ h.p., while Champion's two cylinders are rated at 6 h.p. Wridgway, the third entry in these races, had a 2 $\frac{1}{2}$ h.p. motor, and consequently was hopelessly handicapped.

MOTOR BICYCLING.

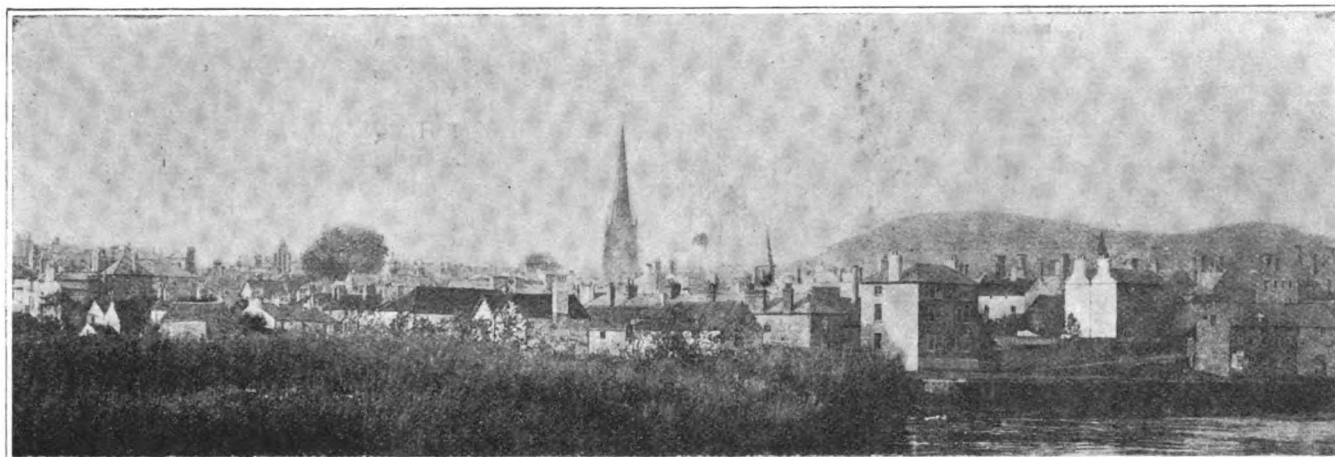
MR. JOSEPH PENNELL'S enthusiasm for motor-bicycling finds further expression in a second article in the *Daily Chronicle* on Friday last week, in the course of which he gives some interesting conclusions, and attempts some prophecies as follows:—

"I have driven my motor-bicycle at the rate of four or five miles an hour through Piccadilly, Pall Mall, Hyde Park Corner, and Charing Cross on a busy afternoon, with a feeling of greater security than on an ordinary safety, because I could put my feet on the ground. The bicycle parts, though extremely strong, are not of the best quality and finish, and the pedals and cranks are far too near the ground. Several times I have hit stones. But all motor-bicycles should be built like the Werner, so low that the driver can put his feet on the ground in case of an emergency. The rider of a motor-bicycle must also be a good rider of a cycle. The power to steer, to keep one's head when driving at a high rate of speed, to avoid obstructions in the road, will only come naturally to a good cyclist. On the other hand, there is some disadvantage because the experienced cyclist tries to put on the brake and back-pedal, instead of switching off the electric current. But, whatever your training as cyclist, you must understand these motors, while endless patience is required to drive them. Once you have mastered the details, however, the fascination of driving this almost human thing is intense, and a few week's practice should enable anyone to do what I have done and to make longer journeys. On other forms of motors I have been troubled by vibration owing to the motor being behind or under me. On this machine I have experienced nothing of the sort. The only physical drawback is the number of burns, blisters, scratches, and bruises on my hands, from which, like any other person who works with machinery, I seem to suffer. If you are willing to study the motor-bicycle I see absolutely no reason why you should not learn to drive it. But it is a very different thing from riding an ordinary safety. Within three or four years I am certain that some sort of motor will be affixed to every bicycle, if only to be used up-hill, against the wind, and when the rider is tired. I am perfectly prepared, however, to find the makers of all motor-cars, tricycles, and quadricycles in opposition to me. But then, scarcely any of the owners of these machines have driven a motor-bicycle, and, as for the makers—well, a 3 h.p. voiturette may cost two hundred pounds, while a 2 $\frac{1}{2}$ h.p. bicycle, which is now being made in England, may cost fifty; but this, of course, has nothing to do with the prejudice of the manufacturers of motor-cars against motor-bicycles. The motor-bicycle is as sure of setting the fashion as the Rover safety was, and it will add as much to the pleasure and comfort of the world as the development of the safety and the pneumatic tire."

THE city council of Dayton, O., U.S.A., is wrestling with the automobile problem, and an ordinance regulating the speed of such vehicles to eight miles an hour has been introduced. The ordinance also provides that these vehicles shall be equipped with lamps and bells, and requires the operator to stop his vehicle as soon as he discovers that a horse is frightened by it.

THE City engineer of Chicago, Ill., who is a member of the examining board for automobiles, declares that he has heard of so many cases of lady operators without licences that he intends to ask the authorities to order his officers to arrest all the lady automobilists who have not the necessary badge. Many of the leading society women are said to be included in the number who have not passed the requisite examination. So far only eight ladies have secured permits to operate electric vehicles, but it has been discovered that there are twenty-five to fifty ladies regularly running the machines through the city.

The Automobile Club's Autumn Tour.

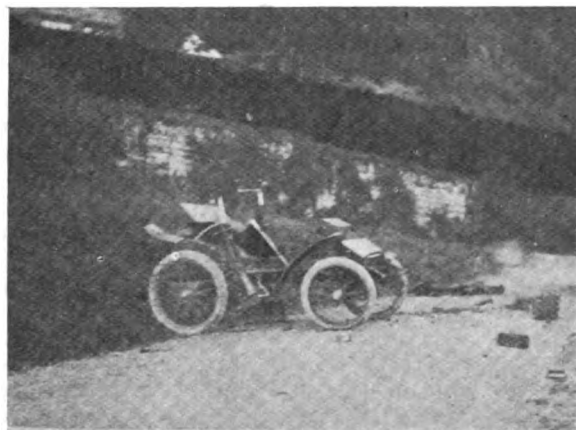


MONMOUTH -FROM THE RIVER.

IN dreary weather those members of the Automobile Club who had intended to go to Monmouth for the autumnal tour assembled outside the club house in Whitehall Court on Friday last week. They gathered in silence, and very lugubrious were the salutations exchanged, for the clouds loomed threateningly darksome and there was a sense of coming dampness in the air. Of the dozen likely starters most were early at the rendezvous, and a few passers-by stopped to gaze upon the enthusiastic motorists who were prepared to dare rain and wind for the enjoyment that comes from travelling without horses. Mr. F. H. Butler, on his white Panhard, was among the early arrivals. With him Mr. Morgan was a passenger. Mr. Jarrott drove up with Mr. Napier on a De Dion

hovered ominously overhead. At Hounslow we saw Mr. Colès on his new voiturette, and a Bollée by the roadside, the latter evidently being in process of repair. A little further along a Benz car came from the opposite direction plentifully bedecked with mud.

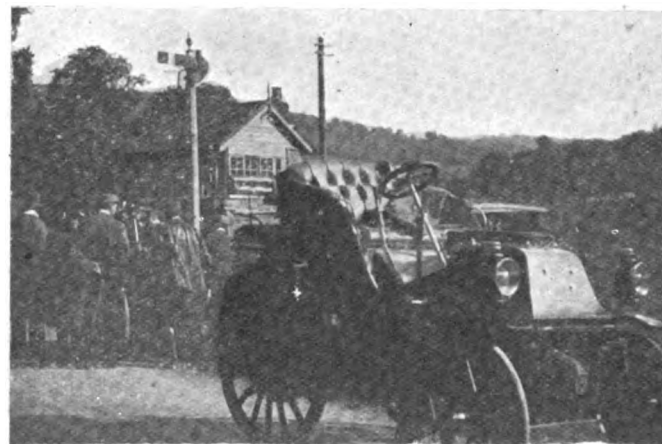
The road was naturally heavy and thick with mud, but despite that good progress was made to Slough, where we halted about ten minutes to await the arrival of any other cars that might be immediately in our wake. None coming the run was resumed. A little later Mr. Bird's 12-h.p. Panhard was seen, Mr. Bird, jun., driving, with his father by his side, and Mrs. and Miss Bird in the *tonneau* seats. They literally flew past us, and their flight struck us as very



THE PEUGEOT VOITURETTE AFTER THE ACCIDENT.

Photo by

[Mr. C. Crompton.]



A HALT ON THE WAY TO TINTERN.

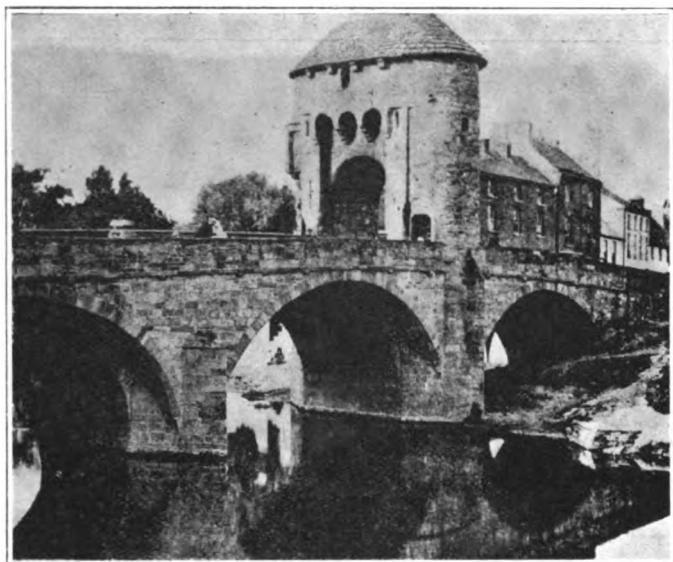
voiturette, and Mr. Friswell's beautiful 12-h.p. Panhard was a notable contribution to the display. Mr. Johnson was busy marshalling the starters when Mr. C. Cordingley appeared on his Marlborough phaeton. Mr. Staplee Firth and Mr. Freeston were among the members assembled to bid farewell, and then, punctually at 2.30 p.m., a start was made up the Horse Guards Avenue into Whitehall.

We had gone but a short way when the rain came down. There was no mistaking its intentions, and it was evidently in a tenacious mood. Passing a cream-coloured Panhard in Hyde Park, we continued our journey (with the rain stinging our faces) through Kensington and Hammersmith to Hounslow, where the storm seemed inclined to abate somewhat, although heavy clouds

appropriate. Very variable was the condition of the roads—at times slippery and at others dry and hard. Occasionally the sun, looking watery and modestly temperate, essayed to shine, and at six o'clock we reached Wallingford without incident and with no side-slips. Waiting at Wallingford we were joined three-quarters of an hour late by Mr. Loeffler on his 6-h.p. Panhard, with Mr. Martineau also aboard. They reported that Mr. Butler had put up on the way till the rain ceased.

About Henley there were signs of the South Oxfordshire election, but of excitement there was none—the voters as well as the roads having been dampened very considerably. For a distance of about two miles the roads were white with pamphlets, handbills, and posters advocating the merits of Mr. Herbert

Samuel, who had evidently made great use of printer's ink in his contest. Several wagonettes were seen on the road two and three miles from anywhere. Disconsolate indeed were the drivers, and never a voter did we see them convey to the polling



THE MONNOW BRIDGE, MONMOUTH.

stations. At the booths themselves there was little sign of life, certainly none of vigour.

It should be mentioned that on the road to Henley there were a few stiff hills to be negotiated, and after leaving the famous riverside town—what a dismantling of the brightness and glory of the Regatta week does Henley present in the autumn!—there were two other steep hills, making very heavy going. Despite their gradients our good car mounted them boldly, and we journeyed on in comfort and with satisfaction. From Nettlebed to Wallingford—a distance of six miles—the way was practically all down hill.

Shortly before seven Mr. Mark Mayhew joined us on his Renault voiturette with a hue ruddily reminiscent of the car that the Hon. C. S. Rolls once exercised around the grounds of the Crystal Palace to the consternation of the old gardeners there. Mr. Johnson came in on an Orient Express about eight o'clock, and a couple of hours later Mr. Butler appeared. The next arrival was Mr. Reynolds, with Mr. Claud Crompton as passenger, on a Peugeot voiturette purchased from Mr. Rolls a few days before. Neither of the young fellows knew much about the car, and it had not grown accustomed to their ways. Hence the fact that they had been between seven and eight hours on the road was not surprising. Although the clock had struck ten, motorists continued to arrive, the late ones including the Rev. A. Whatton, who had a lady passenger on his Canello-Durkopp car. He had started late from town. Mr. Lyons Sampson drove Mr. M. Bruce, and

Mr. Sturmey came by train from Coventry. These were the last to appear at the George Hotel on Friday, and the thanks of the party of fourteen motorists are due to the landlord and landlady for the way in which they attended to their wants. Mr. Loeffler

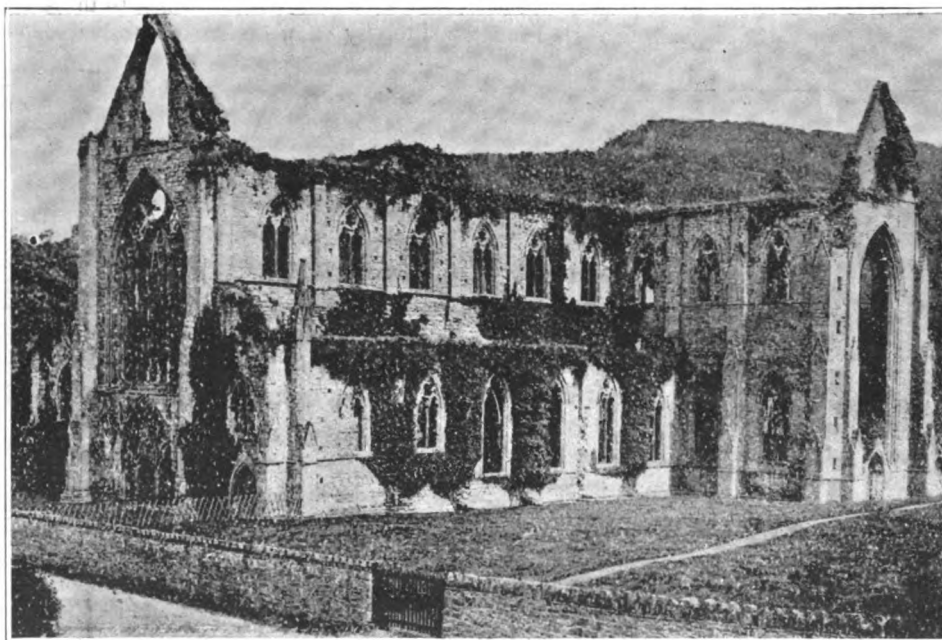


LORD BRASSEY ON MR. HARGREAVES' 12 H.P. DAIMLER.
Photo by (Mr. C. Crompton.)

and his friend returned to London the same evening; the others slept at Wallingford.

The morning of Saturday was in strong and pleasant contrast to that of the previous day. Blue skies and a bright sun gave spirits to the party, and, breakfast over, preparations were made for an early start on the second stage of our trip to Wales—

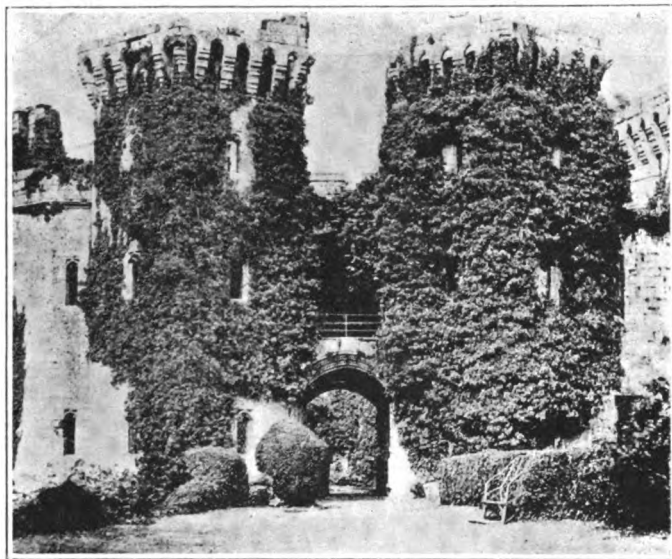
no, Monmouth. Mr. Allen, with a lady, came over from Oxford on a new Daimler car and accompanied the party to Cirencester, from whence he returned to the University town. Accommodating Mr. Johnson, the Club secretary, with a seat on our own car, we started off in the face of a stiff head wind. Between breakfast and the start the aspect of things had changed, and gathering clouds threatened to dispel the promise of the early morning. We got away from Wallingford just before half-past nine, but unfortunately took the wrong road, and found ourselves



TINTERN ABBEY.

in a lane overgrown with grass. However, we managed to get to the main road again, when, alas! one of the burners began giving us trouble, a state of things made familiar enough on the 1,000-mile Trial. A halt was made at Wantage to put in a new burner and examine the statue of King Alfred, who is reputed to have first seen the light in that interesting old town. The Bear Inn is a quaint place well worth a visit, the bear on a pedestal in front of the hotel being somewhat unique in signs. Here, while we were waiting,

Mr. Bird passed. Then we continue our journey *via* Faringdon, St. John's Bridge—where the Trout Inn is—over the Thames, here clear and silvery; so narrow and so different from the Thames of the lower reaches—the river shimmering in the half reluctant sun, and the well-stocked waters filled with leaping fish—through Lechford, past Fairford, where is to be seen an interesting old church with a beautiful stained window which, to save it from the ruthless hands of the Parliamentarians, was buried many feet beneath the earth, afterwards being reverently restored by the



THE ENTRANCE GATE—RAGLAN CASTLE.

loving hands of the descendants of those who had so carefully preserved the beautiful treasure. And so on to Cirencester, which was reached just before one o'clock—a minute or two after Mr. Allen's arrival, he having passed us while we were attending to our pressure valve, water having collected from the bad petrol, which gave us considerable trouble all through the day. Mr. Butler, whom we had noticed behind us for some distance, followed us in; Mr. Mayhew arriving solitary, but happy, at 1.10 p.m. The horses along the route had been extremely troublesome, and many stoppages had to be made. The wind in our faces was terrific and rain kept threatening, but fortunately the clouds were dodged, and so we escaped. One horse slipped into a ditch, quietly lying there nibbling the grass around, while in another instance a cartload of apples—evidently for cider purposes—came to grief. Excitement was caused just before lunch by the arrival of Mr. and Mrs. Edge on their 16-h.p. Napier, having ridden down from London. They started at eight o'clock in the morning, but had mistaken the road. Mr. and Mrs. Hargreaves arrived on their 12-h.p. Daimler at 1.30, and Mr. Sampson at 1.45.

After lunch a fresh start was made, and we had proceeded about six miles when Mr. Bird passed, being closely followed by Mr. Hargreaves. The road was a continual rise, and some of the ascents were very steep, the roads also being greasy and consequently slippery. The top of Birdlip Hill, about which many tales had been told, was duly reached, a C.T.C. board acting as a warning. The commencement of the decline is not only precipitous, but the surface consists chiefly of a series of watercourses. Brakes were closely applied, and it was soon seen that Birdlip was no common hill. We proceeded as slowly as circumstances permitted, but the hill was somewhat circuitous and there was a lot of traffic about. Squeaking along, we were suddenly assailed with a loud shout and saw Mr. Edge coming slowly down, enwreathed in a cloud of blue smoke. We drew aside and Mr. Edge came up, informing us in return for our salutation that our hand brake was also on fire. We continued down for another couple of miles, and then both obtained water with which to cool the brakes from a cottage. Down hill, it seemed, all the way into Gloucester. The roads were greasy, and in the town the tram lines were especially bad. From Gloucester to Monmouth, through Ross, was a very pretty ride, overhanging fruit trees forming arches

across the road, while bushels of apples and pears were lying all over the roads, being scrunched by hundreds beneath the wheels of the various cars. A stoppage was caused in crossing the Wye at Kerne, where a charge of sixpence was made, and then shortly afterwards Mr. Rolls dashed by from the opposite direction on his Panhard. On Whitechurch Hill, a short, sharp, and steep ascent, Mr. Mayhew came up and passed us, and then, after surmounting the summit, a greasy surfaced decline took us at a sharp pace straight to the Beaufort Arms, the distance for the day having been 85½ miles. The clock had struck six five minutes before, and we had followed Mr. Mayhew within a minute of his arrival. Here was met Mr. Holder, who had ridden over from Birmingham on his 12-h.p. Daimler. We also heard that Mr. and Mrs. Kennard had passed through to The Hendre, Lord Llangattock's place, some time before, after having side-slipped and bumped another vehicle. We also learnt that Mr. Hargreaves, in descending Whitechurch Hill, had turned completely round on the greasy road.

Messrs. Butler and Sturmeay arrived at seven o'clock, and the first words said were, "Did your hand-brake fire?" Theirs had burnt to pieces and a new one had to be affixed. Mr. Johnson was considerably exercised as to the fate of the remaining cars and wired to the post office at the top of Birdlip Hill to endeavour to find out whether anything had happened. The reply was that nine cars had passed. Other vehicles came along, including Mr. Sampson's, with hand-brake broken, but at bedtime two cars were still missing, Mr. Whatton's and Mr. Reynold's. From Mr. Burgess, who had started that morning from town on an English Panhard, a "wire" was received shortly after seven with the Gloucester post mark stating that he and his party were staying in that town for the night and were coming on in the morning.

Although the distance for the day was only eighty-five miles we are inclined to think the ride was one of the most difficult yet undertaken by the Club, and that it equalled, if not surpassed, any of the day's rides on the 1,000-mile Tour. Birdlip Hill certainly was one of the worst we have yet negotiated, and although the contour book gives a portion of the gradient as one in seven, we are inclined to think at points the gradients were much steeper. Such a number of hand-brakes burning and a car to



THE MEMBERS ARRIVING AT THE HENRE, MONMOUTH.

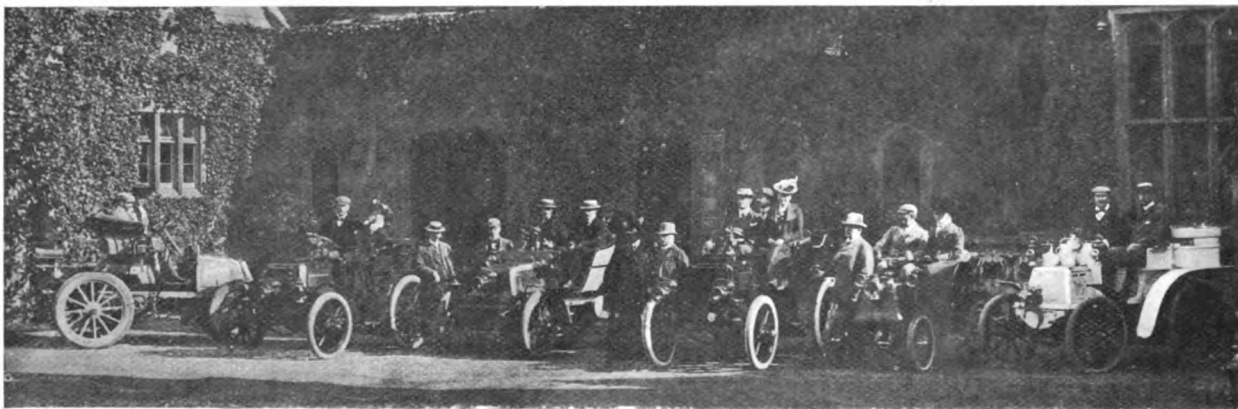
run away and then turn over formed a record in the annals of the Automobile Club tours.

Sunday was a lovely day, warm and bright, and the interesting little town of Monmouth, in which Henry V. was born, looked its best. According to our programme, the day was one of rest, and so the various members made their own arrangements to spend the day. Some went to Ross and some to Tintern, while a party of four, consisting of Messrs. Butler, Cordingley, Johnson, and Sturmeay, set off for a five-mile walk to Symonds Yat. Walking up

Whitchurch Hill, we met Mr. Burgess coming in from Gloucester, with five passengers up—including Mr. Freeston, Mr. Willoughby, Mr. Crompton, and Mr. Reynolds. These two latter were the gentlemen who came to grief on Birdlip Hill on a Peugeot. It appeared that the first part of the hill was ridden with safety, until when turning the corner of what looks like a level portion of the road at the bottom of the hill, the hand-brake broke and the car shot like an arrow from the bow. Another turn was seen in front and the car was then swaying all over the road, being beyond control. Mr. Crompton jumped just as the

and here found Messrs. Bird and Edge with their cars. Some lunched on one side of the river and others ferried across. We were with the latter, and had lunch at the Rockleigh Hotel, a prettily situated inn, with beautiful views of the Wye Valley. After allowing due time for digestion we pedestrians varied the monotony of the outward journey by taking a boat back. The river was in flood, and rushing along at about four miles an hour a most enjoyable row was indulged in.

Several members of the party were sleeping at The Hendre, and on Sunday afternoon frequent visits were passing between



A GROUP AT THE HENDRE, MONMOUTH, INCLUDING LORD AND LADY LLANGATTOCK, LORD BRASSEY, AND SOME WELL-KNOWN MEMBERS OF THE AUTOMOBILE CLUB.

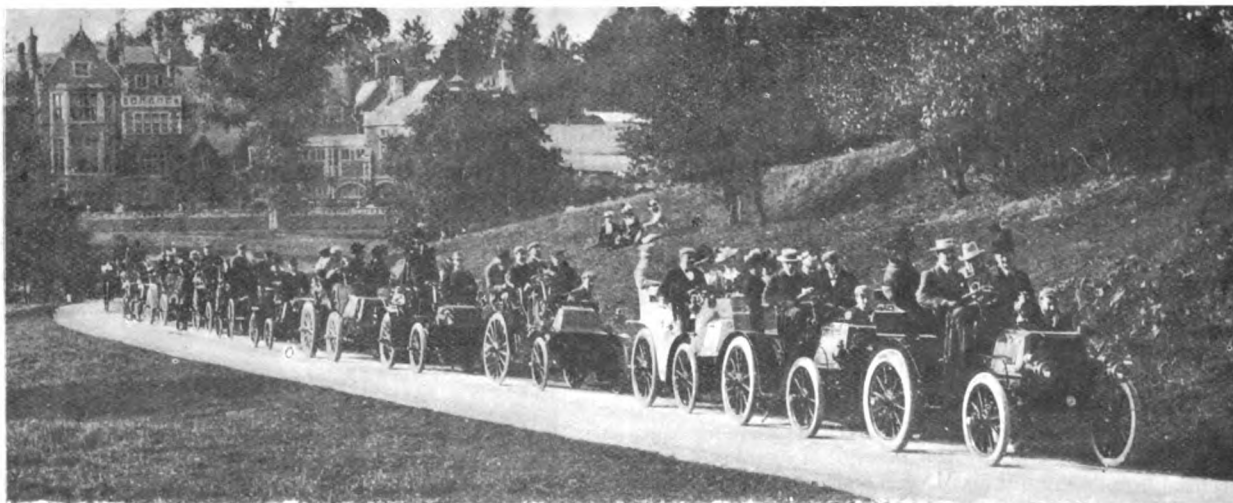
[Photo by]

[J. H. Preston, Monmouth.]

car completely turned over, with Mr. Reynolds at the helm. He was buried underneath for a moment and then the car continued on its way, turning over several times, at last righting itself and so remaining. The young fellows were soon on their feet, and they rushed to turn off the petrol tap, when both burst into laughter, for the petrol tank was lying about forty feet away in the road. Fortunately neither of the riders was much injured, Mr. Reynolds being cut a good deal, and Mr. Crompton escaping with bruises and torn clothes. The body of the car was entirely wrecked and the back axle bent. Fortunately Mr. Whatton came up and towed them into

the two detachments. Mr. Hargreaves drove in with Lord Brassey, and Mr. Edge drove his lordship back again.

Monday, like Sunday, was beautifully fine and mild, and the sun shining benevolently rendered overcoats unnecessary. The morning was spent by many of us at Tintern Abbey, but the ruins to those who had seen Glastonbury, Melrose, and other places did not seem worth the twelve mile drive, although the scenery all along the valley of the Wye was most beautiful. Returning to Monmouth, we made our way to the Hendre, where photographing was in active progress by most of those assembled. The day was like one of spring, and all the time was spent in



THE PARTY LEAVING THE HENDRE, MONMOUTH.

[Photo by]

[J. H. Preston, Monmouth.]

Gloucester, where Mr. Burgess saw them as he was riding through with the intention of coming on to Monmouth. However, not knowing whether there were any more Birdlip Hills on the way, he thought discretion the better part of valour and made up his mind to stay with the others in Gloucester. All this we heard on the hill, and as Mr. Burgess's car continued its way down we resumed our march up the hill, stopping to examine with interest the outward and visible signs of Mr. Hargreaves's side-slip. The "slips" looked very nasty, especially the one making the deep indentations in the bank. All walks come to an end in time, and after a 150 minutes' toil, we reached the Yat Hotel

the open air. A *recherche* luncheon was served in a covered tennis-court, and after due justice had been done to the good things prepared, Mr. Butler, the hon. treasurer of the Club, proposed the health of Lord Llangatock, who warmly replied, expressing thanks for the hospitality shown by the various members of the club to his son, the Hon. C. S. Rolls, of whom he was so proud. After luncheon the cars were crowded to their fullest capacity, many sitting on the floorboards, to take the party to Raglan Castle, where the magnificent ruins, covering over five acres, attracted attention for nearly two hours. Lord Llangatock

personally conducted the party and headed the visitors' book with his own name, followed by Lord Brassey, who formed a scroll and inscribed the fact that the signatories were members of the Automobile Club. These tours, there is no doubt, do much good to the industry, and on Sunday we heard that Dr. Lloyd Smith, a leading physician of Monmouth, had taken a great fancy to a phaeton driven by Mr. Burgess, of the Motor Manufacturing Company. After testing the car he placed an order for one to be delivered in about six weeks' time. We also understand Lord Brassey has ordered a voiturette. All the cars were running well, except Mr. Kennard's Napier, which was seen at the side of the road, and on our return journey we had the pleasure of staying a few minutes and talking to the owner of "Sir Charles." His troubles were concerned with tires, and he informed us that the present was the third tire that had gone in three days, and he had only been riding to a little extent. He has on the car a patent pump and bell that rings when the tire is deflated. We stayed to hear the bell ring, but the tire was on the ground, and the car went on but the bell did not ring. An item of news to our readers is the fact the *mecanicien* was hard at work pumping the tire by hand. Tuesday was also a lovely day with a little wind and a little briskness in the air, but as the sun got up it was really springlike. The journey for the day, according to the "Notes and Notices," was 86½ miles, but an error has been made, and the journey was only 68 miles. Luncheon should have been partaken of at Gloucester, but as that cathedral city was only 26 miles distant, it was decided to take the mid-day meal at the "Queen's," Cheltenham. We stayed at the Bell Hotel to have a look at the wreckage of Mr. Reynold's Peugeot, and afterwards came through, arriving at Cheltenham just before noon. A start was made again at three, and we rode over the Cotswold Hills, where the Thames narrowed to a ditch-like extent. We passed through country in which the motor-car is evidently a comparative stranger, and through Witney, over a bridge crossing the Thames at Eynsham, where a toll of 4d. was charged. Frequently we had to slow up to avoid pheasants feeding in the road. Oxford was reached in ample time for seven o'clock dinner. Here the members, whose numbers had been very much reduced, were entertained by Mr. Allen, who resides close to the city. On the last day's ride the morning opened dull, but it brightened later. An early start was made for Iffley, where is one of the finest examples of a Norman church to be seen in this fair land of ours. After examining the architectural beauties a journey was made to Mr. Allen's beautifully situated house, overlooking the Thames, and then a move was made, Mr. Allen leading the way, his wife driving his Daimler to High Wycombe, and the club-house was reached by the first of the cars just before four o'clock.

THE tour in Tunis, which is being organised by the French Automobile Club, has been postponed until March next.

THAT well-known Belgian automobilist, Baron de Crawhez, is contemplating a tour in Algeria on his 12 h.p. car early in December.

THE United Motor Industries, at whose invitation "Lollius" made the trip on a Clement Panhard voiturette referred to last week, have issued a neat little booklet giving a list of their agencies and leading lines.

SEVERAL interesting photos of the visit of the members of the Automobile Club to The Hendre, Monmouth, on Monday last, were taken by Mr. J. H. Preston, of the Wye Valley Studio, Monmouth, from whom copies can be obtained.

WE learn that four 50-h.p. Napiers are being put on the stocks—not three, as mentioned in our last issue. They are to be built to the order of Lord Carnarvon, Count Zborowski, Mr. Mark Mahew, and the Hon. C. S. Rolls respectively.

THE *Breslauer Generalanzeiger* states that while Prince von Pless was travelling by motor-car from Fürstenstein to Schweidnitz, accompanied by Princess von Pless and two English friends, a horse ran against the car and overturned it. All the members of the party were more or less injured on the face and hands with broken glass.

THE LUFBERY MOTOR-CAR.

A MOTOR-CAR exhibited at the Paris Exhibition which comprises several novel features is that built by Charles E. Lufbery, of Chauny (Aisne), France, and of which illustrations are given herewith. The car takes the form of a four-seated phaeton, with a hood to the rear seats. Originally Mr. Lufbery used the Daimler motor, but he has now perfected a motor of his own design—a twin cylinder, vertical engine, with a bore of 92mm. and a stroke of 146mm., which, at its normal speed of 700 revolutions per minute, develops 6 h.p. The engine, which, complete, weighs 300lbs., is bolted down to the tubular frame of the vehicle, and is located in the rear. The cylinders are water-jacketed, the circulation being maintained by means of a pump. The new feature is, however, not so much the motor as the

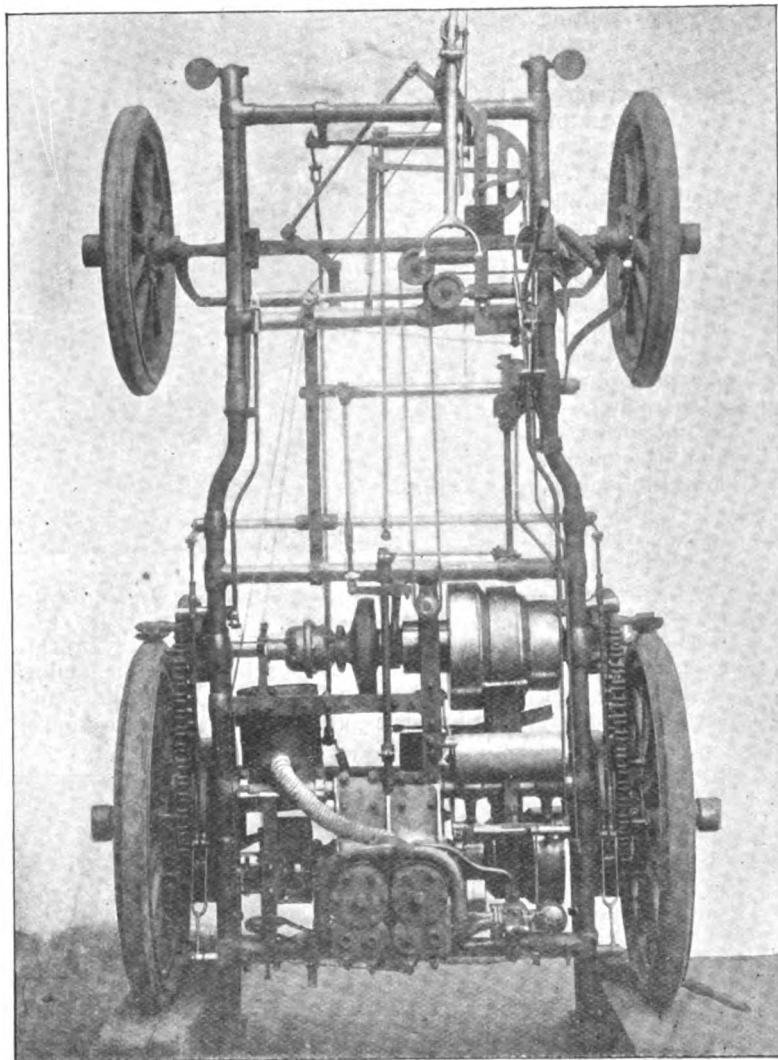


FIG. 1. -PLAN OF FRAME OF LUFBERY CAR.

variable speed-gear adopted, which is arranged to give no less than five speeds forward and three in a backward direction. An extension of the engine shaft carries a cone pulley with three steps, and power is transmitted from this to a similar cone pulley, on an intermediate or differential shaft, by a single belt. From this shaft the power is conveyed to the rear road wheels by the usual duplicate set of sprocket wheels and chains. In the interior of the pulley on the intermediate shaft is a mechanism by means of which this shaft is made to rotate at half the velocity of the pulley for forward motion, and by which the vehicle is reversed. The intermediate shaft, with pulley, etc., is shown specially in Fig. 3. To the cone pulley are fastened, interiorly, two gears, one spur-pinion 3, and one internal gear 2. Both of these are made of phosphor bronze. On the hollow shaft is mounted a double-armed piece 5, which may slide along the shaft on a long

feather key. At the end of each of these arms there is a bearing, in which turn the double pinions 4, 4, which are of steel cut from the solid. The smaller one of the pinions 4 engages with a pinion keyed to the hub of the drum 6. On the drum 6 acts a brake band, not shown in the figure.

After this explanation the operation of the device may be easily understood. Let us suppose the large pinion 4 to be in gear with the internal gear wheel 2, and the two members of the friction clutch to be slightly separated by means of the shifting lever 7, operated by a hand lever placed convenient to the operator. The brake band on the drum 6 is drawn tight, to prevent the drum from turning. The rotation of the pulley 1, and consequently of the gear wheel 2, causes the pinions 4, to rotate, and as the drum 6, and the pinion keyed to its hub, are prevented from rotating, the double armed piece 5 is caused to rotate, and with it the hollow shaft to which it is keyed. In this case the number of revolutions per minute of the hollow shaft is one-half the number of revolutions of the pulley, and the three speeds of the vehicle corresponding to this position of

of the double gear 4, around its axis. The pulley 1 is directly connected to the hollow shaft, and both turn, therefore, at the same rate of speed. The speeds of the vehicle for this position of the gear are 10, 15, and 20 miles an hour.

If the two members of the friction clutch be separated far, the gears 4 and 2 will get out of mesh, and the large gear 4 will engage the pinion 3. This position of the gear corresponds to a reverse motion of the vehicle, and three reverse speeds may also be had by shifting the belt. When it is desired to completely disconnect the engine from the driving wheels the gear 4 is held in a position midway between gear 2 and pinion 3.

We have endeavoured to explain as clearly as possible what appears to be rather a complicated gear. We are assured, however, that the complication is only imaginary, but that in practice it is easily handled, and has proved itself effective and that, while increasing the number of forward speeds and backward motions available, the change gear is not only silent in its operation, but obviates undue strain or wear on any of the gear wheels.

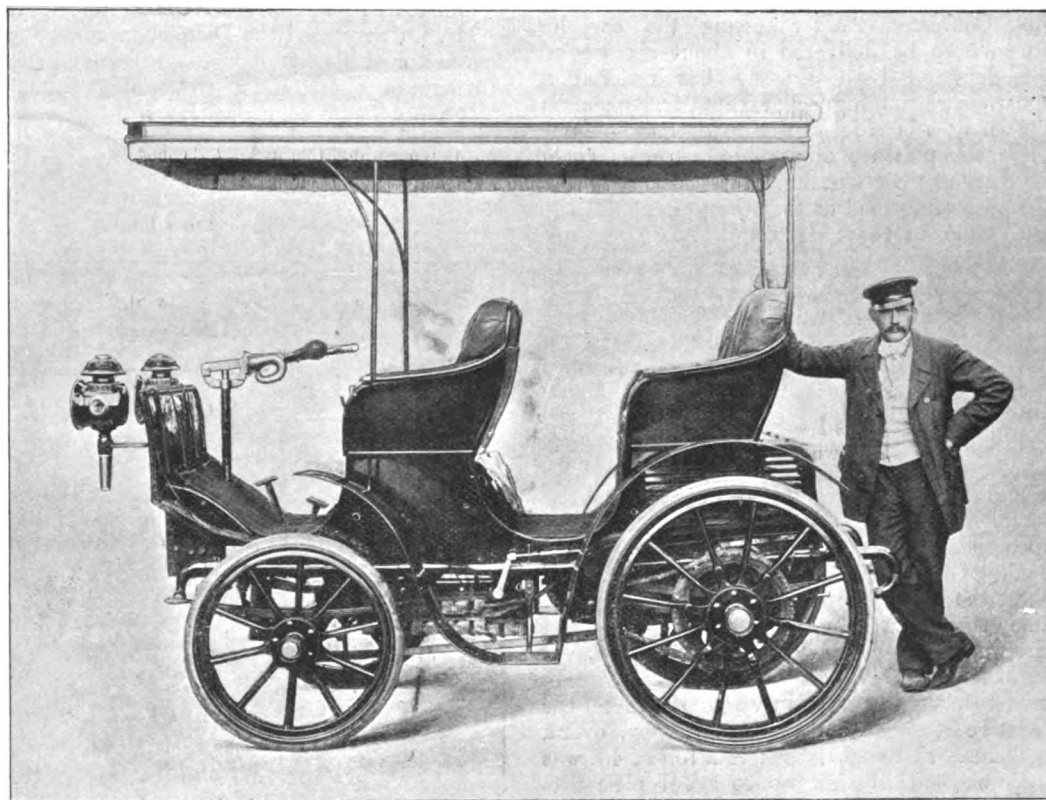


FIG. 2.—GENERAL VIEW OF LUFBERY CAR.

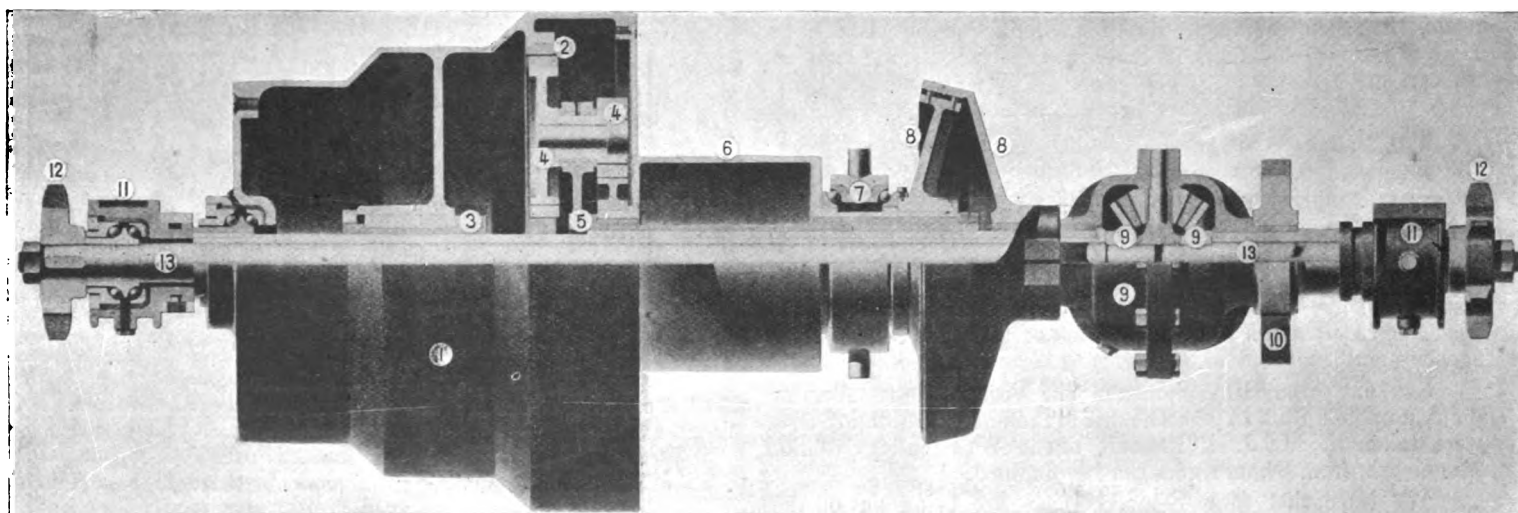


FIG. 3.—PART-SECTIONAL VIEW OF INTERMEDIATE SHAFT-LUFBERY CAR.

the gear and clutch mechanism are 5, 7½, and 10 miles per hour.

If it is desired to run the vehicle at a higher speed, the brake on the drum 6 is released, which engages the clutch members. Drum 6 is now fast on the shaft, the same as the double-armed support 6, and there can, therefore, be no rotation

The steering handle also presents a novel feature in that by pressing it in a downward direction the jockey tightening the driving belt is raised, so putting the motor out of gear, while by continuing the pressure two hand brakes on the hubs of the rear wheels are applied. We understand that Mr. Lufbery is anxious to arrange for the construction of his type of vehicle in England, under licence.

CORRESPONDENCE.

TRACKS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice a correspondent in last week's issue, who had not the courtesy to sign his name, has thought fit to make some remarks about my going to Canning Town track instead of endeavouring to put the forty miles in the hour on the Crystal Palace track.

Why on earth he should say it is not fair my putting up a forty miles an hour record on the Canning Town track I cannot conceive. If I like to put a record up on a track at Timbuctoo I do not see why it should worry or annoy "A. B. C."

I shall be delighted to endeavour to accomplish the forty miles in the hour on the Palace track if "A. B. C." will kindly supply me with a new set of tires for the purpose, as one of my reasons for going to the Canning Town track was, because the surface, being less rough, it was not so liable to scrape my tires to pieces. If also "A. B. C." will kindly go to the Palace track and flatten out a big bump on one of the bankings which has developed recently he will further assist in the possibility of riding on the track at a big speed.

In comparing the two tracks I would like to point out that the authorities of the Canning Town track had refused, prior to my going down there, to allow motorists to ride, on the ground that they did not consider it safe, and surely if I cared to run the extra risk on this point with the idea of saving my tires on the point of surface, there can be no loss of any possible credit which may be due for any performance done on the track. One might just as well say that the cycling records put up on the Catford cycling track should not be recognised because a larger proportion of races are run and records made at the Crystal Palace.

Regarding the point raised by "A. B. C." regarding the possible discrepancies in the value of performances on the various tracks, I shall be very glad if he will kindly inform me what is the actual value derived from such performances. My own personal opinion has always been that the man who will cover the greatest distance on a motor-cycle on the track is the man who is willing to run the greatest risk, provided, of course, he has a good and fast machine.—Yours truly,

CHAS. JARROTT.

14, Regent Street, S.W., October 9th, 1900.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—"A. B. C." raises a point which, as an old cycle rider, I feel interested in. No records ought, in my opinion, to be recognised unless run on a track selected by the authorities for the purpose. One track may help the rider; another provide turns and a bumpy surface. Hence the difference in value between the performances on various tracks. Yours, etc.,

London, E.C., Oct. 9th, 1900.

EX-CHAMPION.

THE SKIDDING TROUBLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—One of the terrors of the nervous motorist is skidding; and many drivers confess with regret that winter must be almost an off-season to them, so much do they dread motoring over greasy roads. It would be useless to deny the existence of these risks. In part they are due to the use of rubber and pneumatic tires, and must be set off against the comfort obtained by the use of these instead of iron tires. If we are to keep rubber tires it is difficult to see how side-slip can be wholly avoided. Non-slipping ridges, such as are fitted to cycle tires, would scarcely be of use on large cars, and they would wear away quickly. Whether a different section of tire instead of the circular shape now in vogue would be advantageous remains to be proved—and that by hard practice rather than theory. A matter, however, which should weigh with designers is the length of the wheel base—that is, the distance between the front and rear axles. It may seem desirable from many considerations to have this as short as possible; but if

steadiness and easy steering be desired, it is well that the wheel base be of goodly length. At the present time there are several cars on the market which, I think, would be less prone to skid if they had longer wheel bases. Yours truly,

Dublin, October 8th, 1900.

H. P. R.

MANCHESTER TO LONDON.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am about to have a tandem motor tricycle of my own, which I intend to use for business purposes. Next month I hope to drive it from Manchester to London, and I should probably have taken that same road through Coleshill (which I have so unsuccessfully tried to avoid) had it not been for the kindness of Mr. Edgar Soames in answering my query on that point. This time I hope to be more successful, and I hope you will allow me, through your columns, to thank Mr. Soames for his timely guidance.

Weston Rectory, Norwich.

Yours truly,

October 7th, 1900.

J. REGINALD EGERTON.

In the lifeboat procession to be held in Dublin to-day (Saturday) several motor-cars will take part.

At Lynn, on Monday, Robert Gale, in the employ of Mr. F. Morris, was fined £2 inclusive for furiously driving a motor-car on September 16th.

WILLIAM MCARDLE pleaded guilty at Bournemouth last week to driving a motor-car without a light on September 15th, and was fined 5s. and 5s. costs.

MISS DALY, of Terenure, enjoys the honour of being the first practical lady motorist in Ireland, she having lately become the possessor of a De Dion voiturette, which she now drives herself.

THE Bracegirdle Cycle Company, Ltd., of the Mercury Cycle Works, Alexandra Road, Manchester, are keeping up with the times, having laid themselves out to undertake repairs to motor-cycles and cars. They also keep a stock of petrol and motor accessories.

A RUNAWAY motor-car, near Uxbridge, is reported to have dashed down a hill the other morning and through the front window of a villa, where the family were just sitting down to breakfast. The "autocrat at the breakfast table" is familiar to every reading man, but the autocar is a different thing altogether.

THE Council of the Liverpool Self-propelled Traffic Association has decided to prepare a report dealing with the present condition of the heavy motor-vehicle movement in France, and for this purpose the hon. secretary of the Association, Mr. Shrapnell Smith, is this week attending the Poids-Lourds competition in Paris, organised by the technical commission of the International Exhibition.

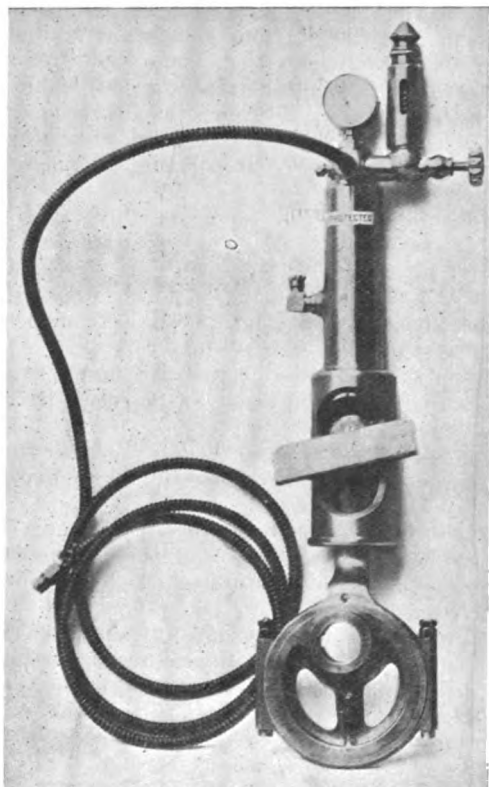
THE S. T. Rubber Tyre Company, of Westminster and Manchester, have, we learn, amalgamated with the Challiner and Willoughby Tyre Company, Limited, of Manchester. The name of the new company will be the Shrewsbury S. T. Challiner Tyre Company, Limited, the capital being £82,000. Business will be carried on in London and Manchester as hitherto, and Lord Shrewsbury will be the chairman of the new concern.

At Chelmsford Petty Sessions last week Robert Charles Knights, engineer, of Chelmsford, was summoned for driving a motor-car after dark without a light at 10.55 p.m. Mr. Drake, a messenger for the defendant, expressed his regret at the latter's inability to attend. A fine of £1 and 7s. 6d. costs was imposed.

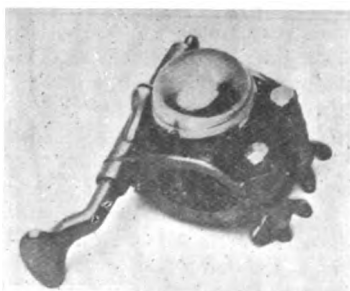
THE pneumatic tire appears to be the element that is giving the most concern to motor-car manufacturers and automobilists just now. Mr. J. T. Wicks, of Hermitage Road, Finsbury Park, has lately put on the market a new moulded air tube for pneumatic tires which he claims overcomes many of the difficulties hitherto experienced. The advantages of the new Wicks tubes are said to be that they are seamless and jointless; the rubber is vulcanised under enormous pressure, hence the material is consolidated and all defects obviated; the tube is moulded complete, the air valve being vulcanised in position.

SOME INGENIOUS DEVICES ON MR. KENNARD'S NAPIER CAR.

CONSIDERABLE interest was displayed in Mr. Kennard's Napier car by the members of the Automobile Club during the past week. Since Mr. Kennard took possession of his car he has had considerable experience with it, with the result that he has fitted the vehicle with several little "tricks"



of his own. Two of these we are able to illustrate herewith. The first is a power-driven pneumatic tire inflator. To inflate a 90 millimetre tire, to say nothing of a 120, is, as may be imagined, no light task, and Mr. Kennard has brought the engine into requisition for this purpose. The plunger of the inflator, instead of being operated by hand, is driven off the motor by an eccentric. The inflator proper is, of course, held in a fixed position, a long flexible tube forming



the connection between it and the valve of the tires. A pressure-gauge is also fitted in connection with the device, and this indicates the degree of inflation. In addition it is so arranged that when a pressure of 80 lb. is reached a safety valve is opened automatically, so preventing over-inflation of the tire.

The second device illustrated is a bell clumped to a spoke of the road wheels just under the rim, and actuated by a lever which is well above the road when the tire is inflated, but is compressed

when the tire is punctured and flattened to the rim. The first specimen of this "puncture-notifier" is capable of improvement, but contains the germ of a useful idea. It is easy for a motorist to proceed some distance, and meanwhile damage his inner tube, before becoming aware of a puncture, and this new device should obviate that undesirable contingency.

HEAVY STEAM VEHICLES IN AMERICA.

WE have already referred in a previous issue to the heavy steam vehicle built at the Cooke Locomotive Works, at Paterson, N.J., under the Thornycroft patents, and to the fact that steam lorries on the Simpson-Bodman system are to be built by the Milwaukee Automobile Company under the direction of Mr. Bodman. It would seem that the advantages of such vehicles are beginning to be recognised in the United States, for we learn that still another concern—the White Engineering Works, of Indianapolis, Ind.—has taken up their construction. The White steam lorry, the first one of which has lately been turned out, has, states the *Horseless Age*, a capacity of from 2 to 2½ tons and a normal speed of five miles an hour. The main framing is constructed of channel steel, and the floor or platform overhangs the wheels in all directions. The wheels have a diameter of 40in., and 4in. steel tires, both in front and rear, are used. The steam generator is located centrally in the fore part of the frame. It is of the marine water-tube type, and is coke-fired. The water-level of the generator is maintained automatically, and it is only necessary to keep the water tank supplied, for which a steam syphon and hose are provided. The fuel tank, made of sheet steel, extends across the front of the cab, and opens in front of the driver. The engine and gearing are located below the floor. The engine has either three or four cylinders, is single acting, and of the compound type. The cranks are enclosed in an oil bath. The engine, although compound, can be worked with high pressure steam in all the cylinders, and is, in fact, always started up in this manner, the pawl, controlling the compounding valve, being operative only when the vehicle is in motion. The engine is started and governed by a controlling lever. In the central position of this lever steam is shut off from the cylinders. If the controller lever is pushed forward it will cause the cylinders to be drained, and admit steam to the cylinders, the admission being proportional to the motion of the lever. To back the vehicle the controller lever is thrown backwards; it operates and locks the reversing gear automatically, at the same time tending to the draining as before. In addition to the gear for ordinary speeds the vehicle is provided with a hill-climbing gear, which increases the demultiplication three times. This gear works in an oil bath, and is operated by a simple lever. Roller chains are employed to transmit the power from the differential shaft to the driving wheels. The dimensions of the lorry are: 17ft. in length, 6ft. 8in. in width, and 9ft. in height. The floor is about 46 inches above the roadway.

A PUBLIC service of motor-cars is about to be started between Mons and Beaumont, Belgium. The vehicles will be able to accommodate twenty passengers and a quantity of luggage.

IN our issue of the 4th August last we gave some particulars of the successful run to Brighton of a Joel electrical voiturette on one charge of the battery. We learn that the National Motor-Car Syndicate were submitting the car to another trial over the same route on Thursday, starting from the Automobile Club, details of which we hope to publish next week.

THE New York Motor-Vehicle Company have just finished a motor public passenger omnibus. The present model is said to be the outcome of a considerable amount of study and investigation, as the company sent their engineers to Europe to carefully look into the merits of the different motors at all the great manufacturing centres, with the result that they have adopted steam as their motive power. Their model omnibus is made to seat twenty passengers, and differs in style and size from anything so far made in America.

HERE AND THERE.

THOSE interested in the development of the motor-car industry and who are looking out for likely opportunities for profitable service next season should consider the Dukeries—that charming district in which many participants in the 1,000-Mile Trial would have liked to linger awhile. I hear that a kindly reception would be given the automobile in that district. At present a large number of horses are engaged in the trippers' traffic of the Dukeries, and they are frequently a cause of danger, often running away and otherwise misbehaving themselves. The dangers with the use of the motor-car should be materially lessened, and some of the posting proprietors in the Dukeries might be approached with a view to the institution of an experimental service.

AN Irishman living in America has been attempting to write poetry, and although his effusion will not add much to the gaiety of either the Old World or the New, it will probably be welcomed by the Poet Laureate. For the rhyming of "with her yet" with "voiturette" is certainly worthy of the official poet of Great Britain. Says the rhymester referred to:—

Fair Phyllis, once the humble slave of tennis,
Went forth to freedom in the throes of golf.
The shackles worn in courts of chalk and netting
Were straightway loosed and taken off.
And then a season's whirl of tees and cleeks and drivers—
A season's joy that lingers with her yet—
And glad, she views the shackles reappearing
Heart-forged within a little voiturette.

THE newspaper notices of the 1,000-mile Trial in the scrap books of the Automobile Club measure 504ft. in length, exclusive of the lengthy reports which appeared in the strictly automobile press. Even now the floodgates of writing on the subject have not ceased, and in the *Engineering Magazine* for October Mr. Worby Beaumont has an article on the event. It is written in a strain familiar to all who have heard Mr. Beaumont's well thought out speeches on technical subjects, and I quote the following lines as a typical instance of his regard for completeness in observations:—The total number of the revolutions made by the road wheels of the competing vehicles in covering that 60,000 miles was about 40,000,000. The wheels and axles may, however, be said to be very simple parts, so it may be mentioned that the collective revolutions of the crank shafts of the engines of the vehicles were about 70,000,000, and this means that the pistons of those engines made from 210,000,000 to 216,000,000 strokes, and the admission and exhaust valves not less than about 200,000,000 millions of strokes, or openings and closings. It needs no argument to show that such enormous numbers of repeated wear-causing and strength-testing operations could not have been made with machines very unfit for their work, or without teaching many lessons which, when fully utilised by those manufacturers who are susceptible of instruction and capable of putting it into practice, must lead to far-reaching developments.

THE advent of the Automobile Club into Monmouthshire should help the automobile movement in that county, and, as a matter of fact, Dr. Lloyd Smith, of Monmouth, ordered a Motor Manufacturing Company's phaeton during the recent short tour. It is a pity the tour could not have been extended into Glamorganshire with a view of easing the mind of some of the City Fathers of Cardiff. At the last meeting of the Council, Mr. Good proposed that the Cardiff, Whitechurch, and District Motor Car Company be given licences for three motor-cars to ply between North Road and Whitechurch, but the motion was lost, only seven councillors supporting and a score voting against the proposal. And this, after Messrs. Jacobs and Thomas, on behalf of the Motor Car Company, had shown the need for more facilities for the public.

THIS need of education in motor matters is as desirable for town councillors and local magnates as for horses and mules—in fact, it is even more necessary. Horses suffer from fright, but councillors are subject to prejudice.

LORD BRASSEY is notable among notabilities. As a Colonial Governor, a distinguished man of affairs, and a keen sportsman, his reputation goes beyond the British Empire, and his accession to the ranks of automobilists is matter for congratulation. Like Lord and Lady Llangattock he is a yachtsman who has sailed in many seas, and the "Voyage of the Sunbeam," by the late Lady Brassey, will long remain a national volume. On Monday he was at The Hendre, Monmouth, where he saw some fine automobiles and had opportunity of learning much while taking trips on Mr. Rolls's Panhard, Mr. Hargreave's Daimler, and Mr. Edge's Napier; anyhow, on Tuesday he was back in London, and purchased from Friswell's a De Dion voiturette, thus testifying to his interest in modern methods and manners.

IN the show rooms of the Motor Manufacturing Company, on Holborn Viaduct, is the motor-bicycle on which Mr. Pennell accomplished his record ride over the Alps. Mud-bespattered and road-stained it is exciting considerable interest, and I fancy the exploit should lead to many inquiries about the Werner machine. What an interesting conversation Miss Bacon and Mr. Pennell could have on the subject.

THE partiality of Gloucestershire horses for motor-cars has received exemplification in the case of Mr. Edge this week. He was on his way from Lord Llangattock's place on his Napier car, and had passed two heavy horses drawing a farm wagon. A few yards further on another van was coming in the opposite direction, and the driver signalled Mr. Edge to slow down. This he did. The horses previously passed came along and smashed up against the Napier car. The foremost horse then went to the front of the car and kicked up behind, destroying the lamps and radiator. Fortunately no one was hurt, although the motorist probably felt more fully convinced than before that horses are strangely-behaved creatures. Whether the equine fancied he might have obtained a comfortable place in front of the car is not reported; certainly he made it warm for the driver. Anyhow, Mr. Edge's progress was not seriously impeded, as will be seen from the account of the visit to Monmouth recorded on another page.

IN Hyde Park on Sunday a lady reader of the *Journal* saw fifteen motor-vehicles—two driven by ladies—during the course of a short stroll.

THE second 16 h.p. Napier car is finished, and was taken for its first run on Sunday. Mr. Jarrott and Mr. Napier were aboard, and along the Ripley Road it careered at a good speed and in fine style. From what I hear the car is likely to prove somewhat faster than that of similar power owned by Mr. Edge. A contest between the two would be interesting. The new car has been constructed to the order of Mr. Mark Mayhew, who will probably send it up Porlock Hill in the beginning of November.

LAFAYETTE, the conjurer who recently puzzled London, dismounted from his automobile when performing his tricks; Mr. Coles at the Agricultural Hall was content to steer his car with his feet, folding his arms in the meanwhile. Combining both feats and developing an originality of his own, a German circus juggler is now startling his audiences from a voiturette. Standing in this and steering with his feet he spins his motor-car around the ring at a smart pace, and continues juggling with balls, etc., the whole time. Evidently the uses of the motor-car are infinite, and it will probably have a place in some of the pantomimes during the coming season. LOLIUS.

MR. F. F. WELLINGTON is making a reduction of 25 per cent. on all repairs executed for members of the English Motor Club.

MISS EMLÉN S. BLYE, of Chicago, underwent the examination for automobile operators a few weeks ago, and was granted a certificate. She announced that she was taking the examination for business and not private uses, and that she intends to conduct a school of instruction, teaching other ladies the method of managing and operating motor-cars.

MOTOR-CARS ON THE CONTINENT.

Public Service Work in Spain.

HAVING on several occasions been requested by readers of the *Motor-Car Journal* to furnish them with a list of public automobile services, I venture to think that the subjoined particulars of such services in Spain, and which were recently published by the *Vélo*, will prove of use to them. As I have already mentioned in these columns, the industry in Spain—or rather the movement, for the industry actual is infinitesimal—is progressing more particularly in the direction of public and transport services, and to-day the Peninsula holds its own well in this respect. The *Vélo's* correspondent at Madrid announces that in the province of Corogne a couple of companies are working services—the one between Corogne and Santiago, and the other from Corogne to Betanzos and Ortigueira. In Asturias the *Compania Asturiana de Automoviles* run cars from Oviédo to Luarea, and from Avilés to Gijón. A line from Palanquinos to Valencia de Don Juan is the sole service in the province of Léon, but in Valladolid three services exist, these being Valladolid to Puebla de Sanabria, Valladolid to Zamora, and Valladolid to Fuente Sanco. In Ségovia, Ségovia is connected with the Granja and Arévalo by automobile services, and in Guipuzcoa cars run between Zumaga and Zaranz. The province of Logrono is blessed with one service only, that between Logrono and Soria y Burgo de Osina. Lérida also has but one line, and that runs from Lérida to Balaquer. Both Tarragona and Barcelona possesses a couple of services, those of the former province being from Tarragona to Reus and Valls, and of the latter Ripoli to Puigcerda, and Papiol to Rubi and Tarrasa. Services also exist at Lugo, Tuy, Burgos, from Grenada to Motril, from Malaga to Nerja, and in the provinces of Seville, Cadiz, Huesca, Badajoz, and the Balearic Islands. According to reports these various concerns prosper exceedingly, many of them paying dividends of as much as 30 per cent. If only in that respect these companies are happier than any I have had experience with, for big dividends are not so easy to pay, and I very much doubt whether any concern exists outside Spain which can point to such a figure.

Count Champrobert's Mishap.

It is reported from the Auvergne district that Count Champrobert, who has so often figured in automobile races, has been the victim of a serious accident in the neighbourhood of La Charité. The incidents giving rise to the mishap were of so curious a nature that I give details. At the moment that the Count and his engineer were about to mount a hill and were travelling at full speed a couple of horses galloped out from a field bordering the road, and one of them ran directly in front of the car. His appearance was so sudden that the Count had no time to apply brakes, and the 30 h.p. racing machine and the noble beast collided with a terrific shock. The vehicle was projected against a tree and the two occupants thrown out. Count Champrobert received a bad cut on the leg and many bruises, while the engineer also suffered injuries to one leg. Both succeeded in reaching La Charité, and after their wounds were dressed the two unfortunate *chauffeurs* set out for Paris by train. The car was badly damaged, and presumably the horse also.

Caniveaux.

EVERY automobilist who has toured in France knows only too well the dangers of the *caniveau*, that paved water-course which traverses the route sometimes in the least expected places. If one is ignorant of this feature of French roads, but little attention is bestowed upon the thin line which suddenly appears upon the perfect surface of the route, and it is not until one has closely approached that the sharp drop and nasty strip of *puvé* causes a hasty application of the brakes. A violent bump, a clattering over the stones, succeeded by another jolt, and one is through, with the loss of a nut or so, if nothing worse. Only too frequently are serious mishaps caused by these

abominations, not always at the moment itself, but later on, when some part, shaken loose by the shock, no longer keeps place. Pass as slowly as one may through a great number of these *caniveaux*, the bumping and jolting is considerable, and when one is running at any speed the danger is really great. Unquestionably more accidents have been caused in races by the presence of *caniveaux* than by any other cause, for when travelling fast a car literally jumps the obstacle, and springs, tires, wheels, and axles have all been known to give way under the tremendous shock. These death-traps—for it is not too strong a term for them—are usually to be found in the immediate neighbourhood of towns and villages, but occasionally they are encountered far afield from inhabited spots. Sometimes they show themselves boldly, and one has ample time to reduce speed, but more often they secrete themselves with great cunning, and present the appearance of a vague shadow crossing the route. It is then more particularly that they are dangerous, and after being trapped a few times one slows up at the shadow thrown upon the road by every branch. Generally speaking, they are harmless in a village street, for there the route is in itself so bad that one progresses slowly and continually on the look-out for soft places.

Some Hints.

WHEN entering or leaving towns and villages one should scrutinise the road ahead with every care, for, as I have already said, it is there that these terrors of the *chauffeur* abound. As a preventative of excessive speeds in the neighbourhood of towns, they are, in combination with a liberal supply of *puvé*, most efficacious, but they ought to be marked, for in order to teach the automobilist moderation it is useless to commence by killing him. Nominally used as watercourses, they are actually employed as automobile traps, and strong measures should be taken to remedy this state of things. Not by removing or even materially changing the *caniveaux*—no, I do not for one moment advocate such a course, but I do most emphatically agree with the scheme of marking all these dangerous spots, as proposed by the committee of the Moto Club. A couple of signboards, similar to those affixed by the Touring Club of France to indicate the presence of a dangerous descent, might well be placed some fifty yards on either side of the more treacherous *caniveaux*, and this the Moto Club expresses its intention to do. Following the indication shown by the notice board, the automobilist will then know the character of the *caniveau* he is about to encounter, and will act accordingly. But if dangerous in the daytime, these traps are infinitely more so at night, and I hope that the club will see its way to arrange for the lighting of a lantern upon the sign- posts after dark. I fancy this could well be done in the case of those placed in the neighbourhood of inhabited spots, and at a very slight expense. For those further afield, well—I fear lighting would be a serious difficulty, but these are in the minority. In the Gordon-Bennett cup race Charron came to grief over a *caniveau* while travelling at nearly sixty miles an hour, and he must be considered fortunate to have escaped with no personal injuries and such comparatively slight damages to his car as a doubled-up back axle and a wrecked pump. The *caniveau* at Saint Jean-de-la-Ruellis, on the route de Chateaudun, should be one of the first to be labelled, for it is as deep as it is well concealed, shaded as it is by overhanging trees. Let the Moto Club get on with its task, and it will earn the gratitude of all automobilists. So good luck, then, to the enterprise, and a speedy completion.

The Moto Club and the "Vélo" Competitions.

THE membership of the new French organisation known as the "Moto Club" continues to increase, and has now reached the satisfactory figure of 658. As is well known, the club really emanated from the offices of the *Vélo*, and that paper may be considered as the official organ of the society. It appears, too, that the automobile races and competitions formerly promoted by the *Vélo* will henceforward be

organised by the Moto Club—at least those of them for which the necessary official permission can be obtained. The first of these events which comes under the club's care is the competition for alcohol motors, now being organised to take place on the 28th instant. Early next year a couple of competitions for tires will be held with a view to solve some of the difficulties unfortunately so manifest in this direction. The first of these events will be styled the anti side-slipping competition, and the second "la roue élastique." These, it is to be hoped, will bring forth excellent results, for the troubles and dangers of pneumatic tires are very serious, and call for the undivided attention of makers in order to surmount them. If only we could obtain a tire as resilient as the "pneu," and free from all its puncturing and side-slipping eccentricities, what a boon it would be, and what a saving of bad language! Let us hope that the Moto Club's competition will bring us a step nearer to this ideal at any rate. By the bye, the new society goes into its premises at 4, Rue Meyerbeer, Paris, next door to the *Vélo*, on the 15th instant.

Motor-Cycle Racing in Paris.

A TWENTY-KILOMETRE motor-cycle race was included in the list of events at the meeting at the Parc des Princes track in Paris on Sunday last, the starters being Beconnais, Rigal, Fossier, Loste, Demester, Gasté, and Bertin. At the first the race appeared to be merging into a struggle between the two first named. Bertin was the first to give up owing to carburation troubles, and then Rigal gave the spectators a surprise, his motor coming to a sudden stop. It seemed then almost a walk-over for Beconnais, but at the fourteenth kilometre one of his tires burst, and although he endeavoured to struggle on for a lap or so he had eventually to give up, Gasté also retiring. All interest was now taken out of the race, Demester coming in first, followed by Loste and Fossier.

THE BRITISH MOTOR TRACTION COMPANY.

THE first ordinary (statutory) general meeting of the shareholders of the British Motor Traction Company, Limited, was held on the 4th inst. The secretary (Mr. Charles Osborn) having read the notice convening the meeting, the chairman, Colonel Harris, said the meeting was called in accordance with the requirement of the Act of Parliament, and it enabled the directors to make the acquaintance of the shareholders. He had, however, very little to tell them. The reconstruction had been almost perfected, but further applications for shares were being received every day. They might take it that the reconstruction would be successfully carried through; in fact, its success was already assured. It would be remembered that at the last meeting of the old company the directors intimated that they were going to exercise their rights to take legal proceedings against infringers of their patents. Writs have been served in respect of some of these cases, and the Board were advised that they had a strong position in regard to them. As to other business, they were organising sales, and had reason to believe that the company would be a success. Mr. Monkton said he had no intention of entering into the past affairs of the company, but he wished to know to what extent the shareholders of the old company had come forward and applied for shares in the new. The Chairman said hardly a day passed without fresh applications coming in from shareholders under the reconstruction, and out of the 4,500 shareholders in the old company, a large proportion had come in—about 3,000 had already applied. A shareholder asked if Mr. Harry J. Lawson held all the deferred shares. The Chairman said that gentleman held a large number of them. He also added that Mr. S. F. Edge, who was one of the late committee, had since been appointed a director of the company. Mr. Edge said the position with regard to organising the business was perfectly clear. It might be remembered that at the meeting at the Hotel Cecil he spoke as a member of the committee, and after that he was asked to join the Board, which he was very pleased to do, because his interests in the company were very large, not only as a shareholder, but as a licensee in connection with companies which had paid the British Motor Company more than anyone else. Therefore they were very interested in seeing that the patents were upheld, and he told the meeting that he thought if money were not forthcoming for that purpose the sooner they wound up the better. But he was happy to say that shareholders had come forward. At present they were engaged in making up their list with regard to the infringers, and he thought he might say there was no motor company in the United Kingdom which was not infringing one or other of their patents. There had recently been introduced in this country a large motor carriage of German make, and for which it was claimed there was no infringement. That might be true, speaking broadly, but a "cooler" was employed, and this company would be in a position to call for its removal, or for the payment of a royalty. The Board were now preparing a list to submit to counsel respecting the various infringements, and they

would take their advice as to which patents they would sue under. His opinion was that it would be as well to fight on the minor patents first, at any rate until the judges were sufficiently educated to the fact that these very small differences on motor-carriages really made all the difference between success and failure. The water cooler, for instance, might not mean very much in the case of the ordinary user, but when they came to the large buses and other heavy vehicles they did not travel through the air fast enough to keep the water cool, and the result would be that they would emit a large amount of steam or vapour, and that was illegal. So far as the patents and their infringements were concerned, shareholders would see a very decided movement on the part of the company when the Long Vacation was over. The Board would write specifying the infringement, and expressing their willingness to grant a licence, but in default of some arrangement being made no doubt writs would be at once issued. With regard to the manufacturing part of the business, the difficulties were very great unless there were a large capital at hand. Anyone entering into the motor industry here to compete with the existing factories abroad must do it in a very big way. He must lay down a plant not for one motor, but for 10,000 of them, as they did in France. The only way to proceed, if they were not prepared to sink about £200,000 on stock and plant, was to let the business grow gradually, and that, it was hoped by the Board, would be the case with them. But he looked to the patents as the main source of income to the company. In reply to a shareholder, Mr. Edge said the company had small works at Coventry, which had been used principally for experimental purposes. Dr. Drysdale moved a vote of thanks to the chairman and directors for the way in which they were carrying on the business. Mr. W. Davies seconded the motion, which was carried unanimously. The proceedings then terminated.

FATAL TRAP ACCIDENT AT EASTBOURNE.

AN inquiry into the circumstances of the death of Mrs. Mary Underwood, which occurred at about noon on Wednesday last week, owing to injuries consequent upon a collision on the Pevensy-road, Eastbourne, on the previous Monday afternoon, was conducted on Friday last by Dr. W. A. Dow, Deputy Coroner for East Sussex, at the residence of the deceased. Henry Underwood, husband of the deceased, stated that he was out driving in a phaeton on Monday afternoon with his wife and daughter, and was returning from Pevensy to Eastbourne at about four o'clock. They had turned a corner of the road at Hide Hollow, at the top of the declivity before the ascent to the Langney Cemetery, when the horse suddenly sprang into the bank at the side of the road, and witness was pitched out. The horse then bolted with witness's wife and daughter, and he saw no more of it. The horse was nine years old, and as quiet as a lamb. It was not frightened of trains, but it had an objection to motor cars. As the horse went into the bank the reins broke. Edward Williams said he was coming from Stone's Cross toward Eastbourne, driving a single-horse landau, when he heard a horse coming up the hill toward Langney Cemetery, the horse being at a canter. He pulled aside, and as the trap passed he noticed that the reins were hanging loose at the side, and that Mrs. and Miss Underwood were apparently helpless. He drove after the trap, and observed the collision with a van which had drawn clear on the near side to give it full space to pass. The trap caught the wheels of the van, and Miss Underwood was pitched out, while the trap was overturned right on to Mrs. Underwood, who fell underneath. With the assistance of Mr. Harrison, who was in the landau, they got Mrs. Underwood out. She was lying on her back unconscious in a pool of blood, and they put her on a rug and conveyed her to a neighbouring cottage. Subsequently Mr. Underwood, who was thrown out of the trap before witness saw it, and Miss Underwood were helped up for conveyance into Eastbourne, and witness drove off. The horse was going so quietly up the hill when he first saw it that had he known it was a runaway and could he have reached the reins he could have stopped it. Miss Underwood said she was driving with her father and mother as described, when they heard the motor-car coming up behind, and the horse taking fright, ran into the bank, her father being thrown out. The horse then ran away. It was quite impossible for them to regain possession of the reins. They passed several vehicles before they collided with the van, and witness and her mother were thrown out. Henry Dakins, motor-car driver, stated that on the afternoon in question he was driving a 4 h.p. motor char-à-banc. He was driving from Pevensy towards Eastbourne, and he came round the corner at Pevensy-lane at a walking pace, the engine being ungeared and the brakes being on. The engine was not racing, the accelerator having been lowered. As they turned the corner he observed a gentleman driving a trap towards Eastbourne about 150 yards in front of witness. The gentleman appeared to have lost control of the horse, and witness stopped immediately; and later he saw the horse and trap proceeding up the Cemetery hill at a gallop. From the corner of the lane until he stopped the car the engine had never been in gear, and when running down hill the engine was practically silent. The engine was put out of gear at the top of the incline before they reached the corner. He had never been concerned before in an accident with a horse startled by the noise of the car, and in fact not one horse in fifty took any objection to the car. He never got less than 150 yards of the trap. The action of the brake was quite noiseless. Witness added that he passed Mr. Underwood's horse with the car on the way to Pevensy, and the animal took no notice. Mr. H. Plumb, the foreman of the jury, after consultation, said it did not appear how the motor car was concerned in the accident at all. It seemed that with the breaking of the reins Mr. Underwood lost control of the horse, and he further

thought that great credit was due to the motor-car driver in pulling up at once. A verdict was then returned to the effect that death was due to injuries sustained consequent upon being thrown out of the trap, and that the occurrence, with which the motor car had nothing to do, was purely accidental.

OBSTRUCTING A MOTOR-CAR.

At the Abingdon County Petty Sessions, on Monday, Mr. Harry W. Sowden, farmer, East Hendred, was summoned by Mr. William G. S. Hynde, a law student, of Abingdon, for obstructing the passage of a motor-car along the Abingdon and Steventon Road. Mr. Pryce prosecuted. It appeared that the complainant in a motor-car overtook defendant, who was driving home from Abingdon Agricultural Show on the 20th ult. He said the defendant allowed him barely room to pass, and when the two vehicles were opposite, defendant drew across the road, causing a slight collision, and the complainant, to get clear, had to run his motor-car upon the path. Mr. Sowden's version was that complainant drew level with the horse, and then, slackening speed, ran alongside to annoy him and frighten his horse. The case was dismissed.

A MOTOR-CAR COLLIDES WITH A TRAMCAR.

IN Aberdeen Police Court, on Monday, before Baillie Meff, William Bowman, engineer, was charged with having, on Saturday, 29th September, in Great Western Road, while in a state of intoxication, driven a motor-car recklessly and carelessly, so that it collided with a tramway car, damaging the car and injuring one of the horses. He pleaded not guilty. The driver of the tramcar stated that he was driving the car westwards along Great Western Road, and was just entering the Ashley Road crossing when he saw the motor-car approaching along the centre track. He blew his whistle and shouted as hard as he could, but the motor-car came right on, and, although he drew his horses to the side to prevent them from being injured, the collision could not be avoided. The car was damaged about the dashboard, and one of the horses injured. He considered that Bowman, the driver of the car, had had too much drink, and did not know what he was about. Another car driver and a conductor gave corroborative evidence. The magistrate said the charge had been clearly proved. A man who drove a motor-car must have a clear head, and it was a most dangerous thing for Bowman to act as he had done. He would have to pay 20s. fine, or go to prison for ten days.

FURIOUS DRIVING CASES.

At the Malvern Police Court last week Edward G. Sindry, Bristol, was charged with driving a motor-car in the Grange Road, Malvern, on the 26th ult., at a rate unsafe under all the conditions. Police-constable Miller said that on September 26th he was on duty in Church Street at about 7.45 p.m., when he saw defendant coming along the Grange Road in a motor-car at the rate of quite twelve miles an hour. Defendant turned into the lower part of Church Street, and the machine went very near the kerb. The speed was scarcely slackened at all in turning. There was danger from the number of people in the locality at the time going to a play at the Assembly Rooms, and at the rate defendant was driving he could not have avoided collision with anything that might have come across the road at the corner. No sound was made for warning. Defendant submitted that the type of machine he had, and its condition, made it impossible to do twelve miles an hour, and called Mr. Mayo, Malvern, as an expert, to support his statement. The clerk advised the Bench that the point for consideration was whether there were circumstances of danger to the public. The Bench thought a bad case had been proved against defendant, and imposed a fine of 40s. and 20s. costs.

At the Stockport County Sessions last week, Herbert Wm. Lee, Didsbury, who was represented by Mr. J. B. Oldham, was fined 40s. and costs for driving a motor-car at an excessive speed at Handforth. Captain Sykes said the fine would have been heavier if the road had not been a quiet one. Defendant should be given to understand that twelve miles per hour was the extreme speed he could go on a quiet road, and he must go much slower on a road where there was much traffic.

At the Sessions House, Boston, last week, Thomas Skinner, Norfolk Street, was summoned for furiously driving a motor-car on the Spilsby Road on September 16th. Mr. Gane defended. Sergt. Theaker said on the Sunday night in question, about six o'clock, he was on duty on Bargate Bridge, when he saw defendant approaching the bridge on a motor-cycle. He was then near Trinity Church, about 300 yards away. The motor-car was proceeding at a furious rate, with a cloud of dust all round it. Its speed was fully twenty miles an hour, and that rate was continued until 100 yards off the bridge, when the speed was slightly lowered. Witness asked Police-constable Davy to shout to the defendant to "go steady," and he did so. Defendant glanced round, but did not speak. He turned round on to the Horn-castle Road at twelve miles an hour. There were a number of people about at the time, and they were in considerable danger. Defendant gave no warning as he approached the bridge. Charles Ingham, Boston, who was on the pavement near the church, said defendant passed him at 20 miles an hour, and he could scarcely be seen for dust. Witness considered the pace was dangerous. Joseph Taylor, Fishtoft, gave similar evidence. He said defendant was travelling at a tremendous pace—he should think 18 to 20 miles an hour. Witness

never saw a motor go so fast before. Police Constable Davy corroborated Sergeant Theaker's evidence. In cross-examination he said defendant did not speak when he shouted to him. He had no time—he was going at such a rate that it took him all his time to look where he was going to. Defendant was sworn. He said he had had the motor seventeen months, and had never had an accident or caused one to anybody else. He was an expert driver. On the day in question he went for a run to Freiston Shore with his wife. The return journey occupied forty minutes, and he travelled up the Spilsby Road at 10 or 12 miles an hour. The roads were very dusty indeed. The wheels of his motor were very small, and threw up a lot of dust. Harry Palmer said on the Thursday previous to the Sunday in question he went out with Mr. Skinner on this machine to try and discover its defects. They went to Carrington. It would be impossible at present to get more than 12 miles an hour out of the car. Its cog wheels were very much worn, and in consequence it made a great deal of noise. Anyone seeing the machine and hearing the noise would probably think it was going at a tremendous pace; when in good working order it might be possible to get 15 miles out of the motor, not more. Mr. Gane submitted there was no evidence upon which the Court ought to convict. Defendant had his wife in front of him, and it was not likely he would drive at a furious or dangerous pace. Many people had an objection to motor-cycles, just as they had to bicycles when they first came out. The noise this machine made through being out of order, and the dust rising about it, gave the impression that it was going unduly fast, but ten to twelve miles an hour was not an undue speed. There was no evidence that that rate was exceeded—on the contrary, they heard that a cyclist rode some distance with the defendant and then shot ahead. The Chairman said it had been proved to the satisfaction of the Bench that defendant's pace was excessive, considering it was Sunday night and a number of people were about who were compelled to keep to the pavement because this motor was coming along kicking up the dust and making a hideous noise. It was not a bad case, but they must inflict a small fine as a warning. Defendant would be fined 10s. and costs.

At Hereford, Frederick Rough, cycle dealer, Commercial Road, was summoned for furiously driving a motor-car in King Street on September 11th. The case had been adjourned from a previous court. Mr. D. Allen appeared for defendant. Ernest Jones, the complainant, said on Tuesday, September 11th, he was holding a horse attached to a dog-cart, when defendant, who was driving a motor-car, came round out of Broad Street and ran into him. Witness's horse was close by Mr. Godsell's offices in King Street, near the pavement. Defendant was driving at the rate of nine or ten miles an hour. Cross-examined by Mr. Allen: There was a carriage and pair of horses coming up the opposite side of the roadway at the time. The collision was hard enough to mark the wheel of his master's trap, and moved it two or three inches. It swerved the horse to the pavement. He did not see the motor-car stop near Dr. Moore's. He did not try to pull the occupants off the motor-car. George Herbert Godsell said the motor-car was coming at a violent pace straight down King Street. Defendant tried to pull up when coming to the cart, and partially succeeded. By Mr. Shellard: There was not much damage, as the tires of each wheel were of indiarubber, and this checked the force of the collision. When it occurred defendant had reduced his pace to about five or six miles an hour. Joseph Makenson and William White offered evidence of a corroborative nature. For the defence, Mr. Allen stated that there was great confusion in the minds of the witnesses as to what took place. The Act of Parliament allowed light locomotives to go at the rate of fourteen miles an hour, but his witnesses would tell the Bench that the defendant was not going more than three miles an hour. The highest speed of this car would not allow it to go at a greater rate than eight miles an hour. By Dr. Moore's house he came to a standstill. The collision was a mere accident, and it was in consequence of the cab, but the cabman would tell them that he did not feel the car against his cab. Defendant could not get up speed until he had gone 100 to 120 yards. William Jordan, cabman, Monkmoor Street, said he went down Broad Street into King Street. At the corner of Broad Street he met defendant with a motor-car, which was not being driven furiously. He passed it before he got to defendant's trap. He did not know that his cab came in collision with the motor-car; if it did it was so slight that he did not notice it. When he turned round he saw that the car had collided with Mr. Godsell's trap. Defendant had the motor-car nearly at a standstill near Mr. Moore's house. Defendant said that on the day named he stopped near Mr. Moore's to change his gear, and from there to Mr. Godsell's he went at the rate of two miles an hour. He was told to keep to the left as there was a cab approaching. One of his back wheels caught the cab driven by Jordan, and this had the effect of throwing his car on to Mr. Godsell's trap. The Mayor said there ought to be great care in driving through the town, and especially in turning corners. Near his own house motor-cars often passed at a much faster rate than six or eight miles an hour. In the present case the Bench did not think there was furious driving, but they urged defendant to be careful when passing corners, and when driving where there was crowded traffic. The case was dismissed.

MR. FRANK H. BUTLER, of London, was the defendant in a police case at Dymchurch last week with respect to the furious driving of his motor-car, when, on the evidence of Corpl. Kemp and P.C. Sharp, he was fined £2 10s. for furious driving at that place. He was also summoned for refusing to stop when called upon to do so. Corpl. Kemp also proved this case, and defendant was fined 10s., with £1 8s. 6d. costs.

THE Motor-Car Journal.

Vol. II.]

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COMMENTS.



IN celebration of the completion of the fourth year since the passing of the Light Locomotives Act of 1896, the Automobile Club is arranging a drive from London to Southsea on Saturday, November 10th. All owners of cars intending to participate should communicate with the Club secretary before the 8th prox. Number and time cards will be issued, and the route to Godalming will be via Whitehall, Great George Street,

Birdcage Walk, Lower Grosvenor Place, Hobart Place, Eaton Square, King's Road, Putney Bridge, up Putney Hill, Kingston, Esher, Guildford, and Godalming. At the old station goods yards, on entering Godalming, cards stating the time of arrival will be issued. Luncheon will be taken at Godalming, the Angel Hotel, the Red Lion Hotel, the Railway Commercial Inn, and the King's Arms Hotel supplying cold luncheons. From Godalming the route to Southsea will be via Milford, Hindhead, Liphook, Petersfield, and Cosham. At Hindhead the time occupied by each car in making the ascent will be taken. Non-stop diplomas will be issued in connection with the event, and a dinner will be held at the Esplanade Hotel, the Hon. J. Scott Montagu, M.P., presiding. On Monday the return journey will be made by Fareham, Wickham, Bishop's Waltham, Upham, Winchester, Basingstoke, Bagshot, Egham, Staines, Hounslow, and Brentford, to Horse Guards' Avenue, to Whitehall.

H.R.H. the Duke of York and Motor-Cars.

THE other day we had the pleasure of meeting Mr. Frank Morriss, of King's Lynn, who related with much satisfaction how he had recently surprised H.R.H. the Duke of York. Mr. Morriss drove a party to a shoot near Sandringham a few days back, and upon turning into a very narrow lane with one of his Daimler cars noticed H.R.H. standing at the end of the lane. The Duke signalled to him to stop, remarking, "My good fellow, you can't turn here." On the passengers alighting Mr. Morriss reversed his gear and backed out of the lane, to the great surprise and amusement of His Royal Highness, who subsequently inspected the car with much interest, and made several practical enquiries in reference to the same.

Norfolk Critics.

NORFOLK county councillors were severely critical and harshly condemnatory of motor-cars and automobilists at their meeting on Saturday. Two lords and half-a-dozen untitled persons declaimed against the new method of getting about the country, and not a tongue was raised in its defence. Mr. W. D. Everington urged that the county council should move the chief constable to action in the matter—a condition that, one member suggested, might be obtained by a reduction of salary. Failing that, an attempt to influence local M.P.'s to induce the

Government to reduce the speed of the "wretched conveyances" was proposed. Then Lord Kimberley dwelt upon the matter in a way that showed he requires half an hour's conversation with Lords Brassey and Llangattock.

"Somebody" to Catch Motorists.

"It was absolutely necessary," said his lordship, "that those who were at the head of the police should make the constables understand that it was their absolute duty to take every possible measure to put an end to a nuisance that was positively intolerable." Lord Kimberley added that somebody ought to be appointed to watch and catch motor-car drivers, although whether that "somebody" should be mounted on a racing Panhard car or travel on foot, his lordship failed to remark. The end of the matter was that nothing was done—not even a long resolution was adopted.

A High Sheriff's Confession.

FAR more important than the proceedings of the Norfolk Council was a discussion that has taken place at the Somerset County Council. The General Purposes Committee had considered a circular received from the County Councils Association inviting the opinion of the Council upon certain alterations proposed by the East Suffolk County Council in the Light Locomotives on Highways Order of 1896. Among the alterations suggested was that the maximum speed of locomotives on highways be restricted to ten miles an hour. In the discussion Mr. Neville Grenville observed that, in his position as High Sheriff, he had travelled over the greater part of the county on his motor-cycle, and had covered 248 miles in 14 hours 10 minutes. If he had had to trust himself to the tender mercies of the two railway companies he would have taken 40 hours 39 minutes. Thus he had saved 26 hours 29 minutes. He knew ten of his friends had gone in for such machines. In fact, motor-cycles were like a snowball—when once set rolling they would all have one, and not trouble the railway companies. Mr. J. F. Hall suggested that bye-laws should be made providing that motor-cycles should not travel at a greater speed than the express trains on the Cheddar Valley line. The Chairman remarked that the discussion had brought out the ingenious confession from the High Sheriff that he had been for the past three weeks violating the law, to which Mr. Neville Grenville replied that shows that "the law is a hass." The council resolved that the proposed alterations be printed and circulated among the members.

"Truth" and the Speed of Motor-Cars.

PEOPLE's notion of pace is generally very vague, remarks our contemporary *Truth*, in commenting on the speed of motor-cars. Parliament has limited motors to fourteen miles an hour, and the intelligence of divers county and borough councils has reduced this extreme limit to ten and twelve miles an hour. For the simple-minded horse or footman there is no limit. This scare about pace is utterly ridiculous. A car or a bicycle is much more

easily stopped than a horse and trap. Now some of these wise-ones who consider ten miles an extreme pace may be surprised to hear that Hurst, the professional runner, on a windy day and on a soft track, ran twenty miles in under one hour and fifty-six minutes. All through the race he never ran at less than ten miles an hour, though if anybody not knowing anything of pace had seen him moving, they would not have said that he was going fast. And yet he was exceeding the limit allowed by many a County Council bye-law to the motor-car.

The Joel Electrical Voiturette.

THE projected run from London to Brighton of a Joel electrical voiturette, by the National Motor-Car Syndicate, duly took place on Thursday last week. Although the speed at the end of the journey was not quite up to expectations the trip was made on one charge of the battery. The accumulators were recharged on Friday, and the return trip to London made on Saturday. Some slight modifications have since been made in the car, and a further run was to be made over the same route on Thursday last, when the distance was expected to be covered, not only on one charge, but at an average speed of ten miles an hour, the car being only geared up to a maximum of fourteen miles.

The Alcohol Motor Competition in France.

Le Critérium de l'Alcool, which is set down for decision on Sunday, the 28th instant, is receiving considerable attention, and the organisers have been favoured with quite a number of donations towards their list of prizes. First of all there is Prince Pierre d'Arenberg, who places £40 at the disposition of the Moto Club, and then no fewer than four agricultural societies present gold medals to swell the list of awards. Two other societies express their desire to present silver gilt medals, so it rather looks as though the few competitors—for there cannot be many entries—are likely to be inundated with awards. We notice that MM. Gobron and Brillié will be represented by a couple of vehicles, and MM. Daniel Augé et Cie. are also competing. It should prove a very interesting competition.

Motorists' Adventures.

IN another column, the Hon. Leopold Canning has an interesting article in which he records his impressions of his first long ride on an English road. He also gives his views of the police in no uncertain way, and is clearly of opinion that they should be put to some more sensible employment than catching motorists. Mr. Canning has done a good deal of motoring both in France and Ireland, and in the former country is evidently prepared for every emergency. He is a J.P., and a member of the leading automobile organisations in this country, and also of the Automobile Club of Nice, so combines a knowledge of motoring with magisterial practice which should secure a fair hearing for any automobilists who have ever had the pleasure of appearing before him, whether as defendants or complainants.

New Cars from Coventry.

QUITE a number of new types of motor-cars are just now in course of construction in Coventry. The Daimler Motor Company have, we hear, a new voiturette on the stocks, while the Motor Manufacturing Company are at work on two different types of voiturettes, and hope shortly to have a 12 h.p. car on the market. This high-powered car will have a countershaft running on roller bearings, while ball bearings will be fitted to all the road wheels.

Tests of Motor-Cars.

ONE of the features of the recent Automobile Exhibition and Tournament in Chicago was the utility tests of motor-vehicles made with a machine of the general design illustrated in the *Motor-Car Journal* of June 9th last. In this device the driving-wheels of a motor-car rested on two sup-

porting pulleys. The machine was secured by wire ropes to a series of links which transmitted the pull or tractive effort to a scale platform; friction in addition to the friction of the supporting shaft could be applied by a brake attached to the pulley in front of the machine. The apparatus was also arranged to be run by an electric motor, which allowed the friction losses to be obtained running the carriage from the motor. Tests were made on a Milwaukee steam automobile, a Hewitt-Lindstrom electric delivery wagon, and a Rambler petrol carriage; but, states the *Horseless Age*, the apparatus was so heavily and crudely constructed that it would seem doubtful if results obtained therefrom would be exact or comparable.

In Switzerland.

AUTOMOBILISTS have their grievances in Switzerland, as indeed they have in every country, and if oppressive measures are to be successfully combated, united and vigorous action must be taken against them. This time it is in the canton of Grisons that the trouble has arisen, and the State Council has actually passed a law forbidding the circulation of motor-vehicles within that province. This is just a little too severe, and Swiss automobilists are up in arms against the Council, and intend to resist with all possible energy the enforcement of the ridiculous measure. If the roads are not made and maintained for the express purpose of facilitating the circulation of all types of vehicles, for what do they exist? The ground they occupy would be more profitably and ornamentally utilised for fields if the routes are to be barred for traffic, and as the Swiss Automobile Club expresses it, "this prohibition is worthy of a council of Sioux chiefs, and not of a State Council of a Swiss canton." It is to be sincerely hoped that the efforts of the A.C.S. will be successful, and that the law will be shortly repealed.

Lights on Vehicles.

AT the last meeting of the Midlothian County Council a petition was laid on the table from the Scottish Automobile Club relative to the council's by-law regulating the lighting of vehicles, and praying that measures be taken to have this present inadequate law amended so that all vehicles should be compelled to exhibit lights in the direction of which they are proceeding or when standing. The chairman explained that their by-law enacted that all vehicles going faster than a walking pace should carry lights. Mr. J. M'Hutcheon Dobbie, Dalkeith, said he was not aware of a single accident having accrued from this by-law. The chairman observed there was one man killed last year. Mr. Dobbie further said that if they adopted universal lighting of vehicles they must adopt the lighting of pedestrians as well. The Automobile Club were the last people in the world who should send in a petition of this kind. The Council ultimately resolved to reply that they did not see their way to change the by-law.

Motor-Cars for Haulage.

THE Val de Travers Asphalte Company seem to be satisfied with their experiment in heavy haulage by automobiles, and their steam vehicle was seen along Holborn the other day—an object of much curiosity among those who have only seen the lighter cars usually found in that automobilists' centre. In this connection we may mention that the subject of motor haulage is exercising the minds of many local authorities, and the subject has been discussed by the Ashby-de-la-Zouch District Council in a way that should encourage makers to look for development in that district. On the report of the Joint Water Committee Mr. Adcock raised the question for the use of motor-cars for cartage, and mentioned that Mr. Shields had a motor-car running from Breedon Works that had proved very handy and useful. Ultimately it was decided that inquiries into the question of steam haulage should be made, and we hope they will lead to an experiment.

Unequal Justice.

At the Altrincham Petty Sessions a man for furiously driving a cart at the rate of fourteen miles an hour in a crowded street was fined 10s. and costs; at the same court on the same day the driver of a motor-tricycle was fined 40s. and costs for alleged furious driving, although it was admitted that there was nobody about at the time, and yet the latter was said to be driving to the danger of the public. The inconsistencies of our police courts are alarming at times, and surely the driver of a horse in a crowded thoroughfare is far more guilty of offence than the man who drives a motor-vehicle on a country road to the danger of no one. Verily the ways of our police courts are such "that no fellow can understand."

Automobile Excursions.

ONE of the most noticeable signs of the times is the fact that in all the towns along the South Coast motors are now competing with coaches, "cherry-banks," and steamers for the privilege of carrying the visitors round the country sight-seeing. At the present moment the cars are just ordinary ones carrying about five or six passengers. Even at this, however, they show a marked superiority in speed and distance over the best of the horsed vehicles, besides, remarks *To-Day*, being much cheaper to maintain. This testimony from a newspaper that has, in its time, criticised the automobile is reassuring.

Irish Roads.

MR. T. L. STACK, of Tyrone, draws the attention of his neighbours to the bad state of the roads in their locality compared with those of England and many parts of the Continent. He attributes the superiority to the fact that steam rolling has been adopted in all progressive countries. In Ireland it is occasionally met with in Dublin, Kildare, Down, and Antrim, and is under discussion in Fermanagh, but Tyrone, says Mr. Stack, is still "in the Cimmerian darkness of barbarism," so far as steam rolling on the road is concerned. He concludes: "For motor-cars the change is almost essential to their efficient and economical working. We have already one petrol motor in Omagh and others are expected immediately. On good roads motors would soon to a great extent supersede horse traction; outlying villages, such as Drumquin and Gortin, could by steam or perhaps liquid air motors have an efficient transport for goods and passengers with the outer world. Good roads and good vehicular transport, including cycles and motors, would soon develop tourist traffic even in our remoter country districts, which most require assistance by a larger circulation of money to develop trade and employment."

The Watering of Tramways.

THE National Cyclists' Union has taken counsel's opinion as to the legality of tramway companies watering their lines, and they are advised that the excessive watering of tram lines is a nuisance for which tramway authorities have no justification under their Act of Parliament. The National Cyclists' Union are obtaining expert and other evidence upon which they hope very shortly to commence a prosecution. This is a matter of considerable importance to automobilists as well as to cyclists, and the nuisance seems a growing one. Many mishaps have occurred from this cause and it is to be hoped that the proposed action will lead to a mitigation of the evil.

The Use of Gravity.

THE only road users who make an intelligent use of gravity are automobilists and cyclists. A horse and carriage descending a hill are nothing more than a ridiculous spectacle to a person of mechanical perceptions—the steeper the hill the more absurd they appear. Can we wonder, says the *Northern Daily Telegraph*, that prejudice against the motor-car is strong the world over when we see that millions of our fellow

men are quite satisfied to crawl down hill in such a stumbling dangerous fashion? Hills abound, the horse cannot be fitted with a free-wheel clutch, and no one has shown a workable way of putting him on wheels down hill; so it is evident that he is not fit for use on an average high road. Those people who think a motor-car heavy and clumsy should remember that its horse is always on board, and that after propelling the car on the level and up hill it helps it to run down.

Motoring in the North of Scotland.

MR. ROGER WALLACE, Q.C., the Chairman of the Automobile Club, travelled lately from Birmingham to the very north of Scotland on the fast Panhard car of his friend Mr. Bird, of Birmingham, making a swift and delightful journey. In passing through Perthshire they visited the Right Hon. Sir J. H. A. Macdonald, K.C.B. (the Lord Justice-Clerk of Scotland), President of the Scottish Automobile Club, in his summer quarters at Coll-Earn, Auchterarder. The photograph here reproduced was taken in front of Coll-Earn by Mrs. Norman D.

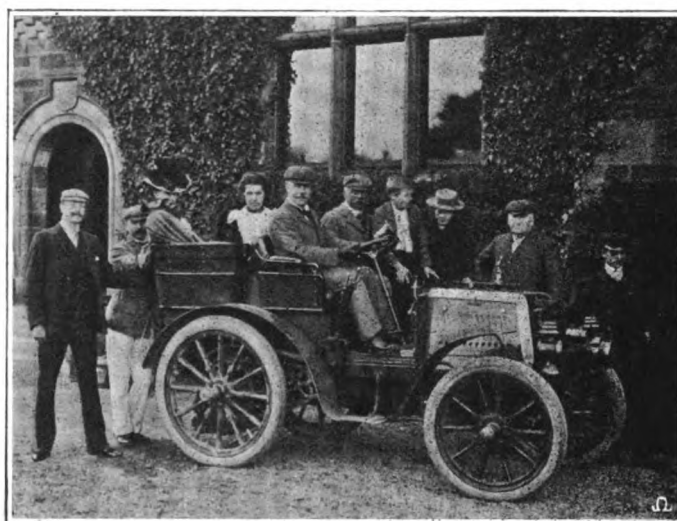


Photo by]

[Mrs. Norman D. Macdonald.

Macdonald, and shows Mr. Bird in charge with his travelling companion beside him. Those who participated in the 1,000-mile Trial will readily recognise the learned judge between his two grandchildren and Mr. Bird's servant. To the extreme left, holding on to the car behind, is Mr. Norman D. Macdonald, chairman of the Scottish Automobile Club, who, as a member of the Scottish Bar, follows the same vocation as Mr. Wallace, and who seems to think he can restrain a 16 h.p. Panhard from running off with his children with one finger. During the visit Mr. Bird enjoyed good sport by flying the large house party in batches up and down the steep hills of the neighbourhood, greatly to their education in motor matters and the astonishment of the natives.

Automobile Club for Nottingham.

THE suggestion having been made by several Nottingham automobilists that the time was sufficiently ripe to justify the formation of a local club for the purpose of developing and protecting the interests of the automobile movement, a preliminary meeting with this object in view has been held at the George Hotel, Nottingham. There were present Messrs. E. W. Wells, G. Cowen, G. H. Kirk, M. Ross Browne, A. King, W. D. Wells, G. Rimington, H. Belcher, H. Rimington, A. H. Niblett, and A. R. Atkey, the last named having convened the meeting. Mr. E. W. Wells was voted to the chair. It was unanimously decided to form an organisation with the name of the Nottingham and District Automobile Club. The meeting also agreed to ask Mr. R. M. Knowles, J.P., to become the first president, whilst

Messrs. G. H. Kirk, E. W. Wells, and G. Cowen were elected vice-presidents. Mr. A. R. Atkey was appointed hon. secretary and treasurer, and a sub-committee was elected to draft rules and to fix upon headquarters.

"Science Siftings" and Motor-Cars.

"CAN'T the rattling of motor-cars be avoided?" is the serious question which *Science Siftings* has set itself to answer. In commenting on its self-imposed question our contemporary remarks that "the buzz and din of the motor-car threatens to become one of the stock worries of life—a state of things which, owing to the easily avoidable character of the nuisance, is much to be deprecated. The practical difficulty of the moment is that we have got into the way of designing and building small machinery after the same fashion as has been arrived at and perfected by the makers of great engines. The circumstances of the two cases are really so distinct that there is no excuse for slavish imitation in the methods of our 'light' engineers." The latter will therefore be interested in learning what the automobile expert of *Science Siftings* considers they should do, and thus he enlightens them:—"Springs, balancing parts and indiarubber buffers ought to be liberally introduced in motor-car mechanism—the high speed reciprocating engine being replaced by an improved slow-speed steady-going affair. Hardly anything, except the cylinder and piston, need be made quite rigid or unyielding. Alternatively—of course the undertaking bristles with alternative ways and means—some new process of consuming benzine might be worked out, adapted to generate a rush of gas and whirl a tiny turbine motor pretty noiselessly." With so many brilliant ideas on motor-car construction the writer of the foregoing should set about designing a car himself. What a contraption it would be!

Voters and Motors.

Now that the elections are over the subject of automobilism and politics is fading in interest; but enough has already been recorded to have justified the prominence which has been given to the matter. On the day of his election for Caithness, Mr. L. Harmsworth drove 160 miles on his car and made several speeches therefrom—a feat that would otherwise have been impossible. At Walthamstow motor-cars were employed to carry Mr. D. J. Morgan to the top of the poll, and on the election day in South Glamorganshire Mr. S. T. Evans, M.P., drove into Bridgend on a motor-car—that being the only incident of interest in that district on the day. In South Bucks, too, Mr. W. H. Grenfell had many motor-cars at his service. During the hearing of a case against Mr. Knights at Chelmsford, it was reported that his absence from court was owing to the fact that he was engaged "carrying voters on motors"—a phrase for which we thank Police Inspector Peters, who thus gives us a title for this paragraph.

The Last Records.

AND now we come to the end of our chronicle of motor-vehicles used for electioneering purposes. In the Farnham and Guildford districts of Surrey motor-cars were plentifully employed on the day of the poll. Dr. Sharpe, of Matlock, lent his Marshall car to his son-in-law, Mr. Briggs, who was the successful candidate in the Keighley division, and who used the vehicle during the whole of his campaign. A week before his election Mr. H. W. Forster, who stood for re-election at Sevenoaks, received a new De Dion voiturette (similar to that supplied by the De Dion-Bouton British and Colonial Syndicate, Limited, to Mr. A. J. Balfour) and used it with immense success in canvassing his constituency. Whereas before he had a coach and two or three teams of horses, he was able during the recent election to cover nearly twice the distance, and with—judging by his majority—considerably more success. On the polling day at Henley Mr. H. H. Fuller covered over a hundred miles on a De Dion voiturette in canvassing that district.

Mr. Frank Morriss supplied a Parisian Daimler car and a Daimler wagonette for use in the North-West Norfolk and Gainsborough constituencies respectively. After the declaration of the poll in the Gainsborough division of Lincolnshire the new M.P., the Hon. S. Ormsby-Gore, mounted his motor-car and addressed the electorate. On Monday a farmer at East Dean, in the Eastbourne division, conveyed his employees in wagons to the polling station. The vehicles were all coupled together and drawn by a traction engine. And with that concludes our list of novelties in the means of locomotion employed in the last general election of the Nineteenth Century.

At Nice.

THE Automobile Club of Nice is more than fortunate in the matter of prizes, for one after another of its members come forward and offer trophies for competition. It is but quite recently that the Count Brunetta d'Usseaux presented a handsome challenge cup to the Club, and now the name of Colonel de Linsky has to be added to the list of generous donors. The Colonel's gift will be put up for a competition by four-wheeled vehicles, weighing less than 300 kilogrammes, and carrying two persons, one of whom must be a member of a recognised automobile club. The race will be contested over a mountainous route of between thirty and fifty kilometres in length, but the exact itinerary has not yet been selected. Evidently there will be no lack of sport in the South of France this winter, for the events already decided upon are numerous, and are of such a character as will assuredly attract racing automobilists. Mention of racing men reminds us that among the recently elected members of the A.C.N. the names of MM. Lorrain Barrow and Gaétan de Méaulne figure, decided acquisitions to the Club's racing contingent. Several automobilists who annually winter in Nice have already arrived, and the number of motor-vehicles to be seen on the Promenade des Anglais is daily increasing. Assuredly the Riviera in general, and Nice in particular, will witness a great automobile season this winter.

A Lady Motorist.

MRS. ALLEN, who contributed so much to the pleasure of the automobilists returning from Lord Llangattock's place last week, is the only lady driver of a motor-car in the Oxfordshire district. The illustration on the opposite page depicts her on the return from a shopping and calling expedition in the university city. In the doorway stands Mr. Allen, who is well known as chairman of the Traction Engine Users' Association—a very powerful organisation of national extent.

Judges' Reports.

WE understand that the Judges' Reports on the trials organised by the Liverpool Self-Propelled Traffic Association are almost out of print. The few remaining copies can be had at 10s. each, and remittances should be sent without delay to Mr. E. Shrapnell Smith, the hon. sec. of the Association. The reports contain much useful data, and should be in the possession of all automobilists who are making up a library of automobile literature.

A NEW company has just been formed at Warren, Ohio, U.S.A. to be known as the Ohio Automobile Company, with a capital of £20,000, to manufacture the Packard petrol car recently illustrated in these columns.

THE Locomobile Company of America, are busy arranging a list of places where their steam-cars can be cared for and repaired in the United States. Already such arrangements have been made in twenty-four different towns.

THE recently formed Associated American Moto-cyclists will shortly hold a club run from Boston to some near-by city. The association does not intend to foster racing, but to protect the rights of motor-cyclists upon the public highway, promote events in the common interest, and cultivate a fraternal spirit among users of this class of motor-vehicle.

MOTOR-VEHICLES AND MOTORS.*

THE probable success of automobiles required that they should have engines of popular fancy in the press; their achievement of success has demanded a permanent tome. They have been the subject of many papers, several pamphlets, and a few books; but all that has been written in the English language falls to a rear position when Mr. Worby Beaumont's ample history is seen. It is a credit to the author, a splendid tribute to the industry, and should be a great factor in the future development of automobilism. Mr. Beaumont is known as something more than a writer on the subject; he is an authority who can speak without notice out of the fulness of his knowledge. When such a man seriously contemplates writing a history, facts, many and authoritative, may be expected. And in such we have not been disappointed.

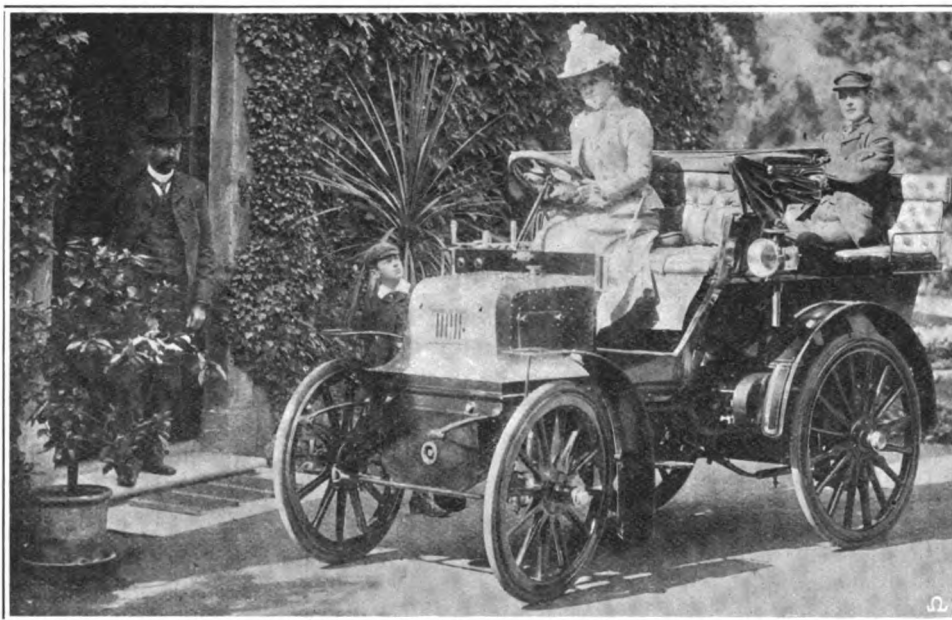
Mr. Worby Beaumont's volume extends into more than 600 quarto pages, and is illustrated with nearly 500 drawings, most of which have been specially prepared in the author's office, and now appear for the first time. Practically every one of the line engravings will bear inspection with a magnifying glass, and even in the most extreme case of much detail being crowded into a small space the most minute connections will be seen. Thus the book is one that will be extremely valuable, if not indispensable, to engineers and makers of motor-vehicles, while all who take a real interest in the working of automobiles will find its information and explanations complete and exhaustive in every detail.

Commencing with a historical sketch of the motor-carriage, and a capital account of the design, construction, and working of early steam road vehicles, Mr. Beaumont quickly gets into the intermediate period, from 1850 to 1894. The early history is more generally known than that of the years following the prejudicial action of the Legislature, and while making his references to Hancock, Gurney, Dance, and the others comprehensive, he has not lingered on the successes they attained. The chapters on power and frictional losses, road resistances, the resistance due to gravity and power required, and the air and wind resistance, afford evidence of painstaking care, and the data given will save inventors many disappointments and failures. Mr. Beaumont's views on roads are well known, and in the present volume he again draws attention to the question as to whether it is wholly wise to take the roads as they are, and provide power accordingly. This is, of course, necessary under present conditions, but in the opening of the third chapter a different circumstance is hinted at. "So long," the author says, "as our roads are made as they are at present, and as inefficiently maintained, and so long as so many hill-tops are looked upon as the natural and necessary routes over which our roads must be made and every load hauled, so long shall we have to expend many hundreds of thousands of pounds, or even millions,

per year in unnecessary power in horses, and in engines, and in fuel." The point is important, but was so fully dealt with by Mr. Beaumont in his presidential address to the Society of Engineers in 1898 that he has but little more than hinted at the matter in the new work.

Coming to the modern period of automobiles we have valuable chapters on high-speed long-distance petrol motor-vehicles, light petrol motor-cars, petrol motor-cycles, heavy oil motors, electric and steam vehicles. These extend over many pages, and nearly every type of vehicle of every nationality is technically described in a way that will be useful to engineers and owners alike. Carburettors, cylinder cooling and water coolers, motor-vehicle components, electric ignition and electric apparatus, brakes, tires, and steering axles find full treatment in these pages, which are concluded with an excellent article on the uses and cost of working motor-vehicles, and a review of the results of the 1,000-Miles Trial, without which no such volume would be complete.

We propose, on a later occasion, to return to our study of Mr. Beaumont's work, which is well calculated to become a standard volume. Meanwhile praise can be extended to the publishers for the excellent style in which it has been produced, the marginal lettering in red ink being a capital idea. The chapters originally intended to be written by Mr. Dugald Clerk on the physics and economics of internal combustion motors will appear shortly as a separate volume, which will also include a descriptive index to patents relating to motor-vehicles.



MRS. ALLEN—OXFORD'S ONLY LADY AUTOMOBILIST. (See opposite page.)

WE learn that Messrs. Roots and Venables, of Westminster Bridge Road, London, S.E., are at work on a 12-h.p. heavy oil car, in addition to the 3 h.p. and 6 h.p. vehicles at present being turned out.

They also hope to shortly place a new motor-tricycle on the market.

THE presentation of prizes in connection with the Newcastle Coachbuilders' Technical Class took place at the College of Science the other evening. Mr. John Philipson gave a graphic and illustrated lecture on the carriages at the Paris Exhibition.

MR. CARL OPPERMAN, of Wynyatt Street, Clerkenwell, has just put on the market a new sparking coil for use in connection with the electrical ignition of the explosive charge in petrol motors. The features of the new coil, which has been named the "Flambeau," are claimed to be its strength of spark and reliability of ignition; it is said to take less battery power, and is dust and grease proof.

THE International Motor-Car Company, of Great Portland Street, London, W., are busily engaged on the completion of two new types of light motor-cars. Both will have accommodation for three passengers; one will be fitted with a 4-h.p. engine, and will, we understand, be capable of maintaining an average speed on good roads of twenty miles per hour. The second car is intended for an average speed of twenty-seven miles per hour, being fitted with a 6-h.p. motor.

* "Motor-Vehicles and Motors, their Design, Construction, and Working by Steam, Oil, and Electricity. By W. Worby Beaumont, M.I.C.E., M.I.M.E., and M.I.E.E. London: Archibald Constable and Co., Limited. Philadelphia: J. B. Lippincott Co. 1900. 42s. nett.

CORRESPONDENCE.

THE SUGGESTED IRISH MOTOR-CAR TOUR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have only just seen the letter in one of your recent issues on this subject. I sincerely hope the idea will take definite shape. Motoring has made a very good start in Ireland, and such a tour would do an immensity towards developing the pastime. Your correspondent suggests a visit to the manufacturing towns in the north of Ireland. I think this would be a mistake, if motorists desire to bring back a good impression of the country. The roads in the south and west are far better for motoring than in the north, while as regards scenery there is no comparison.

My suggestion would be to run due west and do the circuit of Connemara. Then to proceed round Clare, through Limerick and along the Shannon, to Killarney. The grand coast trip could then be made over a road with perfect surface, through Waterville to Kenmare—thence to Glengariffe, and so through the Pass of Keimaneigh to Cork. From Cork the tourist might proceed to Mallow and follow the Blackwater to Cappoquin, returning to Dublin *via* Waterford and New Ross.

This tour would throughout include the most magnificent scenery, and for the most part really excellent roads. I know these roads intimately, and the greater part of them are up to the English standard.

Such a trip would be a complete novelty to English motorists, bringing them in contact with people who would prove a never-ceasing source of interest to them, and introducing them to scenery absolutely different from anything to be found elsewhere in the United Kingdom.

Dublin, Oct. 10th, 1900.

Yours truly,
R. J. MCCRERY.

THE LAW OF SCOTLAND AND THE LAW OF ENGLAND.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—That the criminal law and procedure of Scotland is superior to that of England has long been recognised by leading English lawyers. But that the law of England, crude though it may be in some of its methods, can permit such extraordinary interference with the liberty and rights of the subject as is shown by the *S. F. Edge*, *A. W. Heard*, and *A. Ford* cases, comes as a revelation to a Scottish advocate. Any magistrate who held that a private carriage *could* "cause an obstruction" would, in Scotland, be very quickly and firmly set right on appeal to the High Court of Justiciary in Edinburgh, with expenses to the wronged party.

Of course, a motor-car or any vehicle plying for hire can cause an obstruction if it does not obey the proper regulations as to stances, etc.; but a private vehicle can only "cause an obstruction" if it infringes any temporary and special regulations made by the Sheriff, or by a Lord Provost (or Provost) and magistrates of a city or burgh, on the occasion of some large gathering or royal procession, etc. But such orders or regulations must be made public and can only apply for a time and to a specified district—they can never over-rule the law of Scotland, which gives full liberty to private vehicles. Of course I can cause a police offence even with a private carriage if I "cause a crowd to collect" by some eccentric conduct, but I cannot be held responsible if a gaping crowd of fools blocks the road to gaze at the common car of the streets; the police should protect me from them, not prosecute me for exercising my daily rights.

As to the case of Mr. Heard at Swansea, any such thing would be impossible in Scotland. Here a man must have due notice of the charge against him and of the date of the trial, and the judge of the High Court of Justiciary, who sits every day in Edinburgh, would at once suspend the conviction in a case like the Heard one till a bench of three or more judges could sit in the High Court on appeals and quash the whole proceedings with expenses. Not only must he have full notice of charge and date, but when the trial comes on he can have the case adjourned so long as is needed for him to get evidence for his defence.

But any such absurd and oppressive methods as are shown in the above cases could hardly ever occur with us, as we have no such objectionable procedure as private or police prosecutions.

Every prosecution in Scotland is by the Crown in the name of "Her Majesty's Advocate" (the Right Hon. the Lord Advocate of Scotland), and by him, or the Solicitor-General, or an Advocate Depute, or a Procurator-Fiscal, all of them trained lawyers under the Crown Office, and doing no other work, and on Government salaries. Under these circumstances there is little chance of foolish, illegal, or vindictive cases being brought into court all. I mention these things not as a lecture on criminal law but to show that many things want seeing to in England, and a clue to where those who agitate for amendment can find a model in this sister Kingdom of Scotland. But surely in that puzzling crowd of Recorders, County Courts, Assizes, Quarter Sessions, Appeal Courts, Queen's Benches, Chancery Courts, Divisional Courts, Courts of Crown Cases Reserved, Divorce Courts, Admiralty Courts, etc., which cause us plain Scotsmen so much amazement, there is some Court which can correct (if it be legal to do so) the eccentric decisions of these "police magistrates and justices."

Yours truly,

NORMAN D. MACDONALD,

Chairman of the Scottish Automobile Club.

Edinburgh, Oct. 15, 1900.

THE WERNER MOTOCYCLETTE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was much interested in reading in the *Motor-Car Journal* last week, what Mr. Pennell writes about his tour on a Werner motor-bicycle, because I, too, have ridden one for the last thirteen months, and am quite of his opinion concerning the future of these machines. I have had two of them, having bought the second, a 1900 model, in June last. I had no fault to find with my first, but the extra power of this year's model I heartily appreciate when I come to stiff hills, and it is marvellous how the machine climbs them. I have already ridden my new bicycle about two thousand miles, and that without one single breakdown, having recently crossed Devon and back in one day, up and down the hills for which that county is noted; a ride of 104 miles in six hours, and then not always using the full power available, and riding cautiously. I think that answers pretty clearly the questions of those who wonder whether these machines are practical or not. As regards Mr. Pennell's advice, "you must understand these motors," I concur most heartily, with, perhaps, for choice the "understand" well underlined. Once before I wrote to the *Motor-Car Journal* relating my first experiences, and I fancy I used much the same words. As for burns and blisters, I can safely say that I have had but one little burn up to now; I fancy I must be more wary about touching my motor whilst hot than Mr. Pennell appears to be. Finally, I would strongly, very emphatically, caution riders to on no account go out on greasy roads with smooth tires. The consequences are certain. By all means have non-slipping bands, and even then it is distinctly better not to ride in the mud after all. I have done it and dislike it excessively, with a smooth tire. To use a motor anyone can learn—providing he wishes to do so—all that it is requisite to know, after an hour's riding and explanation, if he can get hold of the right man, one who *does* understand. The French seem to have grasped these facts years ago, and I cannot resist saying here how astonished I am to find such inertia and apparent difficulty of comprehension, such prejudice and futile difficulty-seeking as I have met with whilst discussing the automobile movement with many of my compatriots of all classes.

Yours truly,

A. L. BENETT.

94, Jermyn Street, S.W., October 15, 1900.

THE LUFBERY CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I beg to point out that the gear shown on M. Lufbery's car in the last issue of your valuable paper is essentially the same as far as the gear wheels are concerned, as the "Crypto" arrangement. This old and well-tried device dates back to the early days

of the cycle industry, and was patented by Messrs. U. T. Shaw and W. Sydenham on July 7th, 1882, Patent No. 3,230. (See Mr. R. E. Phillips' *Abridgments of Velocipede Specifications*, Vol. I., 1886.) Another gear which also very closely resembles the above French invention is Kirby's patent, No. 5,082, December 6th, 1880 (see Mr. Phillips as above), the combination here being employed as a differential-movement.

Permit me also to point out that the inclined plane for guiding the loose belt from one speed to the other of the cone pulleys is another very old device, and was patented as far back as September 25th, 1877, by Messrs. J. A. Fay, the well-known American manufacturers of wood-working machinery. (See the *Scientific American* for November 10th, 1877, Vol. XXXVII., page 370.) All credit should be given to the French for their smartness and enterprise, but it is not fair to appropriate English inventions without acknowledgment.

Yours truly,
"PRECURSOR."

Cranbrook, October 17th, 1900.

P.S.—The common device adopted by M. Lufbery, as well as many other Continental builders, of obtaining variable speed by an epicyclic train, one member of which is held by a friction band, or its equivalent, is as old as the hills. Besides being a device employed in the early days of the cycle trade, it was introduced by Mr. David Scott, in 1847; for the same end. (See *The Engineer and Machinist's Assistant*, published by Blackie and Son, 1847; also see Mr. Phillips' volume above quoted under the heading of "Two-speed Gears.")

RACING TRACKS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Of course Mr. C. Jarrott has gone for me; but he has not yet gone for the forty miles an hour, and when I hear that an 8-h.p. motor is to be employed instead of one of 6 h.p., I fancy he "recognises" the difficulty of his task—in which I wish him ultimate success. I largely agree with what he says, and accept his explanation as eminently satisfactory. And if I am satisfied he would—did he know my identity—be gratified.

Yours faithfully,

London, E.C., October 16th, 1900.

A B. C.

MESSRS. F. H. PARKYN, Ltd., Olympic Works, Wolverhampton, are the latest recruits to the list of motor manufacturers, they having purchased the stock, plant, and goodwill of the New Courier Company, whose "motoret" they are putting on the market much improved in detail. Of this we hope to be able to give more particulars at an early date.

MR. HANS RENOLD, of Manchester, has just got out a list giving dimensions and prices of the roller chains he is now manufacturing for motor-cycles and cars. The chains are in various widths, and in pitches ranging from $\frac{1}{2}$ in. up to $1\frac{1}{2}$ in. Included in the list is a chain of 1.18 in. pitch specially intended to fit the chain wheels on Benz cars.

THE 1901 models are beginning to make their appearance in France. Early in the field are Messrs. Rochet and Schneider, of Lyons, who announce that they have a new type of car on hand, which will be fitted with a 4-cylinder engine of 12 h.p. The change-speed gear, controlled by a single lever, will be adapted to give four speeds forward and a reverse motion.

AT the Surrey Quarter Sessions at Kingston on Tuesday, Captain Sant, Chief Constable, reported that, notwithstanding warning notices, he continued to receive complaints regarding the furious and reckless driving of motor-cars in the county. Although the police did all in their power to abate the nuisance, they would be unable effectually to deal with it until some system of identification, such as a number, was attached to every car.

THE paper recently read before the Institution of Mechanical Engineers by Professor H. S. Hele-Shaw, of Liverpool, on Road Locomotion and the Recent 1,000-mile Road Trial, together with the discussion thereon, has been reprinted in pamphlet form. The work forms a valuable addition to automobile literature, as the subject is treated in an elaborate way, while the useful diagrams with which it is accompanied add much to its usefulness.

THE LION CONVERTIBLE MOTOR-BICYCLE AND TANDEM TRICYCLE.

WE are able to illustrate this week an ingenious convertible motor machine, which is being put on the market by the Lion Cycle Company, of London Road South, Lowestoft. The first illustration shows the machine in the form of a motor-bicycle. It will be seen that the frame is of special construction, the lower cross tube being curved to admit

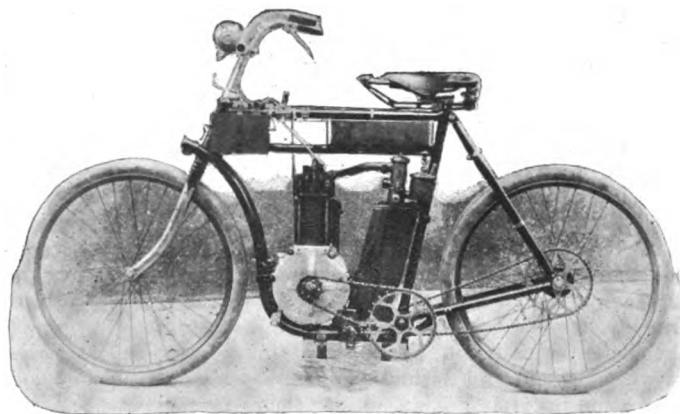


FIG. 1. —THE LION MOTOR BICYCLE.

of the motor—a 2 $\frac{1}{4}$ h.p. air-cooled engine of the De Dion type—being fixed within the main frame. The ignition is electrical, while a float-feed carburettor is fitted. From Fig. 1 it will be noticed that the motor is geared to the rear axle by means of two chain drives, the reduction being in the ratio of 7 to 1. No pedal gear is fitted, the low build of the machine enabling the motor to be readily started. Complete the bicycle weighs 140 lbs., and it can, we are informed, attain a speed of forty miles per hour. The novel feature of the machine is the readiness with which it can be converted into a tandem tricycle, capable of accommodating two persons. The change from one type to the other occupies about five minutes, it being only necessary to remove the front wheel of the bicycle and affix the

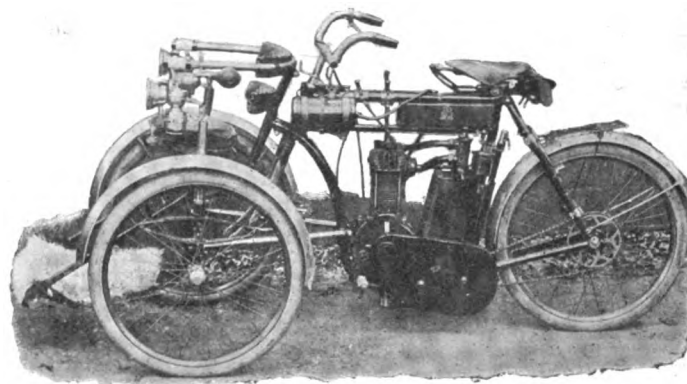


FIG. 2.—THE LION MOTOR BICYCLE CONVERTED TO TANDEM TRICYCLE.

fore-carriage, which is held in position by six bolts. In the tricycle form the machine is steered from the handle-bar by the rear rider, the same as a motor-quad. The tandem tricycle appears to be a comfortable-looking machine; the makers inform us that it is a good hill-climber, and can attain a speed of thirty miles per hour. The weight of the two seater is 182 lbs., and we may add that the petrol tank has a capacity sufficient for 100 miles. The Lion Company are to be congratulated on having produced what appears to be a practical little vehicle on novel lines. We have not yet had an opportunity of testing its capabilities, but we mean to do so the first time we are in the Lowestoft district.

THE HEAVY MOTOR-VEHICLE COMPETITION IN FRANCE.



(FROM OUR OWN CORRESPONDENT.)

IT was on Monday, the 8th inst., that there commenced at Vincennes, under the direction of M. Forestier, the competition annually organised by the Automobile Club of France, and universally known as "Les Poids Lourds." In common with all the other technical competitions which have this year been held in connection with the Exhibition, these big vehicle trials have quite failed to excite the least interest so far as the general public is concerned, and the daily runs were followed by a mere handful of experts and others directly interested in the question of heavy traction. The wisdom of making this competition an annual one is in itself open to doubt, and on many sides I heard the opinion freely expressed that the A.C.F. would have been better advised to have left it severely alone for this year. Obviously the participation in a trial of this description involves the constructor in heavy expenses, and when the competition is annual one trial is no sooner over than work upon the next year's car must be commenced. When the manufacturer is extremely busy he usually prefers to concentrate his efforts upon the vehicles actually on order, and simply ignores the trial. However excellent and desirable is the advertisement arising from participation in "Les Poids Lourds," the constructor who is full of orders thinks twice before deciding to compete at the sacrifice of his immediate interests. This year one is more than ever struck by the absence of well-known firms, and in the majority of cases their inability to compete is simply occasioned by pressure of current work. If the trials were held every other year I feel convinced that they would gain in interest from every point of view—the entries would be more numerous, the competition keener, and the public would display some degree of interest in the proceedings. For this year's contest the governing regulations were briefly these: Firstly, the competition was an international one, and it was open to self-propelled vehicles constructed in view of the following services:—

1. Public transport in towns; connection between stations and localities with no direct train service.
2. Transport of goods and delivery services.

The cars were required to cover daily a distance of fifty-five kilometres, twenty-two kilometres being the morning's work and thirty-three the afternoon's, both these itineraries starting from and finishing at the Lac Daumesnil, in the Vincennes section of the Exhibition. Neither of these routes was easy, for a large amount of *puvé* and bad macadam had to be negotiated, and in the longer one a couple of ten per cent. grades had to be mounted. The vehicles eligible to compete were: (1) Vehicles carrying at least ten passengers, independent of the driver, with thirty kilogrammes of luggage; (2) Goods vehicles carrying at least one ton under the same conditions; (3) Delivery vehicles transporting a load of at least 1,250 kilogrammes. The competition was based upon the cost of transport—that is to say, upon the proportion between the total running expense of the vehicle and the load carried. No detailed official reports are likely to be published for a considerable time to come, but it is upon this basis of net cost that the judges will make their awards. These awards consist of five *objets d'art*, three silver-gilt medals, three silver medals, and three bronze medals, a fairly liberal distribution among the eleven competitors. All the vehicles were fitted with a speed register, and during the five days' work these showed some 275 kilometres, or 172 miles. Of the thirteen original entries but eleven put in an appearance on the Monday morning, and duly made a start after the usual preliminaries of weighing and verification. These were: Le Blanc, steam tractor towing an omnibus; Panhard and Levassor, one omnibus and one lorry; Turgan and Foy, one omnibus; De Dion and Bouton, twelve-seated omnibus, twenty-seated omnibus, and a lorry; Pantz, one lorry; De Dietrich, one lorry; Say, one electric delivery van; Riker, one electric delivery van. Each of these vehicles was accompanied by an official appointed by the club and a number of military men

who had been deputed by the Minister of War to follow the trials throughout and draw up a report as to the utility of the heavier classes of self-propelled vehicle for military purposes. These officers were not selected from any one arm of the service, but represented the artillery, the engineers, and the infantry, so the report should deal with the practicability of the horseless carriage in relation to the special work of each arm. What the passenger-carrying cars lacked in humanity was made up with sacks of sand, and in due course every vehicle got under way, and in course of time disappeared from view. I drove out from Paris at two o'clock on the afternoon of that day, and at intervals saw the great uncouth lorries steadily performing their work. At the foot of the famous hill at Champigny, well-known to those English motor-men who came over to witness the start for "Le Tour de France," I came across the Le Blanc train and the Turgan-Foy vehicle, both drawn by the road-side and busy revictualling under the scrutiny of the club official and half a dozen officers. We watched the operation to its close, and then followed the vehicles for some little distance, before branching off to continue our longer journey. From that day until Saturday last the cars were put through their daily tasks, and they acquitted themselves well, so far as general running was concerned. Whether their performances were satisfactory from technical and industrial points of view the official reports alone will make known, but it may safely be assumed that some at least have acquitted themselves with distinction. Among the experts who put in an appearance at the trials were three well-known English automobilists, Messrs. Critchley, Baron, and Shrapnell Smith, and a number of leading lights in French automobilism. It is just possible that the actual results will be made known at a comparatively early date, and these I will communicate immediately they are issued. For the detailed report one must wait for a considerable length of time, but this also will, in due course, find its way into the columns of the *Motor-Car Journal*.

ANOTHER addition to the ranks of automobilists is to be found in Sir Charles Forbes, of Stanstead, Essex, who has, we learn, just ordered, though Messrs. Friswell, a Mors phaeton.

THE Thornycroft Steam Waggon Company of America has just been incorporated under New Jersey laws, with a capital of £20,000, to manufacture steam vehicles on the Thornycroft system at Paterson, N.J.

THE RIKER ELECTRIC VEHICLE Co., of Elizabethport, N.J., have recently completed a heavy truck, which is the largest vehicle of the kind that has been built in America. Its carrying capacity is no less than six tons, and a speed can be maintained of two, three, or six miles per hour. The batteries weigh 3,000 pounds, and are capable on each charge of a run of twenty miles on heaviest work. The truck itself, with motors, weighs 7,000 pounds, making a total weight for the vehicle of 10,000 pounds. There are two motors of 10 h.p. each, and each is geared to one of the wheels on the rear axle. The truck is equipped with the Riker flexible running gear. The wheels have 4 in. solid rubber tires. The front wheels are 38 in. in diameter, and the rear wheels are 44 in., all being shod with 4 in. solid rubber tyres.

AUTOMOBILISTS generally will learn with regret of the accident that has befallen Mr. Henry Sturmeý, of Coventry. It appears that Mr. Sturmeý was taking a trip on an experimental car belonging to Messrs. Dawson and Son, motor-car manufacturers, of the ancient cathedral city. Mr. Dawson, sen., was driving, Mr. Sturmeý having a seat by his side, and Mr. Dawson, jun., being behind. When passing the village of Chartham, the driving gear went out of order, and the car turned suddenly round, ran up a bank, through a hedge, and then capsized, throwing the occupants heavily to the ground. The two front riders were seriously injured, and were conveyed to the Kent and Canterbury Hospital. Here, upon examination, it was found that Mr. Sturmeý's left arm was fractured, his left elbow dislocated, and his face considerably bruised and cut. Mr. Dawson, sen., had no bones broken, but was severely shaken. Mr. Dawson, jun., escaped injury.

The Jeantaud Electrical Vehicles.



GENERAL VIEW OF THE SIX-SEATED CHAR-A-BANC.

ONE of the leading builders of electrical cars in France is undoubtedly M. Jeantaud, of Rue de Ponthieu, Paris. In fact, he claims to be a pioneer in electromobiles, he having built a car propelled by means of electricity so long ago as 1881, since which time he has devoted considerable attention to their improvement and popularisation. The handsome vehicles he exhibited at the Agricultural Hall in August, 1898, will still be remembered by visitors to that exhibition, but, fine as they were, they are greatly outclassed by the splendidly-finished cars shown by M. Jeantaud at the Paris Exhibition. These have already been described in our report of the display at the Champs de Mars, but the accompanying illustration of a six-seated electric char-a-banc and a three-seated spider, together with additional particulars, may not be without interest.

In the Jeantaud cars the motor transmission mechanism and batteries are carried on a standard frame of channel steel to which any type of carriage body can be fitted, and when we say that eighteen different types of bodies, ranging from a small two-seated petit-due to an eight-seated omnibus, are being made, it will be evident that there is no lack of choice.

The electromotor employed is of the Postel-Vinay enclosed type—for vehicles weighing complete from 1 to 1½ ton it is of the bipolar type, and for cars above that weight a four-pole motor is employed. The motor is doubly wound, and in normal running absorbs from 25 to 35 ampères of current at a pressure of 80 volts, the speed being 1,600 revolutions per minute. The battery consists of forty-four Fulmen accumulators, enclosed in ebonite cases and arranged in two trays, each carrying twenty-two cells. These trays are concealed in chests arranged in the carriage body fore and aft, and are adapted to be re-charged *en situ*, or to be readily withdrawn for charging purposes. The battery is stated to have a capacity of 60 kilometres (37½ miles), at a maximum speed of 20 kilometres (12½ miles) per hour.

Of special interest is the controller switch employed in the Jeantaud cars; this is adapted to give five speeds forward, a reverse motion and electric brakes. The controller consists of two cylinders—one of them operated by a lever, and carrying five series of contact pieces for changes of speed and reversing,

and the other worked by a pedal, and serving to create resistance for stopping the car, and also for allowing the vehicle to start smoothly and gradually. In the change-speed cylinders the lever can be put in six positions, the first of which cuts the circuit, and the others vary the speed by grouping the batteries in series or in parallel, the highest speed being obtained with the batteries in series, and the motor running as a double shunt. The car can only be reversed by bringing the lever back to the position which cuts the current, and then moving it forward to divide the battery into two parts grouped in parallel and reversing the current in the motor. The second cylinder is operated by a pedal. Two motions are provided; in the first movement the speed is reduced by introducing gradual resistances in the circuit, and the current is finally broken. Continuing the downward movement of the pedal, the motor is put in circuit with a gradually reducing resistance, until a short circuit is obtained, and the car is braked automatically. This is not sufficiently powerful to entirely stop the car on a down grade, and therefore when the pedal brings into action the electrical brake it at the same time operates a hand brake on the motor-shaft. There is also a double-acting band brake operating on each of the hubs of the rear road wheel, and when this is applied the current is automatically cut in the controller. As a further precaution, a third system of brakes works by a screw on the tires of the rear wheels. The motor is geared by pinions to a differential counter shaft, from which the power is transmitted to the rear road wheels by the usual duplicate set of sprocket wheels and chains.

Steering is controlled by a horizontal hand wheel, actuating the front wheels, which are mounted on the Jeantaud-Ackermann system. Usually wooden wheels with bronze hubs are employed, but cycle-type wheels can be fitted if desired, while the tires are either pneumatic or solid rubber. Both volt and ampère-meters are fitted in full view of the driver, and at night these are illuminated by means of a small electric lamp.

DR. R. J. HEATLY, of Stockwell Road, S.W., would be glad to hear the experience of those who have used steam motor-cars.

SOME MOTORING EXPERIENCES.

BY THE HON. LEOPOLD CANNING.

LONDON to Manchester and back is a long and wearisome journey by rail, but nevertheless, I did this the other day, for the purpose of seeing what progress was being made on the motor-vehicle being built for me by the Century Motor Company, of Altrincham. On arriving at the works, which are large, I was introduced to an extremely busy scene. A great deal of work was being done, and a goodly number of men were most actively engaged in working the machinery. Several handsome Century motor tandems were to be seen at one end of the premises. I cannot understand why people buy air-cooled quadricycles when, for a very little more money, they can have a Century motor tandem, with a complete water-cooled motor up to 4½-h.p., pump and radiator, a friction clutch with change of gear, and a beautiful front seat, luxuriously upholstered and hung on C springs. The manager of the works, Mr. A. M. Heard (the Company have works also at Willesden Junction), whose courtesy could not have been surpassed, showed me round. I was specially pleased with the wheels of my machine; they are 30 inch, and all the spokes had been turned, and not drawn out in the usual way. This will give them greatly increased strength. The hubs are of extra strengthened gun-metal. My motor engine, which is of 5 h.p., was being prepared, though not yet ready for work.

I have a Longuemare carburettor, but am doubtful of having this fitted, in view of the fact that Mr. Jackson, the foreman of the Century Company, has invented a new carburettor, which the company claims to be superior to any other make. As I did not hesitate to express my doubts that there should be anything superior to the Longuemare, they proceeded to give me a proof of what their carburettor could do with bad petrol.

There was a De Dion voiturette on the premises, which had been brought in fifteen days before and never touched since. This voiturette was fitted with their carburettor, which still contained some of the same petrol which had been there a fortnight ago. The foreman went up to the car, and at the first turn of the starting handle the motor was set in motion, and at once went off at a furious rate. After that conclusive proof of what their carburettor could do I thought I would discard my Longuemare. The friction clutch they have invented is also a wonderful thing. Leather or fibre is entirely dispensed with, only metal being used. This saves one much trouble; there is no adjusting to be done and no leather to be often replaced. I found it to work extremely well in action.

I was taken out on a 4½ h.p. Century for a trial run. The road near the works for about half a mile was nearly 2in. deep in mud. I expected the back wheel would be certain to skid, but never once did this happen, going fast or slow, uphill or down dale, and even when swinging round corners. What is more, my driver asked me to look at our tracks behind, through the mud, and there they were, absolutely straight, through that slime. When we got out to the country, I took the steering lever in hand. Though I had never been on a Century motor tandem before, or even seen such an original system of steering, in two minutes I had advanced the sparking to full, and was steering the machine at over forty miles an hour with perfect ease and confidence.

This one ride at forty miles an hour on a more or less lonely country road, with hardly a soul in sight, resulted in two different summonses from the police. One of them was satisfactorily arranged, but the other ended in a fine of £2 with 22s. costs. At no time whatever did we endanger the lives of the public, as we mostly had the road to ourselves, and if a carriage did turn up we immediately slowed down to a crawl. However, all that went for nothing, of course. We saw four policemen, who all looked very hard at us. Needless to say we were carefully doing no more than the legal speed while they were in sight, but it was no good. Once when the engineer was driving, and we were moving at a modest little thirty-five miles an hour, the motor suddenly slowed down to a crawl, and on my inquiring what was the matter I was informed that he had just spotted a policeman peering over a hedge.

I think the way the police behave in these country places is disgusting! They are like beasts of prey, who conceal themselves in a well-chosen lair, from which they can jump out and pounce on their unfortunate victims. It is a new form of highway robbery. The policeman does not actually empty your pockets on the road, but you have to turn out your pockets later on because of him, so it comes to the same thing. At one moment a group of men upon the road concealed a policeman, for, as we came by, he rose out of the middle of them and scowled at us.

On the way home, I experienced the first little unpleasantness I have had in three years' motoring, and this was the first motor run I have had in England, except one or two short rides in London. We were coming up to a farmhouse where a knot of men stood with some horses and carts by the side of the road. They were, all big, hulking ruffians, and as we approached them a burly fellow stepped on to the road and picked up a big stone. This he hurled at us with all his might as we went by, but thanks to our forty miles an hour it just missed us. If it had struck either the machine or ourselves it would have done considerable damage, and had there not been so many of them we should have stopped for a little talk with them, but six were too many for us two to handle.

In France I always carry a revolver with me, and there I would probably have fired at the man for his pains, but such a thing has never happened to me there. My mother was once riding in her Panhard on a lonely country road in France. She had no one with her except her *mécanicien*, who ~~was~~ driving. On turning a corner they were confronted by a horse-drawn vehicle, in which were seated two fearful-looking fellows, who resolutely barred the way. They were apparently bent on mischief, and, following up a volley of abuse, one of them seized an enormous pole which they had, and was on the point of dealing the *mécanicien* a fearful blow, when Lady Garvagh pluckily drew her revolver and coolly levelled it at the villain in question. Seeing she had a very steady aim, and looked mighty like pulling the trigger, they hastened to get out of the way, and to cease from obstructing the further progress of the motor-car.

Apart from the little unpleasantness that befel me, I most thoroughly enjoyed my ride on the Century. The motor pulled splendidly, there was no question as regards its capability in speed, and we took all the hills well on the high gear, never having to resort to the lower.

Needless to say, I am looking forward immensely to the day on which my machine will be completed, and I am also sending the company my 4 h.p. Aster tricycle to convert into a Century motor tandem, as I am so pleased with the working, steering, and running of the latter. The day on which I was there two lucky owners of recently completed machines came and took them away. I offered one of them, cash down on the spot, a little more than what he had paid for his machine if he would hand it over to me. Here was an opportunity of having more than his money back, in case there was the slightest dissatisfaction in his mind; but, oh, dear no! I might have doubled my offer at that time without success.

THE driver of a motor-car, named William Gunning, was fined 10s. at Barry last week for driving along the highway with only one light.

THE Sports Motor-Car Company, of 113, Fulham Road, South Kensington, S.W., have arranged to issue, free of charge, an insurance policy against loss or damage by fire to all purchasers of Mayfair voiturettes.

THE youngest licensed automobile driver in the world is now claimed by Chicago. He is Chauncey B. Blair, son of the president of the Merchants' National Bank. Young Blair, who is fourteen years old, received his licence on September 21st.

IN connection with the Automobile Club's commemorative run to Southsea on Saturday, November 10th, the Motor Car Company, Ltd., of Shaftesbury Avenue, W.C., are arranging to run several passenger-cars, returning from Southsea on the following Monday. The fare is, we understand, three guineas return per passenger, the box seats being one guinea extra.

HERE AND THERE.

MAJOR R. E. CROMPTON, R.E., sailed from Capetown in the ss. Saxon on the 3rd, and is expected home on the 20th inst. Hearty welcomes await him from members of the Automobile Club and other organisations of which he is a leading light.

ONE of the neatest pieces of rhyming in connection with automobilism I have yet seen comes from Mr. Henry Edmunds, a well-known member of the Automobile Club, and is as follows:—

You may ride on a horse, or a mule, or a moke,
You may drive in a carriage, or sail in a boat,
You may swim in the water, or fly in the air,
Go just as you like, but only take care,
You may skate, you may walk, take train, tram, or bus,
Go in great state, or without any fuss,
You may bike on a wheel, a single or tandem,
Go just as you please, at will or at random,
You may stay at home near, or travel afar,
But nothing can equal a mote on a car.

A MOTORIST may evidently indulge in poetry with safety and credit, but when a poet takes to motoring I will not be responsible for the consequences, unless, like Mr. Rudyard Kipling, he adds other qualities to his versifying talents.

IN the *Morning Post* a gentleman has been suggesting that the motor-car should be provided with some species of "cow-catcher"—an idea which occurred to him after a "hairbreadth 'scape from a Juggernaut motor-car." I have heard of a petrol car, an electric vehicle and a steam carriage, but the "Juggernaut motor-car" is probably an Indian variety of automobile with which I am not acquainted. Possibly it is a cross between a steam roller and an elephant; enlightenment will be welcome. It would have been a pity had the dog been killed, and evidently the animal was of an intelligent kind. All lovers of dogs are great admirers of the automobile, for it is developing in the canine tribe the organ of curiosity and the acuteness of the London newspaper lad, who dodges horses' heads with wonderful skill. The other day I was on a car, when a lovely little poodle that looked like a rolled up door-mat came snarling along. He ran right under the car—being careful to avoid the wheels—and came out at the rear. Then he retraced his steps and peeped from the front with a pleasant bark, as though he enjoyed the fun. So persistent and so agile were his antics that we had at last to dismount and drive him away. The incident proved that when the dogs are kindly disposed no hurt will come to them. But when they let their temper get the better of them, look out for remains.

WHILE the cavalcade of motor-cars was proceeding from Monmouth to Tintern the other day a dog made unpleasant barking and ran amuck among the cars. He was laid low and flat. As much depends on the disposition of the canine as on the proximity of the car—a copy-book heading that should be placed over every kennel.

THE other week I recorded an election incident which told against the motor-car for electioneering purposes, and in a certain Kentish constituency one political party declined to have anything to do with such novelties. Judging from something that occurred in the case of a Scotch member seeking re-election they were wise, for the candidate drove up in his motor-car some ten minutes late for a meeting and began speaking practically before the machine had ceased to snort. A workman in the audience enthusiastically declared to the men standing near, "You see he brings his platform along with him." "Yes," rejoined his neighbour, "his platform was always a movable one." As a means of getting about, the automobile is admirable; but as a political machine it is execrable, from one point of view. And, of course, the point of view is everything.

IN the Chesterfield division of Derby even worse things befel Mr. T. Bayley who sought, and obtained, re-election. On the day before the poll two motor-cars arrived in the town to

assist in conveying voters to and from polling stations on the morrow in Mr. Bayley's interest. The men in charge of the cars put up for the night at the Angel Hotel, and placed their machines in the care of the landlord. At an early hour the next morning, when the *mechaniciens* went to their machines for the purpose of cleaning them, they discovered that a very important part of the steering apparatus had been removed from each machine and taken away. Various bolts and screws had also been loosened. It was at once apparent that a plot had been perpetrated to render the cars useless for the purpose for which they had been imported. A reward of £20 was offered at once for information that would lead to the discovery of the thief, and information is in possession of Mr. Bayley's supporters which in all likelihood will lead to the proper punishment of the miscreant. One of the motor-cars was rendered useless for the greater part of the day, and the other, though temporarily repaired, was rendered somewhat unsafe. Even motor-cars are not wholly secure from mishap on election days.

ON Tuesday the Queen created the Rt. Hon. J. H. A. Macdonald a K.C.B. This honour to one so enamoured of automobilism will please his friends on both sides of the Tweed. His many interests are revealed in his full title, which is now Brigadier-General the Rt. Hon. Sir J. H. A. Macdonald, K.C.B., LL.D., F.R.S.S. (L. and E.), M.I.E.E., Lord Justice-Clerk of Scotland, commanding Forth Brigade, and Adjutant-General of Her Majesty's Royal Bodyguard.

THE fifth session of the Liverpool Self-Propelled Traffic Association will be opened on the evening of Monday, December 3rd, at the Royal Institution, Liverpool, by M. G. Forestier, Inspector-General of Roads and Bridges in France, President of the Technical Commission of the Automobile Club of France. The title of the address is "Heavy Motor Traffic in France," and it will be illustrated by both lantern and cinematograph views.

MR. REYNOLDS, who drove the Peugeot voiturette referred to in last week's account of the Automobile Club's invasion of Monmouth, intended to take the vehicle back to India with him. He is about to return, but the voiturette will not go to our great dependency until various repairs have been made.

BETWEEN Eastbourne and Brighton is Pevensey, an old-world sort of place with some interesting ancient houses, a wonderful old castle, and the identical bay in which the name of Julius Cæsar is associated in the bygone history of our land. One of the more modern places there is Harold Lodge, a pleasant resort for trippers and cyclists, which stands in close proximity to the castle, and has storage for motor-cars. This is a feature of increasing importance to such establishments, and I shall be glad to hear of similar establishments along the south coast, where motorists are regarded with kindly concern.

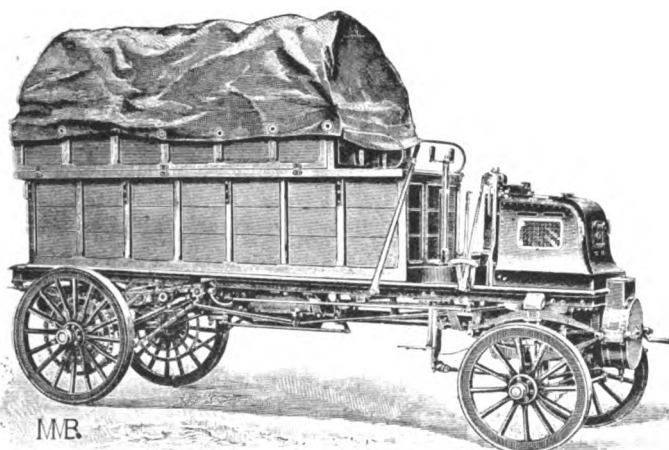
MR. J. J. MANN is back again in town, after a short visit to Paris. He tells me that the Marshall car upon which he made the 1000-mile Trial is going splendidly, and has done quite 5,000 miles of travel since that event. The new landau is likely to prove a good winter car, being easily convertible and very comfortable, two essential features in such a climate as our own. The medical profession are still keenly solicitous with regard to the Marshall cars, Dr. Pratt, of Bletchingley, being one of the latest purchasers. During the recent heavy floods in the Lake district one of these cars was being taken to a purchaser at Cockermouth. At Kendal some parts of the town resembled a swimming bath, and the only shelter for the car during the night was a disused barn in which it was placed. In the morning it was standing up to the engine in water, but on being fished out and overhauled was driven off and got safely to Cockermouth. A 6 h.p. car is in contemplation, and when it is ready I hope to have a pleasant trip thereon.

LOLLIUS.

WE hear that the Wolseley Sheep Shearing Machine Co., Ltd., of Birmingham, are engaged on the construction of a new type of two-seated voiturette, which they hope to put on the market early next year. The car will be fitted with a motor of 3½ h.p.

A GERMAN MILITARY TRANSPORT MOTOR-WAGON.

IN a recent issue we gave illustrations of several types of motor-vehicles that have been adopted by the military authorities in France. On the present occasion we are able to publish an illustration of a German military transport wagon which has lately been built by the Berlin Motorfahrzeug-fabrik Gesellschaft of Marienfelde, Berlin. The vehicle forms part of an order placed by the German Naval Union with the Marienfelde concern and the Allgemeine Electricitäts Gesellschaft of Berlin, jointly, for two complete portable wireless telegraphy outfits for use in China in connection with the Boxer troubles in the Far East. The original order called for two motor-vehicles, but as only twelve days were allowed for delivery it was not found possible to finish two cars in the time. Consequently one apparatus is fitted in the motor transport wagon herewith illustrated, and the other in an ordinary closed wagon. The motor is a six-horse-power one, using petrol as fuel, and besides furnishing the motive power for the wagon, also drives the dynamo for supplying electricity to the telegraphic apparatus. It will be seen from the illustration that as regards



the transmission gear of the vehicles this closely follows the lines adopted in the German Daimler cars.

The second wagon is equipped with a battery of accumulators, a small dynamo, a 2 h.p. high-speed petrol motor, the latter having been completed by the Marienfelde Company in twelve days. For supporting the vertical receiving wire, balloons capable of holding one-half of a cubic metre of gas are employed. As the motor transport wagon will also be required to serve as a field telegraph apparatus, it is provided with spools of telegraph wire supplied by Messrs. Siemens and Halske, of Berlin.

A LICENCE to store a ton of petrol within easy reach of their premises in Trent Street, Nottingham, has been secured by Messrs. A. R. Atkey and Company, Ltd.

MESSRS. DE DION, BOUTON AND COMPANY have now brought out a 2½ h.p. motor, fitted with a water-cooled combustion head, the set including a water tank with connections, and also a radiator.

MR. C. OLIVER ISELIN, a gentleman well known in American yachting circles, has taken to the motor-vehicle, and has just returned to the United States from a tour of two thousand miles and more through France.

THE Committee on Superintendence and Police of the Fairmount Park Commission, in Philadelphia, has decided to admit automobiles to all Park drives except the West River drive between Girard Avenue Bridge and the Falls of Schuylkill, and the Wissahickon drive. The former is desired for a speedway for drivers and the latter is too narrow. No automobile will be allowed in the Park after October 15, unless it is plainly numbered.

MOTOR-CARS ON THE CONTINENT.

A New Insulation.

It is reported in a Russian journal that a Mr. A. M. Imschenetzky is about to form a company at St. Petersburg for the purpose of exploiting a new insulating substance which he has invented, and which he styles "Uralite." Asbestos, chalk, and silicate are the predominating elements of this new preparation, and it is said that neither excessive cold nor heat has any effect upon it. It is capable of being readily worked, and is a bad conductor of electricity, heat, and sound. Acids do not depreciate it, and it is unaffected by sudden changes of temperature. If this new preparation possesses all the good qualities claimed for it, the Russian company should speedily work up an extensive and profitable business, for such a material would be invaluable for a thousand and one purposes. Further news will be awaited with interest.

A Record by Demester.

THE famous track of the Parc des Princes, Paris, continues to be patronised by considerable numbers of racing cyclists, and last week the well-known *chauffeur* Demester made a couple of attacks upon the records existing for one hour and 100 kilomètres, but in neither case did he realise his object, owing to the peevishness of his motor. What he did succeed in doing, however, was to beat the record for one lap, made by Rigal some few weeks ago. The exact distance is 666 mètres, and Demester's time, made from a flying start, was 31½ secs., equivalent to a speed of about seventy-seven kilomètres an hour. This is the fastest recorded speed on the track, but it is morally certain that during Rigal's trials of September 25th last he covered some laps faster than this, for his times for one kilomètre and one mile represent a greater speed per hour than does that made by Demester. The limit of speed has been practically reached upon the Parc des Princes track, and to travel faster, racing men will have to search for another enclosure more steeply banked.

The Chanteloup Hill-Climbing Contest.

THE annual race up the hill of Chanteloup, which in former years was organised by *La France Automobile* will this autumn take place under the auspices of the Moto Club. The selected date is Sunday, November 4th, and important modifications of the original regulations have been decided upon. Two categories only are provided, and racing vehicles, at any rate in racing gear, will be left out in the cold. The first class is for cars exceeding 400 kilogrammes in weight and carrying at least four persons seated in a proper body. Vehicles weighing less than 400 kilogrammes and carrying two persons will be admitted to the second category. These restrictions destroy much of the racing character of the event, and in a corresponding degree the amount of interest taken in it by the public. The people do not want to see climbing a hill the class of vehicle they can see every day on the road. They wish to have a look at the powerful racers flying the up-grade at sixty kilomètres an hour and unless this is to be witnessed, people will not trouble to journey out from Paris to Chanteloup. Of course, the organisers have no choice in the matter, for it is not likely that the authorities would accord permission for a genuine race, and therefore the event must of necessity be reserved for those vehicles which cannot break the country's laws, at any rate on an up-grade of 10 per cent.

Accidents in France.

THE horse: 106 deaths, 918 wounded—total, 1,024; the railway: 25 deaths, 49 wounded—total, 74; the bicycle: 9 deaths, 137 wounded—total, 146; the automobile: 2 deaths, 27 wounded—total, 29. Such is the summary of *Le Vélo's* statistical table of accidents which occurred in France during the month of August last, and a glance at it reveals the increase of mishaps occasioned by the noble beast during the period dealt with. In bringing about 1,024 accidents he has fairly excelled

himself, and the performances of the other means of transport, that standing to the automobile in particular, sink into absolute insignificance beside these figures. Of the two deaths lying to the charge of the automobile, one is rendered particularly regrettable by reason of the cowardly conduct of the driver, who, after knocking down and killing a farmer of the Gironde Department, drove off as speedily as possible. Accidents will occur, but when they do the least that the automobilist can do is to render all possible assistance, and not to run away from his responsibilities as the driver at Cerons and only too many others have done.

The Berlin Track.

MENTION has already been made in these columns of the intention of the German Automobile Club to organise a series of automobile races on the Notting track of Charlottenburg-Westend, situated at some five miles from Berlin, and I am now able to add that after a number of trials the organisers are of opinion that the track will be practicable for these "courses" without any material alterations. The track measures about one mile in length, and so satisfied is the Club with the experimental runs that it has been decided definitely to hold the first meets in the spring of 1901. Motor-cycles, light and heavy cars will all be provided for, so hurry up, racing men, and see that your machines for next year are already in hand.

The Auto-Velo.

THE Administrative Council of the Automobile Club of France has just issued a circular letter informing members of the creation of a new journal, styled the *Auto-Velo*, which will be devoted to the automobile industry in general, and the club in particular. This publication will be issued daily, and its *redaction* will be composed of the leading authorities on all matters pertaining to automobilism, both from an industrial and sportive point of view. Not the slightest suspicion of any political question will be permitted to appear in its columns. In making this announcement the club committee add that being persuaded that this organ will render the greatest services to the society in keeping its member *au courant* with every movement of the automobile world they have decided to forward it gratuitously to every member of the club. I understand that the Baron de Zuylen, Count de Dion and Count de Chasseloup-Laubat, as well as other members of the A.C.F. committee, have seats on the board of directors of the new publication. This move by the club is not surprising, for the work done by the society is now but little noticed by the *Velo*, and members are often quite ignorant of current events. In the columns of this latter paper one reads but of the doings of the Moto Club, and under such conditions it was imperative that the A.C.F. should have an organ of its own.

THE "Stéate" sparking plug illustrated in our issue of March 30th last is now being put on the English market, Mr. P. Dailly, of 12, Hart Street, Bloomsbury, W.C., having secured the agency for them in this country.

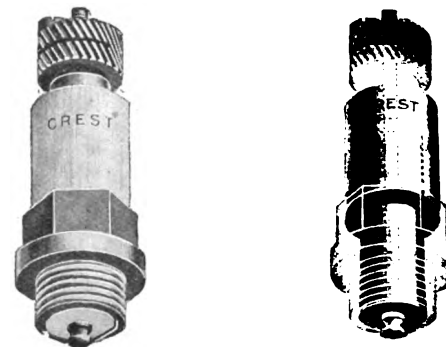
M. OUTHENIN CHALANDRE, of Paris, is just now making a display of De Dion voitures at Messrs. Hall and Sons, coach-builders, 97 and 98, Long Acre, W.C. Included in the vehicles exhibited is a handsome little car with a four-seated *tonneau* body.

WE learn that Mr. Dan Albone, of Biggleswade, has just completed a new type of car—a landaulette, to carry five persons. The motor is of the tandem type of 8 h.p. No water-circulating pump is employed, and the water is cooled by means of funnels catching the air and carrying it through the water tanks, which are of large capacity. Wheel-steering is fitted.

WE have received a pamphlet from Mr. E. T. Scammell, of 37, St. Mary Axe, E.C., descriptive of the Bingham road paving system. The paving, which is a combination of stone and wood, was invented by Colonel John E. Bingham, of Sheffield, in 1895. The advantages claimed for it are:—(1) safety; (2) durability; (3) cheapness; (4) cleanliness; and (5) quietness.

THE CREST SPARKING PLUG.

THE Crest Manufacturing Company, of Cambridgeport, Mass., U.S.A., have recently introduced a new sparking plug which is claimed to be unaffected by heat and expansion, and to be unbreakable. After considerable experiments with the best porcelains of foreign manufacture they claim to have discovered, through the assistance of a well-known chemist, a new material that is unbreakable by heat or expansion. It is well known that the sparking plug is a delicate piece of mechanism and gives considerable trouble, and for this reason motorists are compelled to carry one or two spare sparking plugs in their kit. The plug, of which illustrations are given herewith,



consists of a shell of steel having a thread at one end to screw in the orifice of the chamber of the motor. The sparking plug proper consists of a slight cone of this new material, which is inserted in the steel plug. This cone fits tight in the shell, making a gas-tight joint, without packing. Through this cone a wire is passed, terminating at the bottom of the plug with an enlarged head. A platinum wire is inserted in the body of the steel, the spark jumping across between the two points.

MESSRS. MOELLER AND CONDRUP, of 78, Fore Street, E.C., have sent us a list of the Swedish spanners, oil-cans, and brazing lamps for which they are agents.

A SCOTTE steam road train has just been put in service at Pau, France, for the conveyance of both passengers and goods.

SOME experiments with an electric service wagon are being carried out by the fire brigade authorities at Schaerbeek, near Brussels.

WHAT will be the first motor-car in Adelaide, South Australia, has left England this week. It is a Deschamps Victoria, and is being taken over by Mr. F. Gordon Ayers.

WE have received a copy of a new American weekly, *The Motor World*. Judging from the first number, it should quickly take a prominent position among the several automobile publications in the United States.

SOME farmers in the neighbourhood of the suburban house of Mr. A. C. Bostwick, the well-known American *chauffeur*, having complained of that gentleman's motor-vehicle as a dangerous innovation, he has offered to make a bet that he can bring his car, going at fifteen miles an hour, to a dead stop as soon as a horse and wagon going ten.

M. PAUL MEYAN, well known in French automobile circles, is the first *chauffeur* to mount the heights of Aution, near Antibes, in a motor-car, over a bad road, 86 kilomètres long, rising 2,080 mètres above the level of the sea. His arrival astonished the engineer officer in charge of the fort. It is considered that the performance may lead to the adoption of automobiles for communication with the military posts in the Alpes-Maritimes.

ON Monday, at Darlington Borough Police Court, Jacob Dunn, of Morton Palms, was charged with driving a horse and trap without lights on August 25th. The evidence of F. W. Sewell was that he was riding a motor-tricycle on the day named at nine o'clock at night, between Darlington and Fighting Cocks, when he ran into defendant's trap. It was without lights. The defence was that the conveyance was standing when complainant ran into it, and under the bye-laws lights were not then required. On this point the Bench dismissed the case.

MOTORS AND MOTOR-CARS: THEIR DEFECTS AND REMEDIES.*



IT is not proposed to go into the historical part of the subject, but it may be mentioned that a machine was constructed by Mr. Edward Butler in London between the years 1884-1886, at the same time as Messrs. Benz and Daimler were at work in Germany. The machine, which was called the petrol cycle, was very much like the Bollée machine afterwards brought out, and was not further developed because of the "Red Flag Act," which did not allow its use in this country. At the same time Mr. Butler also constructed a high speed oil motor or engine to run from 800 to about 1,000 revolutions per minute. At this time there were no gas or oil engines which would run above 180 to 200 revolutions.

Lenoir engines, both single and double acting, were made in large numbers, and extensively used; but they were too extravagant in gas, renewals, and repairs; though had Baron Roche's patent specification been known and read, the engines could have all been converted for a few pounds, instead of being consigned to the scrap heap, and Otto's patent would have been anticipated. The Otto system is too well known to need description.

Motor-cars cannot take their supply of gas from the street mains very well, so a portable gas works, or "carburettor," is carried, in which air, during the suction stroke of the motor, is drawn through or over a volatile spirit called petrol or gasoline, having a specific gravity of .680 to .700. What is a carburettor? or what kind of carburettor should be used? many people enquire, especially those who have a thirst for motor philosophy. The carburettor is a vessel in which a small quantity of petrol or hydrocarbon is carried and mixed with air in a regulated quantity to suit the motor. Firstly, the air can be drawn across the liquid; secondly, the liquid can be sprayed through a vessel; thirdly, the air can be drawn across a saturated cotton or gauze wick; or, fourthly, the oil can be injected into the motor direct at each suction stroke. The suction of the motor causes the gas to be generated when wanted, in sufficient quantities to supply the motor and effect complete combustion without smell. Carburettors may be divided into the following classes:—Firstly, surface carburettors; secondly, spray carburettors; thirdly, wick carburettors; fourthly, petrol ejected, with air supply, direct. There are many carburettors. Some are very good, and some are very bad. Some of them work the best of the spirit off first, leaving the stale to get home with; which is very bad, the carburettor giving no gas, and, consequently, the motor no power. It is like feeding a horse with good corn for the outward journey and giving him dust and straw for the return.

Lubrication is a most important point in connection with the successful working of motors. Gas or explosion engines would have been possible years before the days of Lenoir, Otto, and others, had someone come forward with a mineral oil to lubricate it with. The heat of the explosion, the temperature of which is about 800 to 1,000 degrees Fahr., should pass through the walls of the cylinder, after every power stroke, to the water jacket. The temperature of the cooling water ought not to exceed 180 degrees Fahr., or else the oil will become congealed in the motor cylinder. Cylinders that are fitted with heat radiating ribs are not worth discussing. These cylinders get so hot that the pistons stick after working a short time. The cylinders themselves also become distorted, the valves stick up, and various other troubles present themselves, which have led the author to the conclusion that even for small motors a water jacket is required to get the full power of the motor, and to get rid of the offensive smells of unjacketed motors.

Some men have clipped or threaded radiating ribs on to their cylinders. Now to get the thorough effect of radiating, there must be a continuity of substance. Heat will not pass through separate bodies as through a solid one. Motor cylinders require a well-finished bore, and a fairly fitted piston with rings well ground into the cylinders. The rings should be tongued at the joints,

which should be held at equal distances from each other. In this respect, what will do for a steam engine practically will not do for gas or petrol engines. A still further improvement may be looked for in this respect. A compression of over 100 lbs., or more if it could be maintained, would be the means of increasing the power of the motors considerably.

The exhaust valve must be water-jacketed and kept as cool as possible, otherwise it will get too hot and scale; also it will become distorted and stick up, and release the compression so that the engine will lose all its power and stop. Great attention should be paid to the valves to see that they are seated properly, and they should be ground in with rotten stone, not emery. It does not much matter whether the seats are mitred or flat. The valves and valve seats should be made renewable, and separable from the motor, so that spare ones can inter-change, as the fault is not always with the valves themselves, but with the valve seatings, which are usually made a part of the motor. The same pattern of valve could serve both for the inlet and the exhaust, and in the case of a double engine one pattern of valve may serve for both cylinders. Instead of lift valves, Mr. Butler still uses a revolving valve that travels at half the speed of the motor. The author has seen these valves taken out after working for a month day and night—resting only on Sundays. The valve is similar to a Corliss valve, revolving instead of reciprocating. A black oxide forms on the wearing part of the valve or seat, which makes it almost impossible to touch with a file. As these valves have now been running successfully for about fourteen years, they are worth the attention of motor constructors. The valve springs in use on most motors are far too short, and ought to be longer. Valves, pistons, and rings should be thoroughly cleansed in paraffin, and the crank shaft turned round some forty revolutions when the motor is not in use. This would largely prevent the sticking up of valves, tight pistons, etc.

A motor-car engine should be constructed as light as possible, without any signs of springing or contortion, remembering the force of the explosion acting on the piston, say at 600 or more revolutions per minute. The moving parts also should be as light as possible, and balanced. As far as the piston, connecting rod, and crank go, the fly-wheel may be suitably weighted, and should be as large as possible, and heavy. Even then a large amount of vibration will exist, especially when the car is stationary, and the motor is running as slowly as possible. The vibration is not felt when the car is travelling slowly, and, to my mind, is more imaginary than real. The motor-car is for travelling purposes, not for standing still at corners to shake up its passengers. If motor men must stay at corners, let them stop their motors and then start them again when required. To get rid of this so-called difficulty, motors are made with two or more cylinders, arranged in different ways to partially balance themselves. Not only do the moving parts require balancing, but the explosions also. Firstly, take a double-cylinder motor, with the cranks set opposite one another. Here all the moving parts are balanced, but not the explosions, and there is an impulse at every one-and-a-half revolution. Secondly, take a double-cylinder engine, cranks set together. Here we have motor parts unbalanced—impulse or explosions every revolution. Explosions or impulses are more regular, but not balanced. Thirdly, take a single-cylinder engine, with piston and cranks, as usual, instead of a back cover, another piston having a cross head with two connecting rods, one at either side, coupled on to cranks set together opposite to the centre crank, so that the pistons meet and recede from one another at each revolution. This, in the author's opinion, is a very rude practical attempt at balancing. The side connecting rods can never be made to work without knocking, and that even at slow speeds. Fourthly, take a single cylinder, open at both ends, with two pistons, each piston connected with a rocking beam, and each rocker connected to a single crank by the connecting rod; here there is perfect balancing of parts and explosions, but at the expense of increasing the number and weight of moving parts. Fifthly, take a single-cylinder engine of the simplest construction, and the moving parts made as light as possible, heavy fly-wheel balanced for its intended speed, moving parts which are partially balanced by the

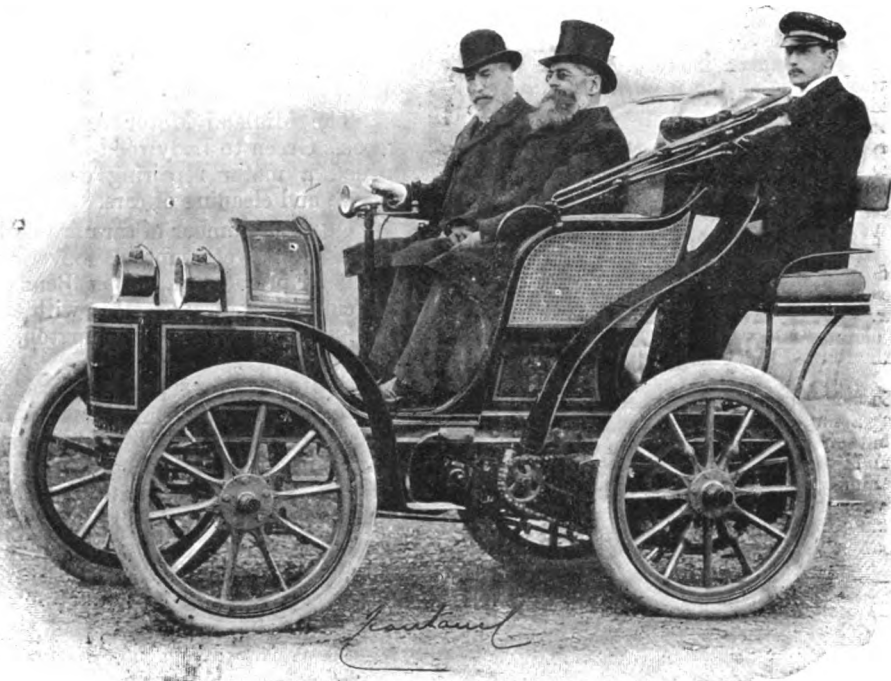
* Abstract of paper read by Mr. Chas. T. Crowden before the Cycle Engineers' Institute, Coventry, October 10, 1900.

fly-wheel and balance-weight. The centre of the fly-wheel should be placed in the centre of the car, and revolve in the direction in which the car travels. All these so-called balanced engines have been made and tried, and as they were more complicated to keep up and more expensive to manufacture, and not suitable for running at high speeds, the author considers for a motor-car a one-cylinder engine, with simple parts, get-at-able on the road, far more useful than these complications.

The oil or petrol motor, unlike the steam engine, cannot be readily started and stopped, and therefore must be kept running whether the carriage is at rest or going full speed. A governor is usually fitted to control the working number of revolutions. Other means for slowing down the number of revolutions when not required are sometimes fitted. With the use of steam the motor can readily be started and stopped, as long as sufficient steam can be supplied from the boiler or steam generator. With the petrol motor a friction clutch, a transmission gear, and a change speed gear are required. With the steam engine, instead of the foregoing, a troublesome steam generator is required, with its cleaning of tubes internally and externally, which ought to be

cars are driven by means of belts and pulleys. Some of these are fitted with fast and loose pulleys; in others, the belts are tightened by means of jockey-pulleys when it is required to drive. This makes an excellent arrangement for light cars, and is far easier to keep adjusted than the friction clutch and gearing. If a belt slips it can be taken up on the road, but to repair the teeth of cog-wheels means a long job only to be done at home. And, again, the belt and pulley gear dispenses with the necessity of a friction clutch or clutches.

The road carriage or truck should be constructed much stronger than for horse draught to do the same work, as it must be remembered that the horse is carried as well as the load, and that the driving strain of the horse is to be taken up by the carriage. The wheels must be stronger, as they have not only to carry the load, but to drive it along as well. The tires should be elastic; solid rubbers tires are the best known at present. Pneumatics are far too expensive, and on some roads very dangerous. The vehicle should be fitted with a strong and well-constructed steering gear, and with a band brake, operated by a foot lever, acting on the differential gear shaft. There should also



THE JEANTAUD ELECTRICAL SPIDER. (For description see page 555).

done every week. In the case of steam motors, water and fuel can be carried to last from twenty-five to thirty miles running. Oil fuel is too expensive in this country, but it is very convenient, as the heat can be easily regulated to make the necessary steam required to drive the motor over the various roads to be traversed.

Most motor manufacturers put their engines anywhere convenient—many in one corner of the frame, some in front, and some behind. The motor should revolve in the direction the carriage is travelling; and if one fly-wheel be used, this should be placed on the centre line of the car; if two fly-wheels are used, one each side of the centre line. Motors arranged in this way will steady the carriage whilst travelling and will minimise the vibration and prevent it from capsizing. Fly-wheels placed horizontally will give even better results. Most makers fix their motors too near the ground, so that they are difficult to adjust and repair, being more or less in the dust and dirt. Motion is transmitted from the petrol or continuous running motor by means of a friction clutch or change speed gear. For driving a differential countershaft or axle by means of chains or spur gearing, at least three or four changes should be provided. To change the speed-gear wheels it is first necessary to withdraw the friction clutch, then make the change in the gear, and lastly put the friction clutch slowly in again. Other

be a powerful lever brake acting on both hind wheels as an emergency brake. A device should be fitted for preventing the car from running back downhill in case the motor should fail. The body should allow access to all the machinery, so that it can be adjusted and examined without removal. For examination at home, the body should be easily removable, without disturbing any levers or machinery of any kind. The author would urge the necessity of using the very best material and workmanship in the construction of motor-vehicles. Inferior and cheap materials are useless. To work motor-cars successfully, especially petrol engines, cleanliness is the great secret of good running. Stoppages, or so-called breakdowns, are in nine cases out of ten due to negligence, forgetfulness, or dirtiness on the part of the operator, and it is by serving a course of failures and trials, which are disappointing at the time, that one becomes sufficiently wise to prevent the same occurring again in the future. A discussion followed the reading of the paper, in which Messrs. Sturme, Staner, Hewitt, Warner Jones, Craig, and Leechman took part.

THE Aberdeen District Motor Service Company has started a service from Market Street, Aberdeen, to Ferryhill. The cars run at fifteen minutes' interval.

FURIOUS DRIVING CASES.

T. ROWLAND OUTHWAITE, manager of the Edinburgh Autocar Company, was, at Edinburgh Police-court last week, fined £5, with the option of twenty days' imprisonment, for having, on September 10th, in Bruntsfield Place, ridden a motor-tricycle in a furious and reckless manner.

At the West Powder Petty Sessions, recently, George B. Ibbetson and John Cann, mining students, Camborne, were summoned for driving a motor-tricycle at a greater rate than 14 miles an hour, and to the danger of the public. Superintendent Bassett said that of late complaints had been received about defendants driving their motors at a furious rate from Truro to Camborne, and that several horses had been frightened. Sergeant Jeffery said that on the previous Sunday afternoon he heard the machines coming through Chacewater, and on leaving the village they covered a furlong he had previously measured in 18secs., or at a rate of 25 miles an hour. Ibbetson admitted they might have gone a short distance at a good speed in order to get an impetus to mount Killifreth Hill. The machines had powerful brakes, and could be pulled up in less than half the distance required to pull up a horse and trap. Defendants were each fined 10s. and 9s. costs.

At Altrincham, last week, Ralph Jackson was summoned for furiously driving a motor-tricycle on the highway at Rostherne on September 28th to the danger of passengers. Police constable Scott deposed that the defendant was going at the rate of twenty-five miles an hour at least. Defendant explained he was trying a new motor. At Bucklow Hill they went at a fair speed, but there was no one on the road. He was under the impression that if there was no one on the road he would not be endangering life. He had ridden 18,000 mile without accident. The chairman said the bench were unanimous in their decision that it was a most dangerous thing for these motor-cycles to go along the road at that rate. Defendant would be fined 40s., and costs 22s. 6d.

At Dorking, a few days ago, Percy Dodson, of London, was fined £2 for furiously driving a motor-car at Capel on the 12th ult. P.S. Wytherly said he was near Wigmere when defendant passed him on a motor-car at a terrific pace. Witness shouted to him to stop but he took no notice. He then timed him from that spot to Holmwood station—a distance of a mile, which he covered in about two minutes, showing he was going thirty miles an hour. Eventually witness traced defendant to London.—Defendant said the motor was a slow one, and for that reason he was bringing it back from Mr. Barnett's, at Rudgwick, who had refused it.

At the Thorne Petty Sessions, last week, Ernest J. Steel was summoned for furiously driving a motor-car at Langtoft, on September 28th. P.C. Briggs stated that on the day in question the defendant passed him on the road from Market Deeping. He gave no notice of his approach, and went past him like a train. He estimated that he was travelling at twenty-five miles an hour. This evidence was corroborated by P.C. Williams, J. E. Gout, and W. Senescal. The Court fined the defendant £3, and costs 15s. 6d.

CYCLIST v. MOTORIST.

IN the Wandsworth County Court on Monday, Mr. William Bullock, of Twickenham, sued Paris Singer, Ltd., for damages. The plaintiff's case was that as he was cycling on the Portsmouth Road, accompanied by a lady friend, he was startled by the shriek of a siren close behind. Ere he could get out of the way a motor-car dashed into him, throwing him with great force. According to Paris Singer Co., Ltd., the lady and gentleman were on the wrong side of the road, and, alarmed by the siren's warning, collided with each other, and fell in endeavouring to get out of the way. Judgment for £18 and costs was, however, awarded the cyclist.

ALLEGED NEGLIGENT DRIVING OF A MOTOR-CAR.

At the Wimborne County Court on Friday last week, before his Honour Judge Philbrick, Q.C., Mrs. Blanche Llewellyn, of Tarrant Keyneston, sued Mr. W. R. Warn, of High Street, Poole, for damage sustained to a trap caused through the alleged negligence of the defendant on July 23rd, whilst driving a motor-car between Wimborne and Broadstone. Mr. W. J. Raymond, solicitor, Wimborne, appeared for the plaintiff, and Mr. H. T. Trevanion, solicitor, Bournemouth, was for the defendant. The plaintiff stated that on July 23rd she was driving a cob in a two-wheel dog-cart from Wimborne to Broadstone. She saw the motor-car coming towards her, and as the horse became restive, she held up her hand as a sign to the driver to stop the car. At the time she was a good distance off—more than a hundred yards, and there was plenty of time for the motor-car to be pulled up. As she approached nearer the car her horse became still more restive, and she held up her hand again, and also shouted to the driver. Her horse was so very restive that she got out and went to the horse's head, but it backed and shied at the car, and the shaft knocked her in the side, causing her to fall in the bank. The horse upset the trap, turned round, and made a bolt. The trap was damaged considerably, and had cost £5 to be repaired. The motor-car had stopped when the horse turned round. If the defendant had stopped the car when she first held up her hand she should have passed all right. Mr. Trevanion said no one could regret more than his client that the accident

occurred, but the question was whether he was to blame. Defendant was acting strictly within his rights, and was a most experienced and careful driver. The plaintiff, Mr. Trevanion submitted, did not give an intelligent signal, or the motor-car would have been stopped before. Mr. Warn, the defendant, said that he had had experience in the driving of light locomotive cars for three years. On the day in question he was driving his mother to Wimborne, and the hill where the plaintiff met him was the steepest gradient along the road. The hill was a quarter of a mile or more in length, and he sighted the two ladies in the trap when they were at the top of the hill. He was going up the hill very steadily. When he was nearing the plaintiff and had got partly up the hill he reduced the speed of the car to eight miles an hour and then to four, and at that time the ladies got out of the trap. The plaintiff led the horse on and patted it, and then halted, and he naturally thought that she wanted him to pass. He saw immediately afterwards the horse's ears go up. He expected what was coming, and stopped. He was right in close to his near side. He had never seen anything to lead him to suppose that the lady wanted him to stop. Several witnesses were called, and his Honour observed that the evidence seemed overwhelmingly in favour of the defendant. All the witnesses were clear in their statements that both the trap and the motor-car were stationary before the accident, the car being thirty yards away from the horse when it bolted. It appeared to him that the horse did not bolt from being frightening with the motor-car at all, but through the unfortunate meddling by the plaintiff with the reins. That seemed to him to have been the cause of the accident. Therefore there appeared to him to have been no breach of the regulations by the defendant. He must, therefore, give judgment for the defendant.

The Midland Motor Agency have, we learn, removed from Acock's Green to Ladywood-road, Birmingham, where they have opened a motor repairing depôt with accommodation for the storage and cleaning of cars.

QUITE a number of cars are now to be seen regularly in the streets of Wolverhampton. Several residents now possess them; a Daimler private omnibus, a Benz car, a De Dion quad and a tricycle with trailer, together with the Star Company's cars and the Sunbeam car of John Marston, Ltd., being frequently met with.

A METHOD for temporarily repairing external punctures in pneumatic tires has been devised by M. Esmond Francois, of Paris. The device, which is known as the Indispensable Bracelet, consists of a piece of leather, treated with rubber, and provided with straps, which can be fixed around the tire over the damaged part.

THE partnership subsisting between William Henry Stevens and George William Burnell, carrying on business as cycle and motor-car makers, at Lower Brook Street, Rugeley, Staff., under the style of Stevens and Burnell, has been dissolved. Mr. G. W. Burnell, by whom the business will in future be carried on, keeps a stock of motor-car spirit and is well equipped to undertake repairs to motor-cars and cycles.

MR. ALBERT C. BOSTWICK, who recently returned to America from Europe with a powerful French car, is reported to have covered a mile with the vehicle in 1min. 27.45sec., at the tri-State fair in Guttenburg, New Jersey, a few days ago. In the open race for petrol vehicles Mr. Bostwick covered five miles in 7min. 43.15sec., which beats the record by Mr. W. K. Vanderbilt, jun., of 8min. 53.4secs., made in Newport, by more than a minute. In the ten mile race, Mr. Bostwick gave a still more wonderful exhibition, covering the distance in 15min. 9.15sec. From the third mile on all the miles were covered in less than 1min. 30sec.

A MOWING and reaping machine fitted with a petrol engine, by which it is driven without aid from horses, is exhibited at the Vincennes Annex of the Paris Exhibition by the McCormick Harvester Machine Company of Chicago. The motor is a double-cylinder 10 h.p. petrol engine of American design. The power from the motor is transmitted by an endless chain to a sprocket wheel and friction clutch placed on the cross-shaft of the mower. This clutch is so arranged as to engage either one bevel-gear wheel or another placed on each side, and in this way the machine can be made to advance or go backward at will. The speed of the motor can be increased or diminished while the machine is at work by simply changing the regulating lever. Steering is effected by a crank placed within easy access of the operator, and connected below by a steel bar direct to the guide wheel, which is in front of the cutter bar.

THE Motor-Car Journal.

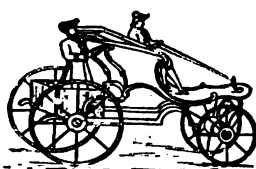
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COMMENTS.



MOTOR-CARRIAGE 1118

IN addition to the particulars published last week with regard to the Automobile Club's trip to Southsea, we would add that motor-vehicles may be stored in the Drill Hall of 1st Hampshire Royal Engineer Volunteers on production of tickets to be obtained from the Club. Petroleum spirit will be obtainable in Southsea from Messrs. S. Rose and Co., 43, Castle Road, Southsea. The following list of repairers on the route will be useful in case of breakdowns, which, we hope, will be as few as usual on Club runs:—Godalming, C. Rutherford, High Street; Guildford, F. Ostler, Bridge Street; Kingston, Prestwich and Burt, River Front; Petersfield, Roswell's Cycle Works; Portsea, J. Tout, 1A, Queen Street; Southsea, S. Rose and Co., 43, Castle Road, and J. R. Penning, 6, Elm Grove; Winchester, Gandy and Sons, 25, Parchment Street, and Dean and Smith, Upper Brook Street. It is gratifying to learn that the number of entries—a full list of which we propose to publish next week—is very large.

Steady Running.

It is hoped that drivers on the occasion of this run will bear in mind that it is important in the interests of the movement that they should employ only very moderate speeds, especially in passing through towns, approaching cross-roads, etc. The object of the tour is to demonstrate the advance of automobilism in this country and to impress people with the advantages and pleasures connected with it. A harum-scarum race from London to Southsea would do far more harm than good. There is good reason to believe that the police in the neighbourhood of Kingston, and indeed as far as Godalming, will be especially active on this occasion. Furthermore, the Chief Constable of Southsea has intimated unofficially that if motor-vehicles travel at a speed higher than eight miles per hour they will undoubtedly be summoned.

Moderation and Care.

SHOULD any such summonses result from a Club run the effect would not be pleasant. So far the tours have been characterised by moderation and care on the part of all participants, and there is no fear as to the exercise of the same virtues on the forthcoming occasion. At the same time, we give the warning, as there will be several non-members taking part in the affair who may be unaware of the stringent rule of the Club in this respect. There is no doubt that the committee of the Club is extremely anxious to prevent any illegal driving on the road, and that the members generally recognise their duty.

A Cup for Clean Vehicles.

IN connection with the anniversary run to Southsea Mr. A. Harmsworth, a member of the Automobile Club, has offered a £5 cup for the motor-vehicle which, in the opinion of the judges, to be appointed locally, may on its arrival on Southsea Common be the most presentable as regards cleanliness and general appearance. Mr. Harmsworth is of opinion that the public become prejudiced against automobiles by seeing them arrive in towns smothered in dust and looking generally disreputable, and that automobile drivers would do well to show pride in the appearance of their carriage, and to remove the dust and other stains of travel from themselves and their vehicles before entering towns.

Accident to Mr. Mark Mayhew.

JUST too late to be included in our last issue came the news of the accident to Mr. Mark Mayhew, L.C.C., the well-known motorist. It appears that Mr. Mayhew was proceeding home along the High Street, Wandsworth, late on Wednesday of last week, and had just crossed the Wandle Bridge, when the car—a Renault voiturette—skidded. The vehicle mounted the pavement, the collision with the kerb causing Mr. Mayhew to be thrown out on his head. Assistance was soon at hand, and Mr. Mayhew was conveyed to Dr. Badcock's, of East Hill. Here it was found that Mr. Mayhew had a nasty cut over the eye; but, although much shaken by the accident, he had fortunately escaped serious injury. After having the cut attended to Mr. Mayhew proceeded home in a cab. We are pleased to be able to report that he has almost recovered from the effects of the accident; in fact, on Friday of last week he was out for a spin on his new 16 h.p. Napier car. The Renault voiturette was much damaged, two of the wheels being broken, an axle bent and the steering gear deranged. It was taken to the works of the Comet Cycle and Motor Company, Wandsworth, where the necessary repairs are being carried out. Since the above was written we have received a letter from Mr. Mayhew, in which he attributes the accident not to a skid as we surmised, but to the fact that he must have gone over a brick, which turned the car out of its course. As Mr. Mayhew points out, the steering of the little Renault car is of the bicycle order and easily deflected, and having only one hand on the handle bar at the time of meeting the obstruction, he could not recover before the car was on the pavement. The vehicle, however, did not overturn, as was stated in several of the daily papers.

An Abandoned Contest.

THE promised excitement of a race between a horse and a motor-car up Porlock Hill has been abandoned—to the keen regret of all sportsmen. It appears that Captain Jay has parted with the horse upon which he had intended to make the ascent, and the present owner is disinclined to put the animal

to such a test. Mr. Mark Mayhew is not particularly anxious to risk his own safety and that of his fine new car—which is giving splendid results—on the dangerous gradient of Porlock Hill. Probably it is as well for both the horse and the motorist that the match has been abandoned.

Roads in London.

THE condition of the roads in London has long been a disgrace. They seem to have been at the mercy of a dozen and one authorities, who have apparently conceived it as part of their duty to disturb the roads as soon as possible after they have been "made up." One day a nice stretch of wood pavement, smoothly laid, may be seen, and then, a few hours later, what a change! In the meantime, the workmen of a gas company have probably come along and, having settled on a "claim," have "pegged it out," and proceeded to chip up the wood blocks in a delightful and leisurely manner. Having dug up a foot of earth they replace it and put wood chips loose on the top. There is then a lovely mound for the irritation of those who travel along that way. A few weeks later sewer, water, or other mains are attacked, and so the game is continued from one year to another. Even new roads are thus ruthlessly ruined and made dangerous for all classes of traffic. This state of things—so inimical to the proper regulation of our streets—must be stopped. If only on the score of economy to the ratepayers no interference to the roads must be allowed, except at certain seasons of the year, and then only by special permission of the Councils.

Conditions which should be imposed.

OF course there may be exceptional circumstances, but these should be rare indeed. Because a householder does not pay his gas bill, a company should not have the liberty to take up the centre of the roadway and inflict inconvenience upon the users of the road. The welfare of the whole community must not be subordinated in the shameful way that has been so apparent in Metropolitan thoroughfares of late. Should special conditions arise, such as burst pipes, etc., permission to deal with the roadway ought only to be given on the understanding that the work be proceeded with day and night. The road should then be relaid to the satisfaction of the surveyor. Officials and councillors will have to do their duty in this matter; the policy of *laissez faire* must come to an end, and that very quickly.

Mr. Cordingley a Candidate.

HOLDING so strongly to these views as we do, our readers will not be surprised to learn that Mr. Charles Cordingley is a candidate for the new borough council of Holborn. He is standing in the North St. Giles ward as an Independent candidate, and will be glad of the help of readers who have leisure next Thursday, and who can assist with their motor-vehicles in taking voters to the poll. We shall be glad to hear from any such owners as early as possible.

The English Motor Club.

ON Saturday last, about twenty members of the English Motor Club participated in a pleasant run to Brighton. In the party were Messrs. Jarrott, Napier, Barnes, G. H. Smith, M. Moyle, T. Maltby, Cecil Edge, Arthur Goodwin, and F. R. Goodwin. A splendid trip was much enjoyed, and on Sunday the members of the party made their way back to town at their own sweet will. In thus promoting sociability among motorists the Club has been doing a useful work.

An Interesting Fete.

IN connection with the Paris Exhibition, an interesting fête is to be held on the 31st inst. The "Fête of Means of Locomotion," as it is called, will bring together, besides the most up-to-date automobiles, the vehicles of yesterday and of the near and remote past. Roman and Gallic chariots, possibly

not altogether authentic, but at all events faithfully reconstructed, will head the procession. Some of the finest specimens of old gala coaches and beautifully decorated sedan chairs, shown in the "Centennial Exhibition of Carriage-building," will come next, with ancient diligences and the first Paris omnibus. Finally, the procession will be closed by the latest types in motor-cars. Each vehicle will carry passengers attired in appropriate costume, from Roman charioteers to modern whips, and from powdered marquises of the Regency to the French lady motorist of to-day in full motoring costume.

London to Paris.

LAST week we gave the portrait of Sir J. H. A. Macdonald, K.C.B., and in the present issue we are favoured with an interesting article from his pen descriptive of his trip between the English and French capitals on Dr. Dawson Turner's car. The excursion seems to have been a very pleasant one, marred only by the wearying monotony of the sound of "teuf, teuf," to which the Lord Justice-Clerk of Scotland has great aversion.

Motor-Omnibus for Newport.

MR. C. D. PHILLIPS has made an offer to the Newport (Mon.) Corporation to run a motor-omnibus from the tramway terminus in Commercial Road to the pier-head of the Alexandra Dock, provided the Corporation assent and grant him the requisite licence. The Lighting and Traffic Committee of the Corporation has informed Mr. Phillips, in reply, that they see no objection to the scheme, and it is, therefore, expected that the new service (the necessity for which has long been felt) will shortly be started. Mr. Phillips states that the car will seat twenty persons. He is now away from Newport making, as is supposed, a purchase of the most suitable car. The extension of motor-omnibuses to the outlying districts not yet served by the tramway system is, it is hoped, heralded by this excellent departure. There is also a good field for enterprise in a service from Dock Street to the docks.

Heavy Haulage in the City.

THE motor-wagon of the Val de Travers Asphalte Company has been the cause of a driver in the employment of that concern appearing in the City of London Summons Court. The driver said the pace was not more than four miles an hour; therefore it was unnecessary that the brakesman should be on the van, especially as he was available to apply the brake if necessary. Despite these facts a fine was imposed, and the letter as well as the spirit of the law will have to be observed in the City in future.

Motor-Cars for Military Purposes.

ON another page we refer once more to the attention which is being paid by military authorities on the Continent to the question of utilising motor-cars for transport and other purposes. For a long time we have been hammering away at the question with the view of causing our own military authorities to take an active interest in the matter, and, as recently recorded in these columns, there is now some hope of this taking place. We are glad to see the *United Service Gazette* among those who recognise the importance and urgency of the subject of the utilisation of the motor-car in military operations. Our contemporary in a recent issue remarks: Presumably our War Office is kept well informed both of what has already been done in foreign armies in the way of employment of automobiles for military purposes, and also of the details of the more extended use of them which is contemplated. But are the reports of these things merely pigeon-holed in the recesses of the Intelligence Department, or are they studied with the attention they deserve by those responsible that our army shall not lag behind in the carrying out of any ideas tending to promote its efficiency as a fighting machine? In the present development of automobilism the employment of auto-

mobiles for all these purposes may not be practicable or advantageous. But it is very certain that the motor has come to stay. What it cannot do to-day it may accomplish to-morrow.

Pennington's War Torpedo.

EARLY visitors to Richmond Park lately have been startled by seeing a motor-car travelling at an unusually fast pace. Enquiries have resulted in ascertaining the fact that it is Mr. Pennington's motor war torpedo. The vehicle has a very "uncanny" appearance, its four wheels being shod with 5½-inch pneumatic tires. The main frame is of steel tubing; the machine is propelled by a two-cylinder motor, the cylinders being 5½-inch diameter by 12 inch stroke, coupled to a central vertical fly wheel, the power being transmitted from the crank shaft to the rear or driving axle by two chains. There is the usual differential gear, and the usual gears for hill-climbing. The machine is designed to be covered with an armoured case and to have rapid-fire guns mounted for war purposes. The armoured shield and the guns will be detachable, so that the machine can be used without them. Some wonderful accounts are current of the speed of the vehicle, one correspondent putting it at between sixty and seventy miles per hour!

The Auto-Velo's Maiden Race.

THE new French daily sporting paper, the *Auto-Velo*, has quickly got to work and has already commenced the organisation of its first course. This event will take place on Thursday, November 8th, and the rules governing it present distinctly novel features. First of all, the competitors will be divided into six classes, these being:—1. Cars weighing more than 1,000 kilogrammes; 2. Cars weighing from 700 to 1,000 kilogrammes; 3. Cars weighing from 400 to 700 kilogrammes; 4. Voiturettes weighing from 250 to 400 kilogrammes; 5. Voiturettes weighing less than 250 kilogrammes; 6. Motor-cycles of several seats. These cars will be required to make an average of from fifteen kilometres as a minimum, to thirty kilometres per hour as a maximum, over the Suresnes-Meulan route. They will be handed a certain quantity of petrol at the point of departure, and will not be permitted to renew that supply *en route*. Upon returning to Suresnes—if they get there at all—the competitors will continue to run round the racecourse at Long-champs until their supply of petrol is exhausted. Certificates will be issued, stating that such and such a vehicle, weighing so much, ran a certain distance at a given average speed upon a certain quantity of petrol. The supply awarded to each category is as follows:—1. 20 litres; 2. 16 litres; 3. 12 litres; 4. 9 litres; 5. 7 litres; 6. 6 litres, and once poured into the tank this will be closed and sealed. The cars will be weighed absolutely empty, that is to say, without water, petrol, or lubricating oil. The French Automobile Club is putting up a medal for the winner in each category, and already upwards of twenty entries have been received.

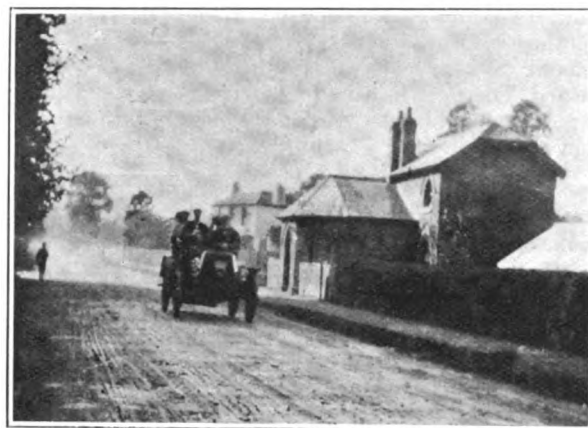
Facilities for Charging Electrical Vehicles.

MR. PERCY STILL, chief engineer of the Chelsea Electricity Supply Company, Ltd., has written to the Automobile Club stating that his company are considering the question of providing facilities in Chelsea for storing and charging the batteries of electric motor-cars. He states that they could make such arrangements if there is a probability that advantage would be taken of them to a reasonable extent. Before deciding upon the terms on which they could provide suitable space and electric current for this purpose the company would like to have some information as to the amount of current and the pressure which is usually required, the average time occupied in charging, between what hours of the day attendance should be provided at the charging dépôt for admitting motor-cars and looking after

the arrangements. Probably motorists and others interested in electrical vehicles will communicate their ideas on the subject to Mr. Still.

A Paris-Berlin Race.

THE long-talked-of race between Paris and Berlin was definitely decided upon at a meeting of the committee of the French Automobile Club last week. It was originally intended that a Paris to St. Petersburg automobile event should take place next year, but difficulties in the way of the undertaking have compelled enthusiastic supporters of the proposed Franco-Russian contest to abandon the idea for the present. Berlin has, accordingly, been chosen instead as the goal of the chief international automobile race next year. The event is to be arranged by the Automobile Club of France, in conjunction with the Automobile Club of Germany. It is stated that the German Emperor is taking a great interest in the proposal, and Count de Talleyrand-Périgord, vice-president of the Deutsche Automobil Club, announced at the meeting of the committee of the Automobile Club of France that his Majesty intends giving £2,000 in prizes for the contest. The distance by road from Paris to Berlin is 775 miles. The date of the race has not yet been fixed, but it will take place either at the end of May or the beginning of June next.



SPEEDING ALONG—A REMINISCENCE OF SUMMER.

Motor-Cars in Australia.

A CONTEST, unique in the history of Australia, took place at the Royal Agricultural Show in Melbourne on September 6th last, when a De Dion voiturette, recently imported by a local merchant, was entered for competition against the Thomson steam phaeton, a vehicle built in the colony. Three tricycles were also entered, but did not compete for the special gold medal offered by the Thomson Motor Car, Limited, to stimulate interest in the industry. The judges, although not experts in motor-cars, were experienced carriage builders, and decided to judge the two vehicles on the broadest grounds possible. The result was, therefore, a most interesting contest, both vehicles making good time on the track. Carrying loads, starting, stopping, steering, etc., etc., were also successfully performed by both vehicles, and the judges eventually gave the award to the Thomson steam phaeton, on the grounds of its greater suitability to the Australian market, that it uses kerosene instead of gasoline, and its ease in management. The award carried with it the special gold medal, the first prize and silver medal presented by the Society, and it is gratifying, writes our Melbourne correspondent, to find that the locally-made car could more than hold its own against such an up-to-date vehicle as the De Dion voiturette.

Wise Surveyors.

SEVERAL road surveyors in Cheshire are anticipating events. Instead of leaving their repairing until there is a likelihood of frost interfering with it, they have already got their men to work.

A fair amount of new metal has been laid and rolled in the Wilmslow and Alderley districts, and as the good work is still in progress on the highway between those places it behoves night-riders to travel cautiously. It is to be hoped that the Wilmslow authorities intend to tackle the slope from the foot of the station approach to the railway bridge. The macadam, which is only half-way across the road, has sunk below the level of the setts. Some of the setts themselves are in a bad way. This is also true of many other districts, and is one of those matters in which automobilists should make their combined influence felt.

Activity of the Police.

ALREADY the opponents of the motor-car in Norfolk are gloating over the activity of the police in consequence of recent speeches of county councillors and others. On Saturday, Lord Cranworth presided over the Norfolk Quarter Sessions, when the report of the Standing Joint Committee referred to the fact that instructions had been issued to the Chief-constable to apprehend all persons who travelled at an excessive speed in motor-cars. Lord Cranworth took occasion to refer to this, remarking that already the instructions issued had borne fruit, two prosecutions having taken place at Thetford, while another was pending at Yarmouth. And all the roads round about are not busy thoroughfares. That between Norwich and Thetford is usually deserted, and the journey by motor-car can generally be made without meeting a solitary pedestrian or vehicle.

Look out in Surrey!

MOTORISTS driving in Surrey must really be careful, for Captain Sant, the chief constable of the county, is applying for the sanction of the Standing Joint Committee for a general increase in the police force to deal with the automobilists who are alleged to drive furiously along the roads. Having read the county journals very carefully of late we have little doubt the increase will be granted, for there is everywhere a great deal of prejudice against motorists. Hence our warning.

A Recorder Speaks Strongly.

MR. A. R. KINGLAKE, the Recorder, in his charge to the grand jury at Bournemouth Quarter Sessions on Tuesday, made some strong comments on the excessive speed of motor-cars. He said that rules and regulations could be made by county councils, but they had to be certified by the Local Government Board, and all the answer they received from that Board was that the matter was being considered. Something ought to be done to protect the public from the risks they always ran when out with horses and carriages. What good was it for a policeman, even on a bicycle going twelve miles an hour, to try to catch motor-cars going twice as fast? It was impossible. Nor could policemen certify to gentlemen in leather jerkin and green goggles seen by them on the highway travelling at a rapid pace. People who owned motor-cars ought to have the maximum rates for fines, and if they repeated an offence it should be considered how they should be dealt with. Certainly!

Educating Councillors.

As a corrective to the arrant nonsense talked by many councillors on local authorities with regard to the speed and control of motor-vehicles, the Automobile Club intends to invite the members of councils that have to consider the question to take trips on automobiles and so lessen their horror of modern vehicles. The idea is not a new one; but it is worth the adoption of individual owners throughout the country, and we

shall be glad to hear from any owners who have been able to give trips to members of local boards, with a view of removing erroneous ideas with regard to motor-cars.

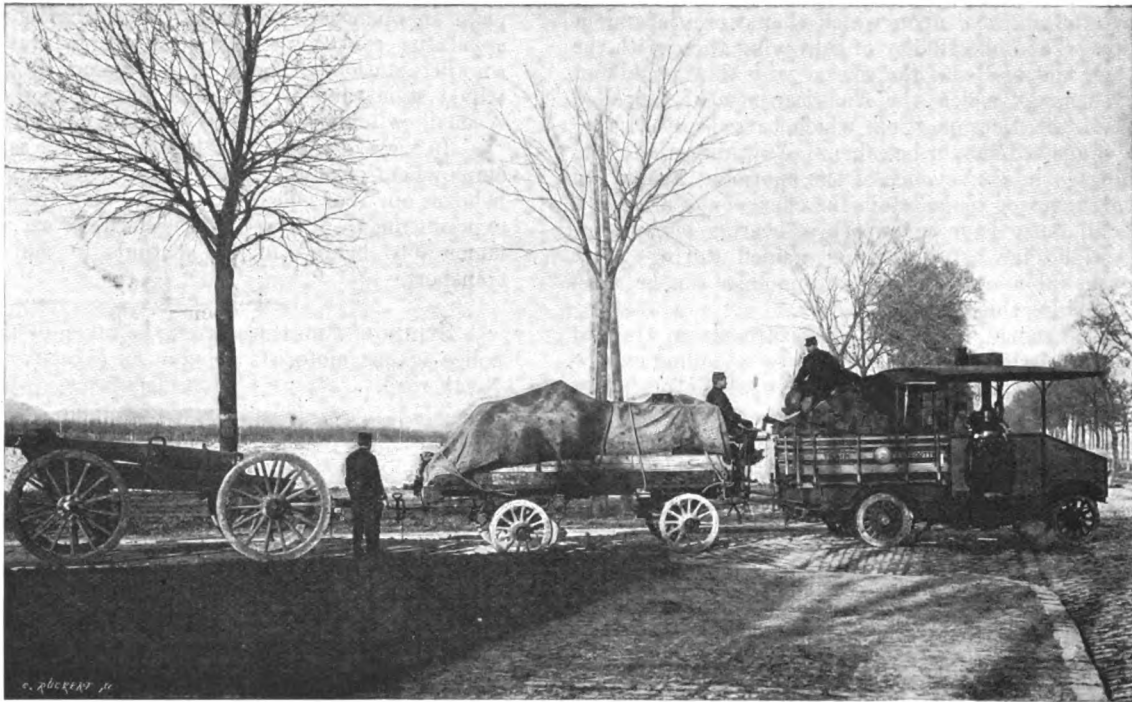
A Novel Electrical Vehicle.

At the invitation of the Geo. D. Moffat Company we journeyed to the Thames Embankment on Monday afternoon last to inspect a new type of electrical carriage which has been on view for some days at the Burlington Carriage Show Rooms, Oxford Street, W. All the electric vehicles so far designed have employed one or two motors whose power is transmitted by external gearing to but two road wheels, and in which both motors and gearing are more or less exposed. To overcome these features and obtain the greatest possible traction with high efficiency, the hub motor system has been devised. The system, which has been brought out in America by the Hub Motor Company, of Chicago, differs from all others in that a motor is placed in each hub of the wheels instead of suspending one or two motors from the axle and body. Each wheel so equipped becomes a driving wheel, giving the entire possible traction, and enables the machine to get rapidly under way when power is applied. A compact double reduction gear is encased in the hub so as to be water and dust proof, and while under usual conditions the entire equipment is in service, if an accident should occur to one or any three of the motors, they could be separately cut out and the machine operated on the remaining one. The car exhibited on Monday, which was in charge of Mr. C. Ledwinka, one of the inventors, took the form of a light two-seated vehicle carried on a tubular frame, but instead of all the four wheels being provided with hub motors only the rear pair were so fitted. The battery is placed underneath the seats and consists of forty-eight cells with a capacity of eighty-five ampère-hours, sufficient for a run of fifty miles. The battery weighs 560 lbs., and the carriage complete about 958 lbs. The wheels, which are of the wooden type, are shod with pneumatic tires. The hubs measure ten and a half inches exterior diameter, and the contained motors are said to develop normally $1\frac{1}{4}$ h p. each.

Some of its Features.

As above mentioned, the vehicle exhibited was only fitted with two hub motors, but it was pointed out that the car was only brought over to show the construction of the hub motor, and certainly the absence of any motor or transmission gear was most noticeable; the only thing unusual about the car being the relatively large size of the hubs of the wheels, to which, no doubt, we should soon become accustomed. One point which is claimed to be a great advantage is that the motors can be operated nearer the rated capacity on level roads than others, for the combined horse power can be less since the four points of contact allow better traction when muddy roads or heavy grades are met with. When bad roads or hills are encountered the four points of contact are said to allow the vehicle to run on less power than if only one set of wheels were equipped, and hence the statement is made that the total horse power can be less. It is stated that in regard to repairs the equipment is compact in each hub, and the gears cannot be thrown out of mesh and rattle as is the case when long pinion shafts are used to transmit the power to a gear on the vehicle wheel. The wheel with its enclosed mechanism can be removed in a very few moments and another unit or an ordinary carriage wheel substituted. Thus in case of a break down the whole vehicle is not laid up for repairs but only one or two hubs, as the case may be. We could not ascertain on Monday whether it is intended to place small electrical cars with hub motors of this type on the English market; but we learn that a syndicate has been formed to acquire, through Messrs. Shippy Bros., the rights in the hub motor system as applied to omnibuses and heavy vehicles, and that orders have been placed for two buses, one to seat 40 and the other 30 passengers. The larger of these is intended to run between Kilburn and the Marble Arch and the other between Liverpool Street and Brompton.

Motor-Cars for Military Purposes.



Cliché de]

FIG. 1.—A SCOTTE STEAM TRACTOR HAULING A SIEGE GUN.

[L'Acqui-de l'Automobile.

EVER since the commencement of the publication of the *Motor-Car Journal* considerable prominence has been given to the question of the utilisation of the motor-car for military purposes, and it is with satisfaction that we notice that the *United Service Gazette* has taken up the subject. In a recent issue our contemporary remarks that during this year's autumn manoeuvres on the Continent automobiles have been employed to an extent which is probably very imperfectly realised in England. In nearly every foreign army they have been

on the first day of the exercises overturned a distinguished general and his staff into a wet ditch, caused them to be regarded with some suspicion, they acquitted themselves on the whole creditably. In Germany, the Emperor himself personally tested the capabilities of a fast car at the manoeuvres, and was greatly impressed with its performances; while in Switzerland it was found that even on mountain roads they could be used with advantage.

France has undoubtedly taken the lead in the utilisation of automobiles for military purposes, and, as lately chronicled in these columns, in the recent manoeuvres round Chartres automobiles were employed for three purposes: as transport, in the place of horsed wagons, to bring up and facilitate the distribution

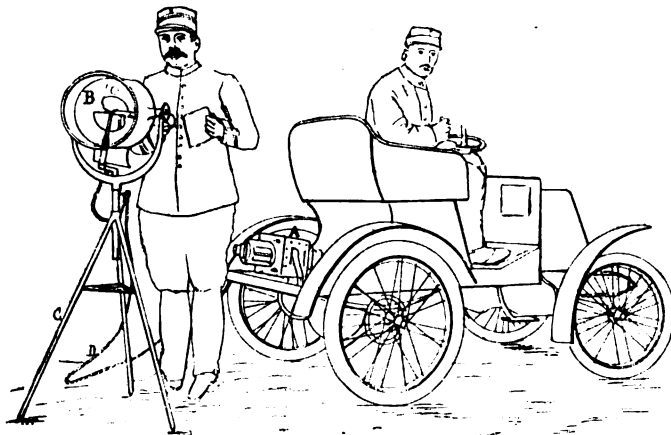


FIG. 2.—THE RENAULT VOITURETTE WITH PORTABLE SEARCHLIGHT OUTFIT.

largely used, for the most part with conspicuous success, and on the whole it may be taken that the extensive experiments carried out with them have shown that this new form of conveyance will play a very important part in the warfare of the future. In France, where they were employed for a greater variety of purposes and in larger numbers than in any other country, the reports concerning them are unanimously favourable. In Austria, experiments were made as to their working in a hilly country, and although the bad behaviour of one of them, which

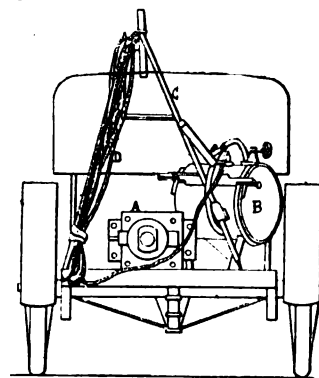


FIG. 3.—REAR VIEW OF RENAULT VOITURETTE WITH SEARCHLIGHT OUTFIT.

of supplies to the troops in the field; as a means of conveyance for staff officers, employed in collecting detailed information as to the distribution and exact position of the fractions of a widely dispersed army, or taking instructions and orders to the commanders of the units; and, finally, to carry powerful searchlights for employment in reconnoitring work.

Of these three purposes perhaps the most important one, or, at all events, the one in which it may be expected that in the immediate future the utilisation of automobiles will be most

largely developed, is the matter of transport. Recent events have shown very clearly the extent to which the movements of an army in the field are dependent upon its transport. It is now well known that the prolonged inactivity of Buller on the Tugela and Methuen on the Modder in the earlier days of the present campaign was mainly, if not altogether, owing to their inability to leave the railways upon which they were dependent for their supplies. The impossibility of conveying these with the transport at their disposal was the reason why they could not seek "the way round," which the American attaché, appalled by the strength of the Boer position, which barred any further direct advance, suggested should be taken. Anything, therefore, which will facilitate the conveyance of the enormous amount of stores of all kinds required to maintain the efficiency of a modern army in the field, must have an important bearing on military operations. And so far as experience gained during peace manoeuvres may be taken as any guide, automobiles can be most profitably employed for this purpose.

In the recent French manoeuvres, a Scotte steam tractor, hauling six wagons, carried in the course of a revictualling experiment fifteen tons of bread and covered eighty-five kilometres (about

our French contemporary, *Le Chauffeur*, give two views of this useful combination. The car itself calls for no special description at this time. At the rear is fixed a small dynamo A, giving 30 ampères at 40 volts. The motor which propels the car is so arranged that it can be connected up to and drive the dynamo when the car is at rest. Fig. 2 shows the portable searchlight plant in operation and Fig. 3 a rear view of the car with the apparatus packed in position ready to travel away to take up another station, A being the dynamo, B the projector, C the tripod stand, and D the cable conveying the electrical current. A small switchboard is fixed in the front of the car.

In view of the practical interest which is being shown in the employment of motor-cars by Continental military authorities, it behoves our War Office to lose no time in inaugurating similar experiments in this country, otherwise we shall find ourselves lamentably behind foreign nations in the matter of military transport.

STRINGENT measures are to be taken by the Huntingdonshire police against motorists going at an excessive speed on the Great North road.

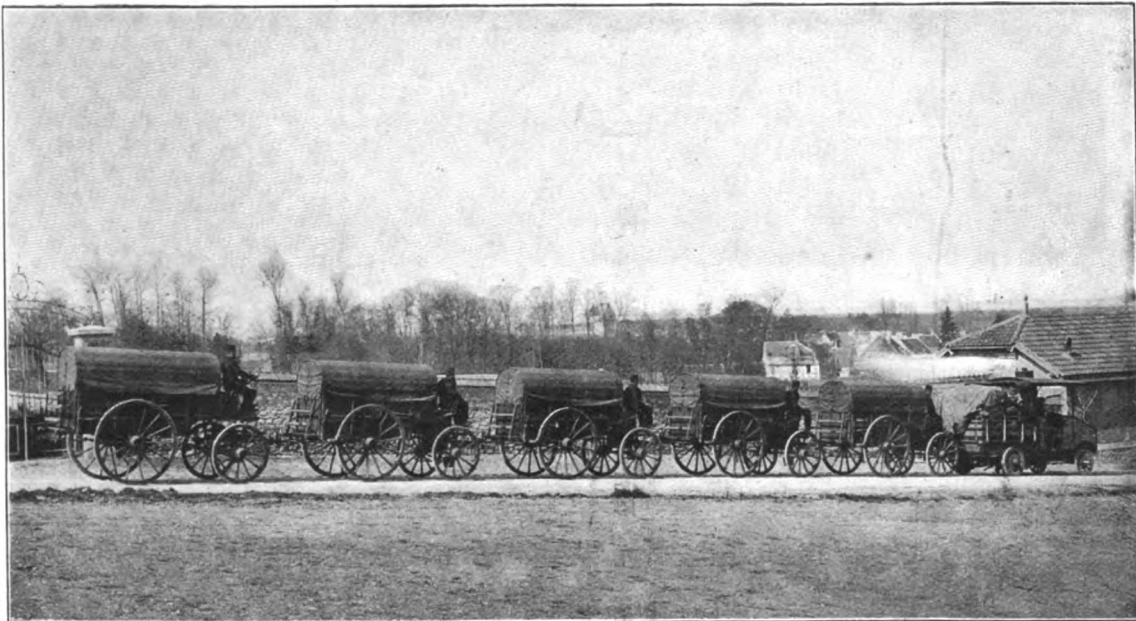


FIG. 4.—A FOOD TRANSPORT TRAIN IN THE FRENCH MANOEUVRES.

Cliché de

[L'Automobile.]

fifty-three miles) in thirteen hours. This shows an average speed of about four miles by the automobile train per hour, including five stoppages for loading and unloading on the road. The experiment lasted till 9 p.m., and it was found that after dusk such a convoy can be easily managed along the road by means of signalling lanterns. Only two men were required for each vehicle, and this alone shows the striking advantage of these trains over horse-drawn convoys; thirty-six horses would have been required for covering a distance of fifty miles with the above-mentioned load, and such a convoy would cover nearly 400 feet of road as against 150 feet, and would have to make the journey in three stages; the extra protection necessitated would also be a serious matter. We are able to publish two interesting illustrations of the Scotte trains used in the recent manoeuvres. Fig. 1 shows one consisting of a tractor hauling a siege gun and its necessary adjuncts; Fig. 4 representing a tractor and five wagons for food transport.

It is not only heavy cars that are finding employment in the French army. We have already in previous issues illustrated a motor ambulance car, travelling telegraph office, postal van, etc., and referred to the large numbers of cars which were employed around Chartres for the transport of officers. Mention was also made a few weeks ago of the portable searchlight plant mounted on a Renault voiturette which was experimented with in the recent manoeuvres. Figs. 2 and 3, for which we are indebted to

NOTIFICATION has been received of the intention of manufacturers to enter, collectively, at least 12 vehicles for the trials of electrical vehicles which are being organised by the Automobile Club for the 5th, 6th, 7th, and 8th of November.

THE British Consul at Chicago, in commenting on the recent automobile exhibition in that city, in the course of a despatch to the Foreign Office, remarks that "there should be a great opening in the United States for automobile or steam trucks, although the country roads and some of the city streets are in a deplorable state. This is a branch that has not yet been exploited, and with a pushing agent and quick delivery a trade could be built up; but if the machines proved successful and took the market, American manufacturers would probably soon start in competition."

THERE is a movement on foot among certain members of the Automobile Club of America, looking toward the obtaining of a decision from the Supreme Court of the State of New York, in regard to the discretionary powers vested in the New York Park Commissioners, under the new charter. The commissioners at first excluded all automobiles from Central Park, but after protest had been made by automobilists, they receded from this position and passed a special rule excluding all motor-vehicles from the park except upon permits issued by them, and restricted up to the present to electric vehicles.

LONDON TO PARIS BY MOTOR-CAR.

BY SIR J. H. A. MACDONALD, K.C.B.

MY friend Dr. Dawson Turner having kindly undertaken to give me a seat on his 10-h.p. Delahaye phaeton from London to Paris and back, we started at 4.30, on a beautiful autumn afternoon, and after painfully threading our way through the busy traffic of South London, had a delightful run to Maidstone—forty miles—which we reached at eight o'clock running slowly in the darkness for the last hour. Next morning, starting at eight, we ran to Folkestone—thirty-five miles—by 9.30, where the car was cleverly hoisted on a wooden frame, and lowered to the deck of the steamer, the seamen being stimulated by an evidently expected, and indeed asked for, tip.

The passage to Boulogne was not of the pleasantest, there being a stiff breeze from the east, but fortunately not making a substantial lunch at Boulogne impossible. On reaching a foreign shore little time passes before one realises that time is not of such consequence to the Continental mind as it is to ours. First, a very leisurely removal of a number of horses from the steamer. By their build we guessed them to be racers, which would account for their being accorded precedence; but as we knew that, although our phaeton was unshipped last, he could easily outstrip and outlast them, for all their breeding, we held them in good-natured contempt. Here there was no frame. Loops of rope were placed over the wheel hubs, and thus was our phaeton hoisted into mid-air. A nervous thirty seconds and the wheels were on *terra firma*. More tips and more contempt of time. For three and a half mortal hours did I sit in the car, consuming my soul and all my light literature, while the doctor and an English agent wrangled with French Custom officers, trying to convince them that a French-made carriage, which was registered in their own books as having passed through France before, should not pay duty as an import from foreign lands. I was not patient, but I looked it, while loungers came around and stared and gesticulated and chattered. At last, at 5.30—we had reached Boulogne at 1.30—the doctor, whose quiet, calm persistence I had admired, mounted to the tiller, “teuf, teuf,” went our horn, and we moved off on the slow speed with the first hat-liftings of Continental politeness, in our case very much on the surface indeed, being much in the mood of Sir Peter Teazle when Joseph Surface tried to ply him with sentiment. Being so late, darkness was on us soon, but we ran twenty-five miles on a most excellent road to Montreuil-sur-Mer, an interesting old fortified town, where we found a good specimen of a French country hotel, the Hôtel de France. Joining the *table d'hôte*, we found ourselves amidst a number of English-speaking people, much to our surprise.

Next morning at eight we were again on the road. Oh, how it did blow that day, making us thankful for two mercies; first, that we were across the Channel, and second, that we were not running by lamp ignition. Judging by past experience, I feel sure that had we been fitted with incandescent tubes, our match-boxes and our patience would both have got very low indeed, and instead of doing 106 miles by 7 p.m., we should have been dribbling along with as many stops as there were finger-posts. And that would have been many indeed, for the excellent manner in which the French roads are indicated by clear notices of places, direction, and distances, puts us in Great Britain to shame. In the middle of the day we stopped at Beauvais and got excellent entertainment at the Hôtel de l'Europe, where we found another car and a motor-tricycle in the yard. The owner of the latter was evidently glad of an opportunity of exhibiting his knowledge of the English tongue, in which he was voluble and intelligible, if not always idiomatically accurate. We learned that he was in the Queen's service, and was on a summer holiday to visit his parents, returning to Balmoral the following week. He had been nine years in England, and said he was more an Englishman than a Frenchman. It was fortunate he told us this, as otherwise we might not have found it out. Here we took in petrol, twice the price it is in England. We rode on and stayed the night at the Grand Cerf, in Pontoise, not the best hotel in

France by any means. Next morning on to Paris, when we drove straight to Messrs. Delahaye's works, that our noble steed, which had carried us right well, might have an overhaul.

The Exposition has had its wonders turned over in every newspaper. I shall confine myself, therefore, to saying only this, that the show of automobiles, both in the Exhibition and in the Annexe at Vincennes, would convince the most rabid anti-automobile partisan that the motor-car is not only coming, but is come, and come strong, so that he must just get reconciled to it, as his father or grandfather got reconciled to “the igoming o' railroads,” assuring him that he, like his progenitor, will find that with reconciliation will come appreciation and enjoyment.

Alas! the show also made it plain how far behind this country is in motor-car manufacture. Not a single carriage built by any British firm is to be seen either at the Exposition or in the Annexe at Vincennes.

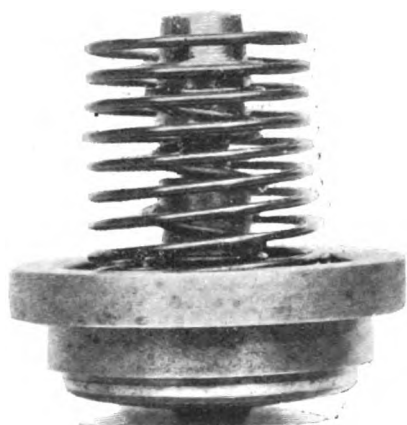
After two days in Paris we left it at 10.30 a.m., and slowly moving across the city, got on to the open road about 11.15, and with two stops for breakfast and tea, and a drink of petrol for the phaeton, we ran to Abbeville, 106 miles, by 7.45—a delightful run in charming weather, our only annoyance being that we ascertained finally what we had gradually come to suspect: that there is nothing so effectual for keeping out the sound of “teuf, teuf” as the canvas hood of the ordinary French covered cart. Having two horns on board we were able to make a noise sufficient to prevent the most stentorian-lunged candidate at an election from reaching even the reporters' ear with one single word. Yet often, apparently, no sound penetrated the canvas hood until we were within four or five yards of the cart. Everyone in France is so kind in clearing the road that the failure of “teuf, teuf” when coming up from behind can only be attributed to the non-conducting character of French cart-hoods. Personally I detest “teuf, teuf,” and would be glad of any evidence that would convince the motorist that a melodious double gong was a more effective means of attracting attention than the horrid harsh horn that makes life a trial in Paris. I have made a vow that never will I use a “teuf, teuf” until the double gong is forbidden by law.

This delightful ride was my last. Our steed did nobly, and the pace was often up to the limit that a grey-haired grandfather would care to run at. His life is less valuable than that of child and grandchild, but he values it more than they do theirs. We saw at least twenty-five automobiles during the day, which gave us the exhilarating feeling that things are progressing in the power traction world, and progressing fast; but sometimes too fast. One car did fly by us like the wind. I would not have ridden on that car—to save my life, I was going to say—and will say, for fear of my life. I saw what could be done, but I have no wish to do it. As I said, our steed did nobly—quite fast enough for me. And now came the fly into our sweet ointment—the reminder that care sits behind the traveller, whatever vehicle he may choose to ride on, ready to push his black visage into your face if by the slightest failure you give him his opportunity. The conduct of our gallant Delahaye until we entered the street leading to our hotel was like that of a spirited mount—game to the last. But just as a horse at the sight of the posting inn feels that his work is done, and relaxes, and in spite of all urging will stop at the stable door, so did our power-horse slow down and stop, and make it plain he would go no further. It looked as if he had a will of his own at last, and wished to indicate that he considered 100 miles odd to be enough for the day. By the aid of willing hands he was trundled into the yard. Searching for what was amiss, the steed was justified and the groom condemned. Failure to lubricate sufficiently had caused a pulley bearing to heat, with consequent burning. Before I went to bed all was right again; but, alas! in the morning the doctor put his head in at my window, which looked out on a balcony, and told me not to get up. He and his mechanic had been trying the running with a jacked up wheel, when the jack had overbalanced, and the wheel coming suddenly to the ground, had caused a jam in the differential gear. This meant some hours' delay, and as I was under engagement to be at home by a certain time, I reluctantly had to give up the rest of the run and come home. I heard from the doctor that all was right and that he rode home successfully.

This run will always be a pleasant memory to me, the more so as I came to realise that good, cheerful, sufficient speed can be attained, although a driver is careful, treats the rest of the traffic with friendly consideration, and only goes fast when prudence gives sanction to what eagerness cries out for.

THE ESTCOURT INDUCTION VALVE FOR DAIMLER MOTORS.

MR. E. ESTCOURT, who has introduced several novel arrangements in his Daimler car, has lately devised an improved induction valve for Daimler engines. The valve, as will be seen from the accompanying illustration, is fitted with two springs, one outside and one inside; it is practically a Daimler valve fitted with a special nut on the stem, and a spring in the centre. The centre spring does not come into action at all until the valve has had three millimetres lift, the valve-nut does not then knock against the valve seat, but the spring acts as a buffer, giving a little more lift, and then returns it very much quicker to the seat. The principal advantages of the new valve are: First, the quick return of the valve, giving $\frac{1}{4}$ to $\frac{1}{2}$ h.p.



more on the motor when running fast; second, the inside spring acts as a buffer, and so does away with the knock of the nut on the stem of the valve seat, thus lengthening the life of the valve and valve stem. It is also said to be much quieter in running. Mr. E. Owers, of West Hampstead, has had the new valves fitted to his motor, with the result that he claims to be now able to mount hills on the third speed which formerly he was only able to take on the second speed. The sole right of manufacture of the Estcourt valve has been secured by Messrs. J. W. Brooke and Company, Ltd., Adrian Ironworks, Lowestoft, who inform us that they are now both in a position to supply the same and to convert existing Daimler valves to the Estcourt type.

THE Baroness Campbell V. Laurentz, of Windsor, has a four-seated Locomobile, on which she commenced a long tour on Monday.

PETROLEUM SPIRIT is stored at Cunningham's Motor Works, Clitheroe; and also by Mr. William Rootes, Hawkhurst and Goudhurst, Kent.

THE 1901 pattern of the De Dion voiturette is to be fitted with a 4½-h.p. motor. Under the name "Imperial," the De Dion-Bouton British and Colonial Syndicate, Limited, are introducing a four-seated car of this type. It will be fitted with a reversing gear, and is intended for a speed up to 28 miles per hour.

THE Riker Motor Vehicle Company, of Elizabethport, New Jersey, have lately supplied a curious-looking vehicle to the U.S. postal authorities at Washington. The car is designed especially to meet all the requirements of the service. The distance which may be travelled on one charge is 25 miles and the speed 12 miles an hour. The carrying capacity is 200 pounds in addition to the operator.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

The Moto Club of Belgium and Driving School.

THE Moto Club of Belgium will hold its general meeting on Sunday next, when several important matters will be under discussion. Not the least interesting of these will be the question of creating a driving school, and if this proposition be ultimately carried into effect the Moto Club will earn the gratitude of automobilists and public alike. Such an institution would be a boon in every town where automobilism is practised, and would undoubtedly minimise the number of accidents which, in nearly every instance, are occasioned by the novice's over-confidence. Of course there is every difference between the quiet seclusion of a school and the bustle of a busy thoroughfare, and I do not for one moment agree that a series of driving lessons under the former conditions would render a man perfectly competent. No, far from it; but I am convinced that a little coaching of that description would take the raw edges off, and give the beginner a little nerve and decision, as well as a good general idea of his car's capabilities. One of the most serious difficulties is to find sufficient space for such an establishment, indeed, in London, for example, one would have to go very far afield to find a suitable spot at anything like reasonable rates. In Brussels, however, this drawback is not so serious, and if the Moto Club carry out their project they should be able to instal the school within a reasonable distance of the centre of the town. And there is no reason why such an institution should confine its efforts merely to the teaching of driving. Technical instruction also might be given, and I am sure that any number of private owners would gladly avail themselves of an opportunity of becoming thoroughly versed in the mechanism of their cars. There is hardly a limit to the possibilities of such a school under good management; so may the Moto Club go in and win.

Demester Again.

ON Thursday, the 18th inst., and Saturday, the 20th inst., Demester, the latest motor-cycle record-breaker, and of whom I made mention in last week's issue of the *Motor-Car Journal*, put in some truly startling performances at the Parc des Princes, during the course of which he annexed five new records. In all he made three trials, on each occasion starting with the intention of setting up a fresh record for the hour, and on each occasion being compelled to stop when but little over the half time had expired. On the Thursday it was rain which pulled him up, and on Saturday tire troubles forced him to retire. When compelled to abandon on the first trial he was going particularly strong, and no one among the spectators would have been surprised to see seventy-two kilometres crowded into the sixty minutes—forty-five miles within the hour! Not bad going, I think you'll agree. On Saturday the strong wind prevented quite so high a rate of speed being attained, but still Demester had succeeded in securing the record for thirty-eight kilometres before one of his tires gave way. During the last attempt a pneumatic burst at the thirty-second kilometre, and the rider escaped an upset by a miracle. But if Demester's dream was not entirely realised he had the satisfaction of beating the previous best as follows:—

	Demester.		Béconnais.
	m. s.		m. s.
30 kilomètres.....	24 59	.....	26 31 $\frac{1}{2}$
32 „	26 39 $\frac{1}{2}$	.....	27 47 $\frac{1}{2}$
34 „	28 29 $\frac{1}{2}$	.....	29 33 $\frac{1}{2}$
36 „	30 24 $\frac{1}{2}$	.....	31 21
38 „	32 15 $\frac{2}{3}$	.....	33 3

Rigal's figures up to and inclusive of twenty-nine kilometres still hold good. Who will be the next candidate for record honours?

The Awards at Vincennes.

I AM now able to communicate the list of awards made by the jury in connection with the two last competitions at Vincennes, awards which have been awaited eagerly by the public and competitors alike. The first of these two contests was known as "Les Poids Légers," and was a competition quite special for the light-delivery class of vehicle. These small fry were required to make a daily journey through the heart of Paris, and during the six days of continuous work 307½ kilomètres, or about 192 miles, were covered. Loads varying in weight from 100 to 300 kilogrammes were carried. The official classification is as follows:—

Gold medals.—No. 3, De Dion-Bouton (petrol); No. 2, Peugeot (petrol).

Silver-gilt medals.—No. 9, Gillet-Forest (petrol); No. 11, Riker (electric).

Bronze medals.—No. 8, Fernandez (petrol); No. 7, Corre (petrol).

The consumption of petrol per kilomètric ton of load was:—No. 3, 0 litre 842; No. 2, 0 litre 9063; No. 9, 0 litre 911; No. 5, 1 litre 235; No. 7, 1 litre 983.

The other competition was "Les Poids Lourds," to which reference was made last week in this column. Here the awards are:—

Omnibuses.—Gold medals { No. 7, De Dion-Bouton (steam).
 { No. 3, Panhard and Levassor (petrol).

Lorries.—Gold medals { No. 8, De Dion-Bouton (steam).
 { No. 9, Peugeot (petrol).

" Silver-gilt medal, No. 4, Panhard and Levassor (petrol).

" Silver medal, No. 10, De Dietrich (petrol).

Delivery Vans.—Silver-gilt medal, No. 3, Riker (electric).

From these lists it is evident that the older established firms continue to have matters much their own way, and that none of the new productions can seriously compete with them. The jury, consisting of MM. Forestier, Quesnay, and Louis Mill, Baron Zuylen, Sir David Salomons, Count Talleyrand-Périgord, and Count Chasseloup-Laubat, will doubtless publish full details of these two competitions in due course, and they will certainly be awaited with considerable interest.

Last Sunday's Motor Race.

LAST Sunday's motor-cycle race at the Parc des Princes was entirely spoilt by the rain, indeed, the wisdom of deciding the race at all on such a slippery track may well be doubted. The distance was twenty kilomètres, and the six competitors were Béconnais, Bertin, Fossier, Rigal, Reith, and Léopard. Rigal, mounted on his 12-h.p. Buchet, started off at such a furious pace that in the first lap he secured a hundred metre lead upon the field, and actually accomplished the 666 mètres in forty-one seconds. But his triumph was but of short duration, for during the second lap a terrific sideslip caused one of his tires to burst, and *voilà!* Béconnais also could do no good, and the rain brought about his eventual retirement, while it caused numerous *pannes* to all the other racers except Bertin. This latter cyclist had no mishaps from end to end, and in accomplishing the distance in 18 minutes 24 seconds he quite out-reached his rivals. Fossier secured second place, and Reith third, with Léopard acting as whipper-in. Motor racing is dangerous enough in all conscience on a dry track, but with a wet surface it is absolute madness, and the organisers of sports meetings should not call upon the men to turn out under such conditions. Of course, they plead that the public must not be disappointed, and when they have to control such a disgraceful crowd as the one which was at the Parc des Princes on Sunday last, one is not surprised at their disinclination to change the programme. But even to please the crowd the competitors should not be forced to take the track under conditions so terribly dangerous, and the sooner that the public realise that motor races will only be decided on dry tracks the better it will be all round.

An Accident in Paris.

WHAT might have been very serious accident took place some days ago to one of the automobiles owned by Baron Henri de Rothschild, and it came about in this way. At about two o'clock in the afternoon an electric tramcar was slowing up at the station in the Place Percire, when the Baron's carriage, driven by an engineer named Martin, attempted to cross the rails, the driver apparently thinking that the tramcar had stopped. A violent collision ensued, and the fore part of the automobile suffered severely. The *chauffeur* jumped from the car and escaped scathless. The damaged carriage is a coupé, but the car driven by Baron Rothschild himself is a 26-h.p. Daimler, and this would appear to be his favourite steed. No automobilist is better known to Parisians than the Baron, for mounted on his big red car he is to be seen daily speeding through the streets of the capital, and the huge Daimler itself commands attention. Even the *cocher* makes way for the German giant.

The French Prime Minister Joins the Ranks.

AMONG the latest converts to automobilism is the Prime Minister of France, M. Waldeck-Rousseau. He has yielded to the fascination of the steam motor-car, and may be expected shortly to purchase one of the vehicles for his own delectation. M. Waldeck-Rousseau has, indeed, been observed undergoing initiation into the mysteries of the new locomotion and experimenting in motor-driving even in the solemn precincts of the courtyard of the French Home Office. He made trials in sharp turnings, in sudden stoppages, and backing, under the direction of M. Serpollet, on one of the latter's 8 h.p. cars. It is now M. Loubet's turn to fall a victim. The President of the Republic has expressed a wish to go for a ride in an automobile, and the trip will take place at an early date in the Bois de Vincennes.

Another Royal Automobilist.

JUST as M. Waldeck-Rousseau was descending from the car, the King of Belgium drove into the courtyard for the purpose of leaving his card. King Leopold was but in a horse-drawn carriage, and the sight of the Minister *en automobile* may have had something to do with his subsequent visit to Charron's *garage*, where, it is reported, a splendid 12-h.p. Panhard car was purchased. The King of Greece, who is also at this moment in the home of automobilism, might well follow this example and so add yet another to the list of sovereigns and royal personages who appreciate the delights of the new mode of locomotion.

Closing Fêtes at Vincennes.

To mark the closing days of the Paris Exhibition a couple of fêtes are in course of organisation to take place at the end of the present month. One of these will be known as the "Fête des Transports," and will be held on Wednesday, the 31st inst. The date of the other fête has not yet been decided upon, but its programme has already been prepared, and presents some truly attractive features. There will be a series of races round the Lac Daumesnil for motor-cycles, voiturettes, and cars, and in addition the usual gymkhana sports. The motor-boats, too, have not been overlooked, and a couple of races will be contested on the lake. It promises to be a very interesting automobile gathering, but all depends upon the weather.

The French Automobile Club.

AT the meeting of the committee of the A.C.F. last week, Count De Dion's proposals to organise an automobile tour of France, on the lines of the English 1,000-mile Trial, was adopted in principle. In May next there will be held an accumulator competition; in June a motor-cab and light delivery van competition; and in October, 1901, the *Poids-Lourds* competition is to be repeated. It has also been decided to organise in December next a cycle and motor-car exhibition, in conjunction with the Chambre Syndicale de l'Automobile and La Chambre Syndicale des Fabricants de Cycles.

THE MALLIARY VOITURETTE.

M. GABRIEL MALLIARY, of Rue Collin, Puteaux, near Paris, has sent us particulars of a new motor-voiturette he has lately put on the market, and of which an illustration is given herewith. M. Malliary fits the motor and the whole of the transmission on an independent frame of tubular construction, to which any type of carriage body can be fitted. The illustration shows a three-seated spider, but a four-seated *tonneau* can be substituted therefor, the builder making a

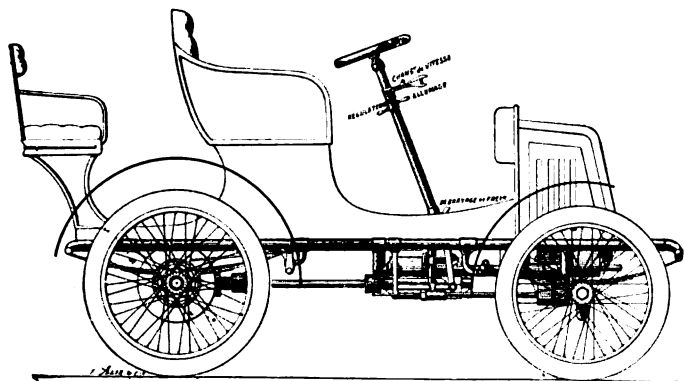
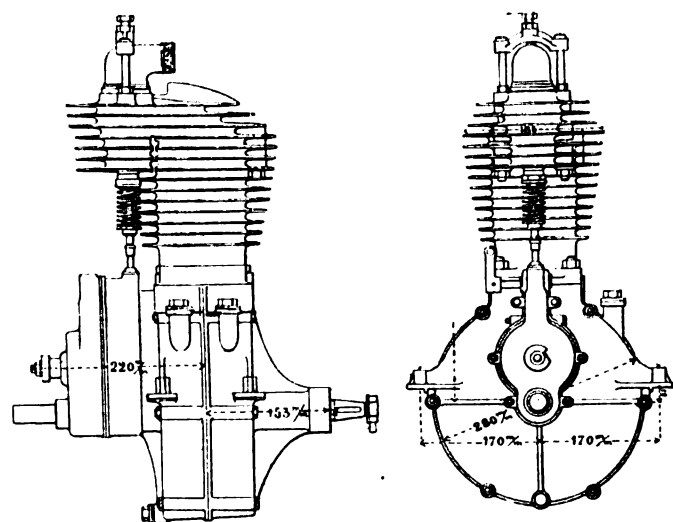


FIG. 1.—THE MALLIARY VOITURETTE.

speciality of a body which can form a small delivery van with seats for two persons or be quickly converted to a *tonneau* for four persons.

Coming now to the mechanical part of the car, it will be seen that the engine is located under a bonnet in the fore part of the frame. M. Malliary fits a motor of his own design; it is of the single vertical cylinder type of 5½ h.p. (Fig. 2). It will be noticed that the engine is air-cooled, the fins being large and continued around the explosion chamber and exhaust valve, the builder claiming that by his system of construction he gets almost as good results as with a water-cooled engine. However, recognising that many motorists prefer the latter, notwithstanding the increased weight, etc., he has arranged to fit a 6 h.p. water-cooled single-cylinder engine, together with pump and radiator when desired. The motor is provided with a regulator, by



FIGS. 2 AND 3.—ELEVATIONS OF MALLIARY AIR-COOLED MOTOR.

means of which the speed can be varied between 500 and 1,600 revolutions per minute.

Three speeds forward—7½, 16, and 23 miles per hour—and a reverse motion are usually provided, but if necessary the backward motion can be omitted and a fourth higher forward speed substituted. The power of the motor is transmitted through a friction clutch to a short variable-gear shaft gearing with a longitudinal shaft below. The latter is provided with universal

joints and terminates in a bevel pinion meshing with the corresponding bevel wheel surrounding the differential gear on the rear live axle. Steering is controlled by an inclined hand wheel on the standard of which is mounted the change speed lever and the handles controlling the carburation, ignition, etc. The steering pillar, too, is pivoted at the bottom, so that it may be pushed out of the way to allow free ingress to the car.

Ample brake power is provided, there being a pedal-operated band brake around the differential gear on the rear axle; this brake works in conjunction with the friction clutch, that is to say, the latter is withdrawn and the motor thus put out of gear on the application of the brake. A second pedal controls band brakes on the hubs of each of the rear wheels. The car complete weighs about 5 cwt.

THE DAIMLER MOTOR AND TRANSMISSION GEAR.

IN connection with the discussion on the above subject in the *Automobile Club Notes*, Mr. J. Ernest Hutton, of Northallerton, sends the following letter:—"It is a matter of great interest to read Mr. Worby Beaumont's letter on this subject. It would be impertinence to attempt to criticise an engineer of such ability and prominence as Mr. W. Beaumont; but there are certainly some points in his statement which are contrary to the experience I had of the car in question (sometimes irreverently called the 'camel'). I never observed any greater difficulty in changing the speeds, which I was able to effect absolutely without noise.

"With regard to the inertia of the fly-wheel, surely the fly-wheel itself is so small as compared to the total mass of the car, that when the engine is in gear (and supposing the friction clutch be not slipping at all), the whole car becomes an 'accumulator,' when in motion. With regard to the gear which I recently had occasion to take out of the Panhard in question, this appeared to be in wonderful order, and I could not see any more wear, resulting from the twin engines, than was formerly caused by the 6 h.p. ditto, in the earlier days of my novitiate. The practical result may be of interest; when a 6 h.p. car, I did well to average sixteen to twenty miles per hour, and my last good run on the twin was from Northallerton to Peterborough (160 miles) in 5½ hours. No stop, except for lunch."

MR. GEORGE SMITH, 55, Fisherton Street, Salisbury, is the winner of the motor-quadracycle offered as a prize in a recent competition in *Answers*.

A FIRM at Dorchester, Mass., U.S.A., is building a steam delivery wagon for the publishers of the *Pittsburg Press*, Pittsburg, Pa. It weighs 1,500 pounds, has an 8 h.p. engine, and is fitted with wire wheels and double tube pneumatic tires.

A NEW apartment house in course of erection on West End Avenue and Seventy-ninth Street, New York, will have attached to it a *garage* for housing the motor-cars of tenants. Facilities for charging the electric vehicles are provided on the first floor, and the second floor is intended for living apartments for the vehicle attendants.

WE learn that the Thomson Motor-Car, Limited, of Melbourne, Victoria, are now building two four-seated steam cars of a standard type, which they hope to list at under £200, and which will be capable of running fifty miles without recharging. The company is considering the question of establishing large works near Melbourne.

MOTOR-CYCLES figured in but two events at the race meet run in connection with the opening of the Tri-State Fair at Guttenberg, N. J., recently, the machines being divided into classes. The five-mile race for four-wheeled petrol vehicles, carrying two passengers and weighing less than 1,000 pounds, was won by Mr. C. J. Field, of Brooklyn, on a quadracycle, with Mr. F. D. Craven, New York, second, and Mr. J. Louveguéz, Brooklyn, third; time, 11 min. 13.3 sec. In the five-mile race for tricycles Mr. C. S. Henshaw won in 8 min. 24.3 sec., beating Mr. Louveguéz and Mr. S. R. Atkinson.

HERE AND THERE.

THE committee of the Automobile Club are inviting manufacturers and agents to send authorised representatives to a meeting which is to be held at the Club, 4, Whitehall Court, London, S.W., on Friday, November 2nd, at 5 p.m., to discuss what should be the nature of the event, if any, in 1901, which would correspond with the "1,000-Miles Trial" of 1900.

AMONG the new candidates for membership of the Automobile Club are Col. Stratton Bates, Major Helbert, and Mr. Harry Tangye, of Birmingham. Major Helbert is proposed by Sir David Salomons, who has recently presented eight interesting engravings, illustrative of road travel, to the Club.

WHEN riding in London always obey the policeman. Two well-known motorists were journeying along Oxford Street the other day, and at the Southampton Row corner were stopped by Robert Constable, who was regulating the traffic. They went about three feet beyond his majestic person, and it was interesting to see the gentleman at the wheel get down and push his car to a level with a bus that had halted. He did it with a grace and courtesy that quickly re-established him in the esteem of the policeman. Such actions are better than fuming, and help to sustain the lenient bearing of the average policeman in the London area towards automobilists.

HERE is an imaginary police report on a motor-car which passed through a country town the other day:—

"A motor-car has just flown through the town. I received telephonic intimation of its coming from a station twenty miles away. Hardly had I put up the receiver when a loud noise not unlike a screeching owl and small foghorn was heard, and as I got to the door I saw a whirling cloud of dust and heard "teuf-teuf." From that ominous sound I concluded it was the motor-car of which I had warning. No regard was paid to the bye-laws of the county. I learned afterwards that for a distance of five miles horses and pedestrians dodged in every direction, but before they had time to get out of the way the machine had curved past them and was fast fading in the distance. At the corner of the market-place a woman was about to cross. She was half-way across, when the machine loomed up and was so close to her that she had not time to get out of its way. This did not bother the driver, as he whirled the machine around her in a sort of semi-circle, without slackening speed, and passed on without even looking around. The woman was so frightened that she collapsed in the street and came near fainting. She was helped to her feet by passers-by who had seen the occurrence. All the way up the town, horses and pedestrians were frightened until they could scarcely breathe at the narrow escapes. Had it been possible to get hands on the careless driver he would have been arrested, but he was far out in the country before any one could collect their wits.

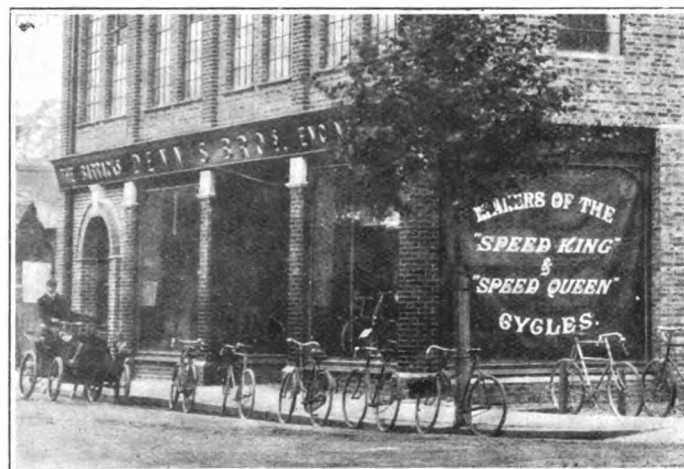
"P.S. (added two days later).—I have since ascertained that the motor-car of which I had telephonic communication broke down before it got out of the town from which my information came. The inspector instructs me to say that the car which I referred to as going at a lightning speed was the new motor-dust cart acquired by the town, and that its speed was probably four miles an hour. Are we to prosecute on the information contained in my first report?"

MR. C. JARROTT has not given up the attempt to do forty miles inside the hour on his motor-tricycle. He intended to go down to the track at Canning Town for the purpose on Friday, 26th, but, unfortunately, owing to the *Journal* going to press on Thursday evening, I am unable to give the result this week.

I LEARN that Mr. J. R. Egerton has been at Normanhurst, Battle, teaching a man to drive and understand the ways of the voiturette which Lord Brassey recently purchased. Since Lord Brassey has had the car it has been out nearly every day with

Lord and Lady Brassey aboard or else some friends staying at Normanhurst, Mr. Egerton driving.

As recently announced in these columns, Messrs. Dennis Bros., of Guildford, have got into their new works and show rooms "The Barracks." I am able to give a general view of the show rooms on the ground floor, where the offices are also situated. The upper part of the building is devoted to factory operations, the first floor being for the machine shop and plating



departments. Land adjoining the works has been secured for further extensions. The new works have enabled Messrs. Dennis Bros. to double their output of the Speed King motors. Just at present they are experimenting on two new types of motors, about which more anon.

WHILE in Caithness assisting the candidature of Mr. L. Harmsworth, Mr. Stanton made himself thoroughly acquainted with the roads and traffic of the district with the view of promoting a system of motor-car service. He is strongly of opinion that both for goods and passengers such a system would be of immense benefit to the public and would prove a financial success. Mr. and Mrs. Stanton left for the south by ordinary train. It was his intention to have taken the road across the Ord, but the weather proved unfavourable, and the motor-car, to which some local people go the length of attributing the success of Mr. Harmsworth's candidature, was conveyed south—also by rail.

MOTORING seems to have got a great impetus in Scotland through the elections, but, so far, I have heard of only one lady motorist resident north of the Tweed. She is Miss Speedie, of Dollar, and has driven more than 900 miles on her De Dion voiturette.

DURING the recent election the Anglian Engineering Company, Ltd., of Stowmarket, drove Mr. Ian Malcolm, M.P., on an International Benz car more than 1,000 miles in thirteen days. There was no hitch during the whole of the time—a performance which, considering the roads in north-west Suffolk, must be regarded as capital. The company is able to undertake repairs, and also to charge the accumulators of any electric cars going their way.

NEXT Thursday the first election of councillors for the new London boroughs will take place. These councils will be the highway authorities within their respective areas; hence the interest that automobilists should feel in the election, and in the success of gentlemen who will give the care of the roads their serious consideration.

MR. F. GUY LEWIN has opened a dépôt in High Street, Kingston-on-Thames, where, as the Kingston Motor Company, he will store petrol and execute repairs to motor-vehicles. Seeing the numbers of automobilists passing through Kingston, he should be kept busy in connection with his petroleum-spirit department.

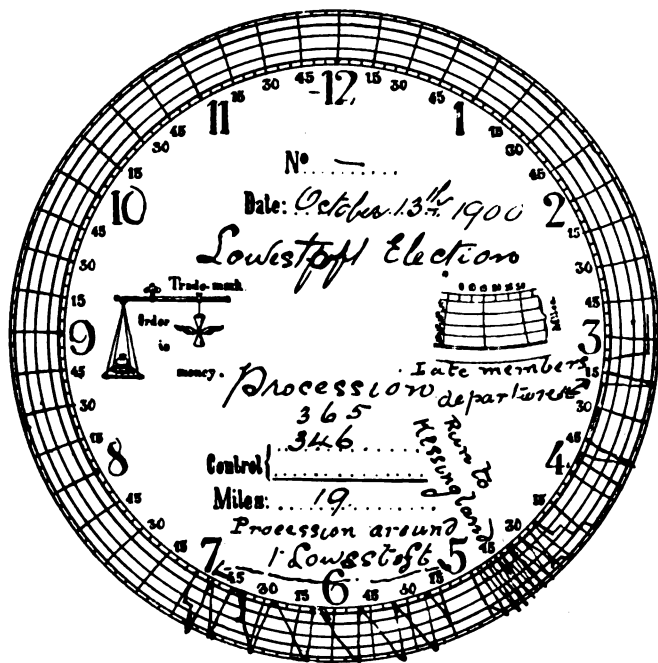
LOLLIUS.

CORRESPONDENCE.

AN INGENIOUS LOG.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I enclose one of the road logs as made by a very useful, interesting, apparatus supplied and fixed to my car by Mr. Harrington Moore. The principle of the apparatus is a clock that is set to the correct time. This clock rotates the paper dial; at the same time a flexible shaft, operated by the driving or road wheel, marks a line across the space ruled off into quarter-miles on the edge. Each mile is shown by the line from the outside edge to the inside edge of this space; the pencil then flies back and commences the next mile. As the log shows, the apparatus was set going at 2.50 p.m. The car was stationary until 3.5; it was then run three-quarters of a mile in about four minutes, then stopped for five minutes. A mile was then run in about four minutes, this being followed by a stop of half-an-hour; then another mile in five minutes and a stop of five minutes, followed by just enough movement to complete the mile. Continuing the record shows a stop of fifteen minutes, quarter of a mile run; stop of five minutes, quarter of a mile run; stop of five minutes, then nearly half a mile run; five minutes stop, a run of seven miles in about twenty-five minutes; a stop of fifteen minutes, and then a slow run of seven miles at about four miles per hour (the latter was a torchlight procession round Lowestoft), and three



stops of about five minutes each. I have given the reading fully, so that your readers may quite understand its working. The whole distance run was nineteen miles, this being also shown on another dial.

Lowestoft, Oct. 20th, 1900.

Yours truly,

E. ESTCOURT.

LEEDS TO BRIDLINGTON.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having seen accounts of runs by several of your readers, I send for your perusal a trip on a petrol-driven car made by Messrs. A. Dougill and Company, Ltd., of Longclose Iron Works, Newtown, Leeds. On August 4th (Bank Holiday Saturday) we started at 4 o'clock from the works and travelled along the York and Tadcaster road until we reached the Selby road, then through Garforth Bridge, and reached Selby at 5.30. There were on the car Mr. Alf. Dougill and his two sons, Mr. A. W. Dougill driving. We had about 3 cwt. of luggage. We passed through Selby and Spalding-on-the-Moor, to Market Weighton, with only two stops for a few minutes each time to look round the machinery and refresh the inner man. When we got past Market Weighton we had some very steep hills to

ascend, which had to be taken at about four miles per hour on the slow speed until we got to the top of the hills overlooking Middleton-on-the-Wolds, where we arrived just as it became dark. Had it not been for a train just going past a level-crossing we should have run into a steel wire rope which is stretched across instead of a gate, and pulled up or let down as occasion may require from a house close by, which I think is a very dangerous practice. We then went on until we reached Driffield at about 9.15, where we put up for the night at the Old Bell Hotel, and a very pleasant evening we had. The weather was exceedingly cold, and we had a very strong east wind against us all the way.

On the next morning we had a pleasant run from Driffield to Bridlington in three-quarters of an hour, and put up at the Waverley Hotel, Prince Street. The car, which seats four persons, is run by one of Dougill's horizontal, carburetted air motors of 7 b.h.p., and ran very smoothly indeed; and I shall recommend every medical man to invest in a motor-car.

Yours truly,

E. H. BRAITHWAITE, M.B.

Station Hospital, Leeds, October 19th, 1900.

THE ALTRINCHAM CASE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Kindly excuse my reverting to the Altrincham case which you spoke of last week. There were two charges of excessive speed dealt with by the Altrincham magistrates who attended court the other day. A comparison of the two cases forms an interesting study. Ours was for driving a motor-cycle at an excessive speed on the highway, and the other was against a carter for driving a horse at an excessive speed in the streets, both to the danger of the public. There is obviously a great deal of difference in these two cases, and I leave impartial people to judge which of the two is the most dangerous to the public.

We drove our motor on a lonely country road in broad daylight, with hardly a soul to be seen; the carter drove his horse and cart down the main street of the town when it was pitch dark, and when it was crammed with people, so that you could hardly move. The street is only twenty feet wide, and very dimly lit. We were sober, and slackened to a crawl whenever as much as a vehicle hove in sight in the distance; the carter was hopelessly drunk, and charged down this narrow street at the speed of fourteen miles an hour, scattering the terrified people in all directions. He was even forced to admit that he had driven on the pavement at times. I suppose it gave a greater zest to his pleasant performance, and added an additional excitement, in pursuing the panic-stricken people on what they fondly hoped was a refuge. There had been an agricultural show that day and this street was packed with people. How it was he did not kill and injure at least a score of them remains a miracle! Talk about a motorist endangering the public!—what do you call this?

As for ourselves, in our afternoon's motoring we saw precious few of the public to endanger; and although it was proved we had not endangered anyone, we were nevertheless fined £3 2s. 6d. in all. The carter was fined 10s.—Yours truly,

London, W., Oct. 20th, 1900.

LEOPOLD CANNING.

[We commented on this case on page 549 of last week's issue.—ED. M.-C.J.]

THE police in Merionethshire have been instructed to take proceedings against motorists going at furious rates down dangerous places in the district.

IN addition to the facilities mentioned last week for obtaining seats on vehicles journeying to Southsea, on the occasion of the Automobile Club's forthcoming run, the Motor Manufacturing Company, Limited, of 47, Holborn Viaduct, E.C., will run a vehicle the charges for seats on which are as follows:—Down journey 12s. 6d., up journey 10s. 6d., both ways one guinea, to return Sunday or Monday at the convenience of passengers. Similar opportunities are also being provided by the London Motor Company, Limited, of Tottenham Street, W.

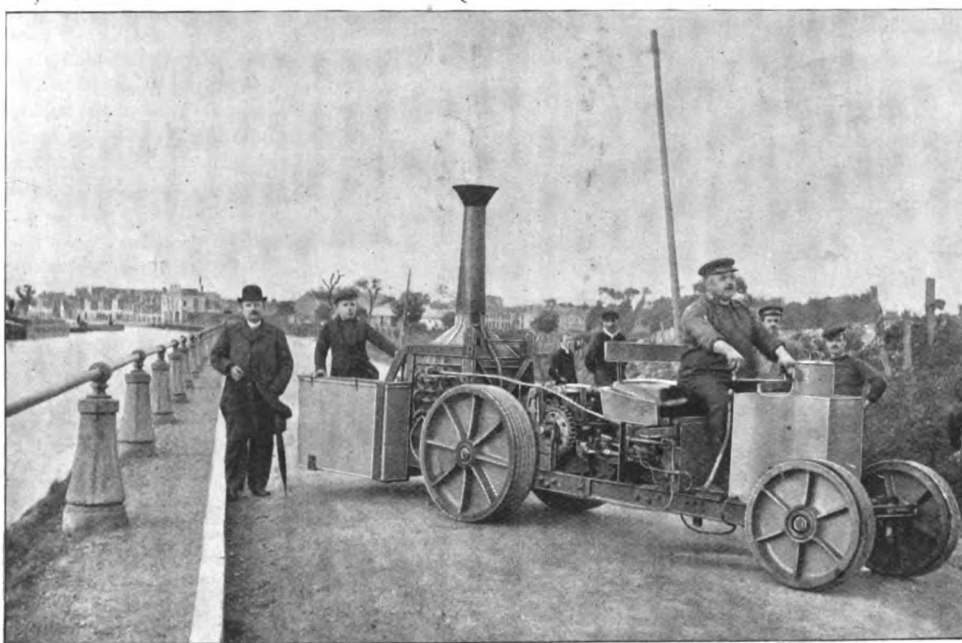
THE AUTOMOBILE FETE IN PARIS.

(FROM OUR OWN CORRESPONDENT.)

THE *Sport Universel Illustré*, that well-known Parisian paper to whose efforts so many automobile gatherings have been due, can be heartily sympathised with in the bad luck which accorded them such a miserably cold, bleak day as was Saturday last for the holding of the annual voiturette fête at Longchamps. These festivities are all very well, but their success depends principally upon the weather, and that in evidence on the 20th inst. was distinctly unsuited to floral fêtes. Given fine weather no more agreeable promenade *en automobile* can be made at this time of the year than a run through the Bois de Boulogne, and had the sun favoured Saturday's proceedings with his presence a goodly gathering would undoubtedly have assembled at the Rond-pont de Longchamp. But to this essentially ladies fête but few ladies came, for the majority found their fire-sides much more to their liking. It was certainly an incongruous sight to see the flower-bedecked cars, mounted by fur-clad, blue-nosed *chauffeurs*, scurrying through the Bois under a sky as dark and threatening as witnessed in the depth of winter. But all this was not the fault of the promoters, for, in common with the rest of mortals, as weather makers they are not in their element. Only some of us would be glad not to have to attend autumnal fêtes, so next year arrange it for September at latest, if you please, Mr. Bréviaire. Maintaining the unpunctuality so striking at last year's gymkhana, a late start was made with the programme, and we were first regaled with a steering competition in which the great majority of voiturettes were driven by ladies or children. The usual proportion of dummy figures were knocked down, run over, and replaced upon their legs, silent and uncomplaining as ever. After extraordinary feats had been accomplished, both in avoiding and hitting the members of this tin populace, a halt was called, and the judges made their selection for the awards, published at the *déjeuner* later on in the day. These prize-winners were:—M. Rudeaux (Darracq); M. Raoul d'Arnaud (Sirène); Mme. Braun (Peugeot); Mme. Richard (Richard); Mlle de Vèriane (Riancey). Then came the *défilé*, which brought out a goodly number of cars, and then the usual gymkhana events, interesting enough for the participants but wearisome in the extreme for the spectators. A distribution of banners, followed by the usual march past the empty stands, and then a rush to the Châtelets du Cycle, where *déjeuner* awaited the competitors and organisers, as well as those of the spectators who had been sufficiently courageous to stay to the end. Then, under the presidency of Monsieur Jean Romain, director of the *Sport Universel Illustré*, and warmed by the genial influence of a capital lunch, the *convivres* speedily forgot their grievances against the weather, and when at last a move was made for Paris one and all were again happy and contented. During the repast the various awards were made known, but the list being somewhat lengthy I only propose to mention the names of a few prize winners known to English automobilists. These were: Mmes. Richard, Briene, Turgan, Popp, and Suberbie among the ladies, and MM. Hautier, Vinet, and Bonnard among the men.

THE ROSSEL STEAM TRACTOR.

M. E. ROSSEL, of Lille, France, one of the early workers in the field of the petroleum spirit motor-car, has recently been devoting attention to steam vehicles and at the Paris Exhibition he shows a curious-looking machine intended for the haulage of canal boats. The tractor, of which an illustration is given herewith, has a vertical, coke-fired, water-tube boiler of the quick steam raising type, and a double cylinder horizontal reversing engine of 12 h.p. The two cranks of the engine make an angle of 90deg. with each other. The admission is variable, from 0 to 80 per cent. of the stroke, and the engine speed can run up to 350 revolutions per minute. The rear wheels are the drivers. They are cast with an internal gear on one side, with which engage the pinions of a differential shaft. The differential shaft is connected to the crank shaft by several sets of spur gears, which are engaged by means of positive clutches. Two speeds ahead and one reverse are provided. The higher speed is used for towing empty boats and the lower for loaded boats, up canals. The front axle, which is provided with steering spindles for pivot steering, swivels around a pin fastened to the frame, centrally between the two wheels. The frame has, therefore, only three points of support, and will accommodate itself to all conditions of road surface. Two men are required to operate one of these tractors, one for tending the boiler and the other one for steering and controlling the vehicle. It is claimed that the machine illustrated will haul a train of six canal boats, each weighing 200 tons, at a speed of 5 km., or slightly more than three miles an hour, against the stream.



THE ROSSEL STEAM TRACTOR FOR CANAL BOAT HAULAGE.

THE Crest sparking plug, illustrated in our last issue, is

being made with a metric screw thread and adapted to fit motors of French manufacture.

Up to date thirty-eight entries have been received for the alcohol motor competition which is fixed for the 28th inst. The course is from Paris to Rouen.

MAPS and guide books simply afford the motorist a basis for what sailors are wont to term "dead reckoning." After consulting the maps and the books the user of a motor vehicle may, with more or less accuracy, declare he has travelled "about" so many miles. Whether he has actually done so is, and always must be, a question in which doubt is greater than certainty. The difficulty is, however, removed by the compact little odometer made by the Veeder Manufacturing Company, of Hartford, Conn., and which is being introduced into this country by Messrs. Markt and Company, 25 and 26, Shoe Lane, London, E.C. The odometer is made with a flange base through which two holes are drilled to make it readily attachable to any special clip which may be required. The device registers up to 10,000 miles, the first row of figures representing fractions of a mile, the second row miles, the third tenths of miles, etc. The odometer is made for fifteen different sizes of wheels, from 24in. up to 50in. Practically every motor-car requires a different fitment in the way of clips, and Messrs. Markt are prepared, if furnished with drawings, to make these at a reasonable charge.

THE PROGRESS OF THE AUTOMOBILE.

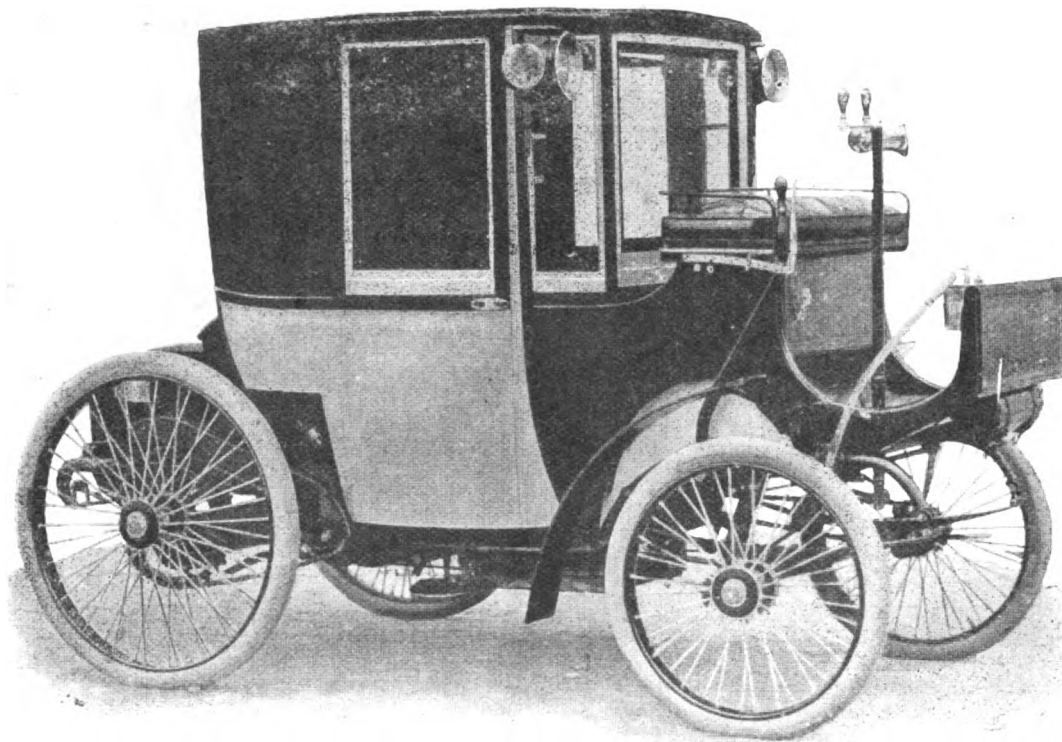
By PROFESSOR R. H. THURSTON.

(Concluded from page 385.)

PROBABLY no one familiar with the situation and with the construction and the use of the automobile as now supplied the market, and as used by the automobilists of the closing year of the nineteenth century, will hesitate to assert the full demonstration of the following points: (1) Automobile operation may be safely effected and no greater dangers attend it than are accompaniments of horse drawn vehicles. (2) Speeds may be attained, and maintained, higher than can be either attained or maintained by horse-power:—doubled speeds for short distances and trebled for long distances. Length of route may be unlimited. (3) Heavy gradients may be surmounted and any road fit for horse-drawn vehicles may be traversed by the automobile. (4) A good construction of automobile machinery in proper hands—not necessarily those of a skilled mechanic—is, on the whole, much less liable to serious disability than is the horse. The better and more expensive the automobile the less

to be performed, the advantages of the automobile over the horse-drawn vehicle are unquestionable. These advantages are, in general:—(1) Reduced cost of transportation. (2) Greater speed and better control of speed. (3) Absolute docility. (4) More perfect "handiness," as a naval man would say. (5) Sanitary gains of very great importance. (6) Less cost of maintenance of pavement and roads. (7) Less trouble in crowded city streets from interruption of traffic, as a consequence of the less space occupied and better action of the automobile. (8) Much greater quiet, especially in traversing paved streets. (9) Reduced space and cost in storage. (10) Extinction of the nuisance and costs of the stable. (11) Abolition of danger from "run-aways." (12) Continuous decrease of costs, as against steady increase with horses. (13) Resultant upon the introduction of the automobile, to the exclusion, largely, of the horse, will come such improvement of our city streets and country roads as has only been just begun by the bicycle and its friends, improvements particularly adapting them to the new vehicle.

The automobile is the coming feature of our modern life. The bicycle has had its period of rapid development and of popularisation, and the automobile is its natural successor. The



THE PEUGEOT MOTOR-BROUGHAM. (See opposite page.)

this liability to invalidism; the more valuable the horse, the more is he liable to injury and illness. (5) Costs of maintenance and operation are less with automobiles than with equine outfits. With heavy work the difference is immensely in favour of the automobile. (6) Commercially, the well-built horseless vehicle, of whatever class and in whatever line of work, is greatly to be preferred to the horse and vehicle and its accompaniments of stable, attendance, untidiness, unsanitary conditions, and obtrusiveness. (7) There are no serious objections to the general use of the automobile for either heavy or light, slow or speedy, traffic. There are fewer and less serious objections than were raised to the introduction of the street tramway; while there is open to them an enormously more extensive field. (8) The tires of the automobile, if not pneumatic or of rubber, may be made of any desired width, and, of whatever breadth, will aid in the improvement and permanent maintenance of the roads, while the hoofs of horses injure them. (9) Weights of automobiles, for similar powers and loads, may be made less than the weights of horses with their vehicles.

Whichever of the now more or less successful among the existing systems of automobile be adopted for the specific work

bicycle is coming to be the every day instrument of business and pleasure. The day of excitement and of hysteries has passed with it, and we are settling down to its sensible but limited use. The automobile is a vastly more important development, and it has an immensely larger and more serious and extensive field before it. The "wheel" has taken its place among the common necessities of every-day life and largely passed out of the field of the "fad," pure and simple. The automobile is coming in to take up a great work, and one of much larger range and higher importance. It is bringing to the aid of transportation of all kinds, light and heavy, passenger and freight, work and pleasure, the aid of the inventor and of the motor-machine. It is adapting itself alike to the demands of the rider in the park and of the tradesman sending home the family dinner, to the needs of the delivery wagoner and of the postman, to the transportation of tons of ironwork and of ounces of *lingerie*, to the slow traverse of the ploughed field or the deliberate movement of the "auto-van" and as perfectly to the express speed of the racing vehicle over the one-mile track or over the hundred or the thousand mile course. Pleasure, convenience, business and public advantage, and all industrial economies are about to be promoted by

its evolution, as power, speed and safety and handiness are gained, and costs are reduced in construction and in operation.

The horse will be relegated to a narrower field of work, and our streets will, in time, become as perfect sanitarially as they are becoming, in well-managed cities, in their construction. The runaway horse, the constant source of anxiety and frequently of actual danger in the city streets and in the parks, will disappear, and the lives of mothers and grandmothers will be rendered thus more serene. Ericsson's automobile fire-engine of 1860 will have many useful successors. Cross-country routes will gain in attractiveness while losing the risks of ordinary coaching, and the hamlets and farms off the line of the railways will become accessible and comfortable as homes and pleasure resorts for all seeking the quiet of nature and the pleasures of country life, as well as for their native workers and the small farmer or the retiring millionaire. Hauling timber, transporting ore, carrying merchandise over the common highway, delivering the morning purchases in the city, driving in the country or through the park, and going to the opera in the evening—each use will find its best and most satisfactory form and type and special construction, and the civilised world will be transformed through another and hardly less wonderful evolution than that which, in the field of railway and steamboat transportation, has characterised the century just expired.

Inventors and inventions of the older sort, amateurs in science and art, and a spontaneous inspiration, are now nearly gone by. The invention of to-day is simply a design adapted to a precisely defined purpose by a trained designer, familiar with the principles and practice of his art, who proceeds, by direct and safe and certain routes, to his end, adapting a mechanism of as exactly defined plan and method of operation to the work. The educated and professionally-trained designer has succeeded the ignorant, but often marvellously skilful and ingenious, inventor, whose crude devices required months and years, often, of experiment, trial and error, to work into practically useful shape and profitable form. To-day one trusts no inventor, if he lacks that scientific knowledge which is essential to success as a designer. It is the expert in the field in view who, to-day, determines just what to do and in what manner to reach the desired end. Every successful professional is a specialist, and each is compelled often to say—as did a distinguished surgeon when I once asked him a question requiring special knowledge for its answer—"I cannot tell you that—but there is another man who can!"

But the man who can say just what is to be the future of the automobile, what form of motor, if any, is to be the one exclusive motor, or what will be the ultimate distribution of work among the perhaps various permanent types of horseless vehicles has not yet appeared. Only this can be said with probable truth: The steam-engine is not likely to see any very great advance in the immediate future and is too near its practicable limit of perfection, probably, to have much chance of success if that success depends upon extensive improvement in construction and type or in thermodynamic perfection. The internal combustion engine has a wider range of possible improvement, and to this extent has larger promise, but with no certainty that its defects will be removed at any early date. The storage battery and electric propulsion have a similar relation to the steam-motor, and, like the gas-engine, await the genius who can reduce still serious infirmities, and give a very reasonable degree of approximation to the ideal prototypes.

The trend of progress of the automobile, in all directions, is toward perfectly well understood and fully recognised ideals and limiting perfection and the educated, professionally well informed and experienced engineer will undoubtedly find many ways of pruning away defects and of importing improvements until that limit of practicable and economic advance is reached for each of these interesting types of self-propelling vehicles. This is not the work of the amateur in any line, and the day of the self-appointed promoter of great advances in the industrial arts has gone by, never to return.—*The Automobile Magazine.*

THE road between Farnham and Petersfield is reported to be in a very bad condition.

THE PEUGEOT MOTOR-BROUGHAM.

THE illustration on the opposite page shows the brougham made by the Peugeot Company, of Audincourt, Doubs, France. It has accommodation for two inside passengers, with a movable seat for an additional one if required. It is propelled by a two-cylinder horizontal motor of 6 h.p., acting independently, so that one cylinder only may be used when running on easy roads. Four speeds are provided, and as the running of the motor itself is regulated by the admission of the gas mixture, the rate of progression may be varied as required. The wheels are

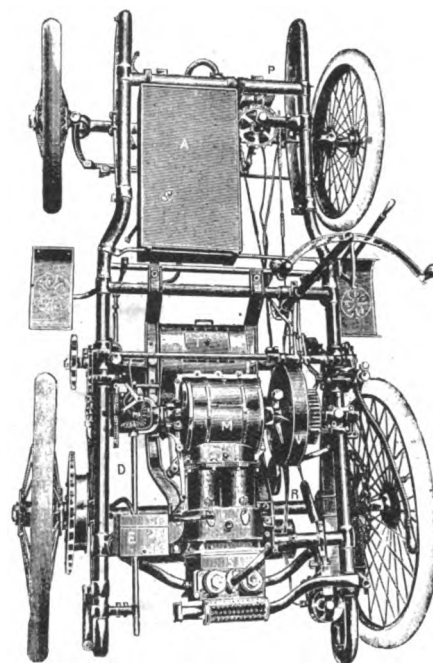


FIG. 2.—PLAN OF FRAME OF PEUGEOT BROUGHAM.

of the cycle type, shod with pneumatic tires, the vehicle altogether presenting a very elegant appearance.

A LATE addition to the light steam vehicle class is that of the Hoffman Bicycle Company, Cleveland, O. The boiler is wound with piano wire and is said to be tested to 600 pounds' cold water pressure.

MR. A. J. DRAKE, works manager to the Daimler Motor Manufacturing Company, has been appointed general manager of the Kingsbury Motor Construction Company, Ltd., Edinburgh, who have purchased the works of the late Madelvic Motor Company.

MR. C. G. WRIDGWAY, who is now with the De Dion-Bouton Motoret Company, Brooklyn, N.Y., has been awarded by the Chicago Inter-Ocean Automobile Show Committee a special championship gold medal for his run of 600 miles on a De Dion voiturette in record time while en route from New York to Chicago.

THE "Albion" is the name of a two-seated petroleum-spirit motor-car which is being put on the market by the Albion Motor-Car Company. The motor is of the two-cylinder horizontal balanced type. It is water jacketed, and runs at a comparatively low speed. It develops about 5½ h.p. on the brake, and is able to propel the car when fully loaded up any moderate incline at a speed of twelve miles per hour, any steeper incline being negotiable at five miles per hour. There is also a reverse speed of about three miles per hour. The ignition is electric, the current being generated by the motor itself. The wheels are of the artillery pattern, with wooden spokes, and are fitted with solid rubber tires. The car is provided with two powerful independent brakes. The oil tank holds four gallons of oil, sufficient to run the car one hundred miles when fully loaded.

A PNEUMATIC TIRE PUNCTURE HEALER.

SO frequent have been the troubles with pneumatic tires fitted to motor-cars, that any device which will tend to remove the difficulty is sure to receive attention at the hands of motorists. This object is claimed to be achieved by a new puncture stop named "Millennium," which is being put on the market by the British Steam Traction Syndicate, Ltd., of 37, Walbrook, London, E.C. Puncture-healing liquids are by no means new, the chief drawback to those hitherto used being found in their deleterious effect on the rubber of the tire. So far as the new healer is concerned, it is claimed that not only does it not adversely affect the rubber in any way, but that it is, in fact, a preservative of the same. "Millennium" is compounded of certain chemicals, which, after having been subjected to a special treatment, form a homogeneous mass possessing certain peculiar properties, which are said to constitute it an ideal substance for automatically and instantaneously closing and hermetically sealing punctures and perforations in pneumatic tires, both for cycles and motor-cars. It takes the form of a liquid of the consistency of cream; it is, however, not sticky, nor is it inflammable. All that is necessary is the injection of a small quantity (this, of course, varying with the size of the tire) of the fluid through the valve into the inner tube; the wheel must then be revolved, when the tire will be found to have been rendered proof against the effects of punctures, and will continue so during the life of the tire. We are not at present able to substantiate the above claims from actual experience, but we are promised a sample of the liquid to enable us to make a trial. We have, however, inspected and punctured a cycle tire, in the inner tube of which the liquid had been injected, and it certainly appeared to fulfil the claims made for it. It has also, we understand, been applied to the 3-in. pneumatic tires fitted to an electrical motor-car with successful results.

THE municipal authorities of Nice have agreed to renew their annual subvention of £200 to the Nice Automobile Club.

THE Stearn's Steam Carriage Company has been incorporated at Syracuse, N.Y., with a capital of £150,000.

The goodwill, plant, and assets of the Falkirk District Motor Co., Limited, are for sale. The assets include thirteen Daimler motor-cars.

WE understand that the Bournemouth Motors, Limited, have received a refusal to an application for licences to ply in Southampton streets. At the same time it is announced that the corporation of Southampton are about to establish a motor-car service of their own.

THE Discount Motor-Car Company has issued the first number of the *Motor Mart*, which is intended as a monthly list of motor-cars for sale. No fewer than eighty-six cars are enumerated in its well-printed columns, and there is an interesting short article on "The advantages and desirability of purchasing a second-hand motor-car." In addition to advertising motor-cars for sale, the Discount Motor-Car Company is prepared to examine and report upon motor-vehicles.

FOUR motor-propelled ambulances are now being built for private hospitals in New York. The Roosevelt, Presbyterian, and New York hospitals are to adopt the horseless vehicle, seeing the success St. Vincent's Hospital has had with the electric car it has used for some months. Some time ago two friends of the Roosevelt Hospital offered to give to the hospital two motor-ambulances. These ambulances are now completed and will be put in operation as soon as arrangements are made at the hospital stables for charging the batteries.

A NUMBER of prominent business men of Washington, U.S.A., have arranged to hold a show in that city, commencing December 10th. It will be known as the National Automobile and Sportsman's Exhibition. Convention Hall, a large building without a single pillar and having a floor space of 36,000 square feet, has been secured for the show. A track sixteen feet wide and an eighth of a mile in length will also be constructed in the building, where practical demonstrations of the efficiency of the various motor-vehicles exhibited can be made.

LOCOMOTIVES ON HIGHWAYS.

AT the City Summons Court, Herbert Payne, in the employment of the Val de Travers Asphalte Company, was summoned for driving a light locomotive at a pace exceeding four miles an hour without a competent person to efficiently apply the brake.—Police-constable Green, 891, deposed to seeing the defendant driving a motor-wagon in Liverpool Street at a pace of about six miles an hour, with a van attached laden with asphalte in powder. There was no person in the van to apply the brake, and the defendant admitted that it could not be applied from the locomotive.—The driver said the brakeman was riding on the locomotive with him, his presence on the van being unnecessary as the pace did not exceed four miles an hour.—Mr. Morris, solicitor, for the defence, said the whole question was about the "trailer" behind. That was connected with the motor by iron rods, not chains, and therefore must stop with the motor and was practically a part of it. The constable admitted that there was a man to apply the brake to the "trailer," and the defendant swore the pace did not exceed four miles an hour, therefore it was not necessary for him to be on the "trailer."—Mr. Alderman Samuel Green came to the conclusion that the pace exceeded four miles an hour. The penalty was £10, but he would only impose a fine of 20s. and costs, with a caution.

FURIOUS DRIVING CASE.

AT the Pentre Police Court, on Monday, David Jones, driver of a motor-car, was summoned for furious driving and travelling without lights. Inspector Williams stated that he had cautioned the defendant previously. Defendant was fined 5s for being without lights, and £1 for furious driving.

UNFOUNDED CHARGE AGAINST A MOTORIST.

AT the Sleaford Police Court, on Monday, Robert Harry Gale, King's Lynn, was summoned for that he, being the driver of a motor-car, did not give audible and sufficient warning on passing another vehicle at Heckington on the 10th inst. William Savage, Sleaford, said he was driving with his wife to Swineshead from Heckington, when they met defendant driving a motor-car. He gave no warning of his approach, and witness's pony reared and fell, breaking both its knees. His wife, who was in delicate health, fainted, and while he was attending to her defendant drove off without rendering any assistance. Witness, however, admitted to the chairman that he saw defendant coming some distance off, but was riding with his head down because of the rain. The Chairman said there was nothing in the case, which would be dismissed.

WE hear that Mr. J. B. Dunlop, the father of the pneumatic tire, has been supplied with a De Dion voiturette by Mr. J. McDonald, of Dublin.

TESTS with some new motor-cars by the post office authorities in Montreal, Canada, are said to show a reduction of one-third of the time required in collecting the mail by the horse wagon system. The test was a severe one, as it was applied both on the mountain side and on muddy streets.

AT Messrs. Friswell's dépôt on Holborn Viaduct, E.C., the other day we were shown one of the latest type of De Dion voiturettes fitted with reversing gear. The car is a four-seated one, with reversible front seats, and a novelty is to be found in a detachable luggage carrier fixed to the rear of the car.

THE automobilists of Philadelphia held a parade recently in celebration of the opening of Fairmount Park to the motor-car. Since October 15th, however, every automobile entering the park must bear, in a conspicuous place, a number supplied by the Park Commissioners.

MESSRS. J. BLAKE AND CO., van builders, 148, Mount Pleasant, Liverpool, are now catering for the wants of motorists. They keep a stock of Pratt's motor-car spirit and Carless Capel's petrol, which can be obtained any day of the week, including Sundays.

THE National Automobile and Electric Co., Indianapolis, Ind., have just introduced what they term a New York trap, designed for use in large cities. It is an electric vehicle, said to have a radius of action of about 50 miles on a single charge of the battery. The car is equipped with one 2½ h.p. motor, geared directly to the rear hubs, and has a compensating gear in the motor shaft. The frame is tubular; the wheels are wood, with solid rubber tires, and the vehicle is fitted with ball bearings throughout. It has five speeds forward and three backward, the maximum forward speed being 15 miles per hour.

THE Motor-Car Journal.

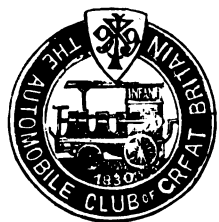
Vol. II.]

LONDON, SATURDAY, NOVEMBER 3, 1900.

[No. 87.]

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COMMENTS.



A PLEASANT gathering, to which full reference is made elsewhere, has proved the last of the many meetings in connection with the 1,000-mile Trial. That event appropriately closes the century; what will be the motorists' way of celebrating the advent of the twentieth era is the subject of consideration at a meeting at the Automobile Club to-day (Friday). Geniality was in the air at Wednesday's dinner. Mr. Wallace carried the proceedings through from start to finish in an excellent way, and although they were somewhat protracted interest never flagged. Of those present nearly everyone shared in the honours, and after the distribution of diplomas came a presentation to which all participants in the Trial had contribution. It was the handing of an address with an accompanying purse to Mr. Claude Johnson, to whose initiative and administrative capacity so much of the club's prestige and influence is due. He has worked well for the club, and his labours in the promotion of the recent Trial were the great factor in an event which indicates "an era in locomotion," to quote from the address which was presented him.

Appreciation of Efforts.

In reply, Mr. Johnson was characteristically modest, giving unto others credit for what they had done, and regarding his work in connection with the Trial as a part of his duty to the Club of which he is secretary. We were glad to see the urbanity and the keen interest of Mr. R. J. Burrows, the Club steward, recognised with a spontaneity and enthusiasm which effectually took his speech away. Verily, as Mr. Wallace declared, it is more blessed to give than to receive, judging by the helplessness in which victims of appreciative generosity thus find themselves. Anyhow, the gathering passed off brightly, and should form a capital preliminary to the Club's annual dinner on the 14th—an event which will open a busy season of automobile activity.

The Duke of York on a Motor-car.

AMONG the many cheery asides with which Mr. Wallace lightened the long process of prize giving and diploma distributing was an announcement that the Hon. C. S. Rolls had, on the day previously, taken the Duke of York for a drive on his motor-car. Mr. Rolls was returning to the Hendre, Monmouth, early on Thursday, and will probably again have the privilege of driving His Royal Highness, thus proving the concern of Royalty in our movement. Already the keen interest of the Prince of Wales in automobilism has led him into the ranks of owners, the Duke of Connaught is not unfamiliar with motor-cars, and we look forward to the day when motor-vehicles will be familiar features at all the Royal residences.

Forty-two Miles in the Hour.

MR. C. JARROTT, to whose work in popularising motor-vehicles Mr. Wallace made felicitous reference at Wednesday's dinner, did something more than dine with the Automobile Club on that day. In the afternoon he had succeeded in beating all previous motor-tricycle records in this country, cover-

ing 42 miles 235 yards in the hour, on the Canning Town track, and this, despite the fact that there was rather a bad wind blowing at the time. His times were as follows: 5 miles, 7 mins. 1½ sec.; 10 miles, 14 mins. 7½ secs.; 15 miles, 21 mins. 6½ secs.; 20 miles, 28 mins. 12½ secs.; 25 miles, 35 mins. 19½ secs.; 30 miles, 42 mins. 31½ secs.; 35 miles, 49 mins. 43½ secs.; 40 miles, 56 mins. 52½ secs. We congratulate Mr. Jarrot on his success, and feel sure that every automobilist will join in hearty appreciation of the record thus made. The motor-tricycle was an 8-h.p. De Dion, which carried him through splendidly, for not only did he complete the 42 miles in the hour, but he was able to beat all records *en route*. The times were taken by Mr. F. T. Bidlake.

To Southsea.

As already announced, the run to Southsea only needs better weather than that we have not enjoyed this week to add another success to the records of the Automobile Club. Elsewhere we give a list of the vehicles already entered. Rumours of some other cars, including one or two electric vehicles, are also about, and these novelties will add to the general interest in the event. The Automobile Club will endeavour to meet the wishes of the constabulary along the road, and we would urge all participants to be as careful as possible in this respect. Non-stop diplomas will be given in respect of vehicles which complete the journey from London to Godalming and from Godalming to Portsmouth without a stop and at a speed *not greater than* twelve miles an hour. "Not greater than" is a phrase which sounds rather different to "fully up to the legal limit." Anyhow, it is likely to be strictly enforced.

Passing when Going Down hill.

WE trust that on the occasion of this anniversary run to Southsea there will be no attempts made by drivers of cars to pass other motor-vehicles when going down hill. Such proceedings are frequently risky and might give wrong impressions to observers who are not familiar with the degree of control that can be obtained over an automobile. It is far safer and much wiser to adhere to the regulations of the Automobile Club in every respect.

Liverpool Self-Propelled Traffic Association.

A MEETING of the Council of the Liverpool Self-Propelled Traffic Association has been held at African House, Water Street, Liverpool, with Mr. Alfred L. Jones, J.P., in the chair. The attendance included Lord Derby (President), Messrs. John A. Brodie (City Engineer), Anthony G. Lyster (Dock Engineer), and Prof. Hele-Shaw, F.R.S. (Vice-Presidents), S. B. Cottrell (General Manager and Engineer Liverpool Overhead Railway), Arthur Musker, Henry H. West, Laurence Jones (Hon. Solicitor), J. Walwyn White (Hon. Treasurer), and E. Shrapnell Smith (Hon. Secretary). The programme was arranged for the visit to Liverpool of M. G. Forestier, Inspector General of Roads and Bridges in France, who is to give an address upon "Heavy Motor Traffic in France," at the Liverpool Royal Institution on the evening on Monday, December 3rd. M. Forestier is also to be entertained at a complimentary luncheon on December 4th, by Mr. A. L. Jones, Chairman of the Association. It was decided to

invite the Automobile Club to have a tour to Liverpool in June next, in order to let the people of the city see the many types of light pleasure carriages, whilst the visitors would be able to follow the heavy motor trials which are to be held from June 3rd to 7th, 1901. Mr. Shrapnell Smith having reported to the association that propositions for the formation of road carrying companies were under consideration in Liverpool and Manchester, it was resolved to announce that the association wished it to be understood clearly and placed on record that, having been formed for the purpose of scientific investigation only, it has no connection whatever with any such undertaking.

The Reading Automobile Club.

THE annual dinner of the Reading Automobile Club took place at the Queen's Hotel, Reading, on Saturday last, the 27th ult. Several distinguished automobilists were invited as guests, including Mr. Mark Mayhew, L.C.C., and the Hon. C. S. Rolls, but, unfortunately, the last named was unable to be present, as also was the Mayor-elect. Mr. Mark Mayhew, however, arrived upon his new 16-h.p. Napier car, and received a warm welcome at the hands of the members. In the course of an excellent speech delivered with characteristic tact and gracefulness, he complimented the Reading Automobile Club upon its rapid growth and vigour, and touched upon the usefulness of the motor-car both for civil and military purposes. After dinner the members accompanied him to the covered yard adjoining the hotel, and inspected, with keen interest, his new car. In giving Mr. Mayhew a hearty send-off, the club was mindful of his promise to be its guest upon future occasions to which all the members will look forward. The dinner was well attended, and was in every way a complete success; and, with its increasing and influential membership, the Reading Automobile Club confidently anticipates prosperity in the new year.

Motor-Cars in Cape Town.

WE have been favoured with a sight of a letter just received by Mr. C. Johnson from his brother in Cape Town, in which he says that motoring is very fashionable, and that there are several cars about the town. There was recently an automobile race at some sports held at Newlands, a suburb of Cape Town. Among the spectators was the Governor, Sir Alfred Milner, who subsequently went twice round the ground in the winning car—a De Dion—while the band played "God Save the Queen" and "Rule Britannia," and "the whole crowd cheered their heads off." On a later day there was a big race with eight contestants, including three steam cars entered by the Locomobile Company.

A New Car from Lowestoft.

WE learn that Messrs. J. W. Brooke and Co., of Lowestoft, are at work on the construction of a new car which is to comprise several novel features. The motor, which is being constructed in accordance with the designs and patents of Mr. E. Estcourt, will be of 8½ to 9 h.p., and will be placed at the front end of the frame. It will, it is claimed, only use the same amount of petrol as an ordinary 6-h.p. engine; it has three cylinders, the two outside ones taking an impulse every other revolution, and the middle one every revolution. The motor, instead of being fixed longitudinally with the car, will be located transversely; it will be fitted with the Estcourt-Joy governor and the Estcourt induction valve, and will have two fly-wheels, thus reducing vibration to a minimum. One feature of the motor is that the cylinders will not be cooled to 180 deg. F., but they will be left at considerably over 212 deg. F., a heavy lubricating oil being used. Coming now to the transmission mechanism, the power of the engine is transmitted to the gear box by a chain, and the variable speed arrangements, instead of consisting of gearing as usual, will also be by means of chains, this latter arrangement having been devised by Mr. Mawdsley Brooke. There will be four speeds ahead and one reverse, and the whole of these five changes will be controlled by one lever at the right of the driver. The

car, which in itself will be very similar in construction to the ordinary 6 h.p. Daimler, is said to be exceedingly simple. It is expected to be completed shortly after Christmas.

A Strange Incident.

OUR attention has been called to an incident which we believe is rare among motorists—in fact, we have never before heard of such a case, and hope such an unpleasant affair will not occur again. About two months ago, a couple of tourists hailing from north of the Tweed had run short of petrol at Kirkby Stephen. They called at the house of Dr. Benjamin Walker, who is a motorist. The doctor was out, but his wife kindly allowed them to help themselves from his store. They took three gallons of petrol, and asked for the bill to be sent on—Mrs. Walker not knowing the cost. An invoice for three gallons of petrol has since been sent to these touring motorists, but no reply has yet been received. This sort of thing is very regrettable, and is likely to have a deterrent effect on the *esprit de corps* which has hitherto been characteristic of motorists.

Military Motor-Cars in America.

SIMULTANEOUSLY with the attention the motor-car is receiving at the hands of Continental military authorities comes a significant recognition of the value of the automobile in the annual report which General Miles, commanding the United States Army, has just presented to the American Secretary for War. It has been alleged that, owing to the poor character of the roads in America, the motor-car has no chance; but General Miles is certainly not of that opinion. He reports that, though the three electric cars in use at Fort Myer, Virginia, have not proved wholly satisfactory, this fact has been due to the difficulty of recharging. Hence he and other officers have been making experiments with other types of car, as a result of which he expresses the opinion that automobiles may be adopted for the use of couriers carrying despatches, for the movements of staff officers from one command to another, for small reconnoitring parties, for investigating the topography of the country in which the army proposes to operate, for small detachments engaged in constructing bridges from establishment depôts, for rapidly supplying ammunition, and for the movement and succour of the wounded. For the present General Miles is of opinion that the use of motor-cars will be best adapted to the headquarters of the army and to the departments and outposts of considerable size. He believes that the motor-car is destined to prove a valuable acquisition to the army.

The Motor Manufacturing Co.'s New Voiturette.

ON Wednesday afternoon we had an inspection of the Motor Manufacturing Co.'s new voiturette, which had been driven up by road from Coventry that morning. As we hope to publish a full description, with illustrations, of the car in an early issue, we will only mention at the present time that with its four-seated *tonneau* body and generally low build it has a very attractive appearance. The engine is a 5 h.p. M.M.C. De Dion of the water-cooled type; it is located in the fore part of a tubular frame; three speeds forward and reverse are available, the maximum being twenty-eight miles per hour. Wheel steering is fitted, while the transmission gear is on the lines of that adopted in the Panhard cars. In fact, the new voiturette is practically a miniature Panhard.

The Means of Transports Fete.

THE majority of the owners of the ancient mail coaches, tilburies, berlins, diligences, and sedan chairs now being shown in the Paris Exhibition having declined to permit the participation of their vehicles in the *défilé* through the Champ de Mars and Trocadero grounds, the proposed *fete* of the means of transport has had to be abandoned, much to the disappointment of the crowds now flocking daily to the big show. It

would have been indeed a remarkable procession, but in view of the uncertainty of the weather now prevalent in Paris the owners cannot be blamed for objecting to the use of their valuable vehicles. One has only to visit the section of the Exhibition devoted to these ancient carriages to ascertain what a great amount of interest is taken in these various means of transport by the general public, and what a success their proposed promenade would have scored. Among the early specimens of self-propelled machines none excites more notice than the famous George Stephenson locomotive, exhibited by Sir David Salomons, and around which one always finds an interested crowd. To Englishmen one of the most curious of these first types of the carriage builder's art is the *coucou*, or passenger van, at one time employed for the conveyance of the public between Paris and the environs. The times have indeed changed since then, and speedy motor-cars now do their twenty miles an hour over routes where formerly these old lumbering machines found difficulty in doing five.

The Motor-Omnibus Service for Newport.

WE mentioned last week that Mr. C. D. Phillips has in contemplation a motor-omnibus service for portions of Newport not supplied by the Tramway Company, and, in furtherance of this idea, he has for the past fortnight been engaged in inspecting and experimenting with motor-cars in various parts of the country. The final experiment took place on Monday, when Mr. Phillips started from Southampton for Newport on a fourteen-seated steam car he purchased last week in the Isle of Wight. Mr. Phillips does not intend to place the car in the public service until he has given it a good test. The first of these trials will be as severe as it is possible in the district, for twelve passengers are to load the car and are to be conveyed from the bottom to the top of Stow Hill and back again on a time test. A few particulars of Mr. Phillips's journey from Southampton will be interesting. He left Southampton at ten o'clock on Monday morning, his first stage being Salisbury, 22 miles, which he covered in one hour 45 minutes. At the cathedral city the car was replenished with oil and water, and then a start was made for Warminster, the distance, 21 miles, being covered in one hour 55 minutes. Mr. Phillips left this old-fashioned town at three o'clock, arriving at Bath at 4.25, the distance being seventeen miles. It was the intention of Mr. Phillips to run through to Newport, via Gloucester, but owing to the boisterous weather and the heavy condition of the roads, and it being imperative that he should attend a meeting of the Bath and West of England Agricultural Society on Tuesday, the car was despatched from Bath to Newport by rail.

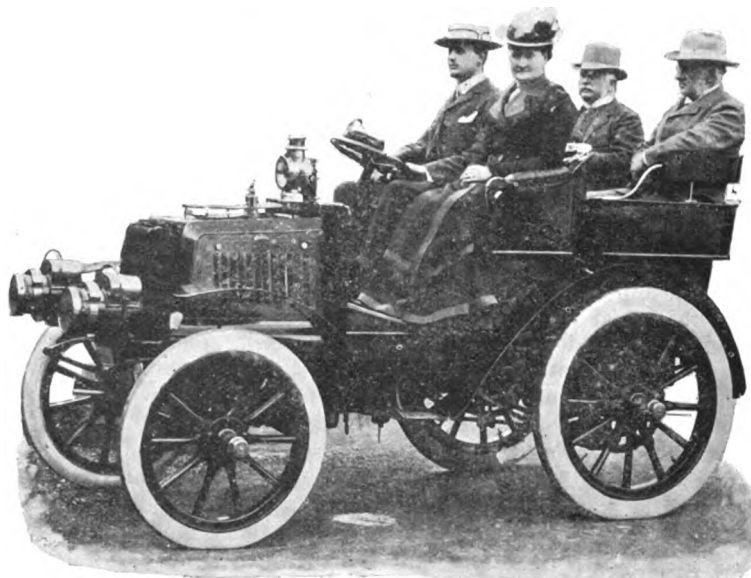
Accidents caused by Horse-drawn Wagons.

THE lamentable accident to Mr. Rucker's party caused by an uneven road and a timber wagon in Hampshire has not been forgotten by motorists. Nor are they likely soon to lose sight of such dangers, for hardly a week passes without news of some accident or very narrow escape caused by the lumbering and cumbrous vehicles in the country districts. The other day Dr. and Mrs. Grabham, of Blue Mills, Witham, met with a nasty accident at Great Totham, when riding in their motor-car. Dr. Grabham had tried to avoid meeting two wagons and a tumbril at an awkward turning in the road, and turned sharply towards the Board School. In doing this one of the front wheels got too far under the body of the car, which at once toppled over, throwing the Doctor and Mrs. Grabham out. The latter was not seriously hurt, but she received a severe shaking; and Dr. Grabham was badly cut about the face.

A Spill in Essex.

THIS is not the only mishap that has taken place in Essex, for last week an unpleasant incident occurred to a party of motorists about four miles from Colchester. Again, in this instance, there was nothing wrong with the motor; the trouble arose from the puncturing of a tire. It appears that

Captain Kemp and Mr. E. Cook, of Billericay, with Mr. R. C. P. Knights, of Springfield, went to Yarmouth on a motor-car, and after spending a couple of days there set out for home. As they were nearing Colchester the tire of the right hind-wheel became punctured. This caused the car to swerve and overturn. Captain Kemp, the owner, who was driving at the time, had his face badly cut, and lost a quantity of blood; Mr. Knights, who was sitting on the footboard, was likewise injured in the face; but Mr. Cook escaped with only a slight wound on the head. Mr. Knights and his companions soon got the car into working order again and rode on to Colchester, where two of the party remained the night. The next morning Mr. Knights and Mr. Cook rode to Springfield in the car, which has been repaired. Surely the public must see that neither of the accidents we have referred to should be used to discredit the automobile industry.



THE HON. C. S. ROLLS TAKES LORD AND LADY LANGATTOCK AND LORD BRASSEY FOR A SPIN.
Photo by [J. H. Preston Monmouth.]

Note this when in Norfolk.

FOR the third consecutive week, Norfolk and its lordly opponents of the automobile figure in our columns. First it was the Earl of Kimberley, then Lord Cranworth had to be mentioned, and now Lord Walsingham has been suggesting at the adjourned Quarter Sessions held at Lynn that the measures now being taken by the Chief Constable appeared to be all that could be done to stop "the nuisance." At the same meeting, the Chief Constable, Mr. Paynton Pigott, gave further details of the police activity to which we briefly referred last week. He said that since his attention was more particularly called to the matter by the Standing Joint Committee, he had given special instructions to all superintendents and inspectors, giving them liberty, if they thought it necessary, to place all men in their divisions in plain clothes to watch those roads frequented by the cars. All constables who were cyclists were to be supplied with bicycles, and if extra men were required in any division he undertook that they should be supplied—which, of course, is very good of him.

Lincoln Limiting Speed.

THE Lincolnshire County Council has given its approval to a suggestion to add to the Highway Order of 1896 the following: "And when the light locomotive is within one hundred yards distance of a curve so acute that the driver cannot see round such curve, or the junction of two or more roads, or a horse on the highway, the speed shall not exceed six miles an hour; or in the case of a light locomotive, the weight of which exceeds two tons, four miles an hour." The Council have also approved a suggestion that Article IV. (7) should read: "He shall, when about to overtake, and being within one hundred

yards of any cart or carriage, or any horse, mule or other beast of burden, or any foot passenger being on or proceeding along the carriage-way, by sounding the bell or other instrument, required by Section 3 of the Act, give audible, continuous, and sufficient warning of the approach or position of the light locomotive."

Sensible Northampton.

NORTHAMPTONSHIRE has a goodly number of sensible people on its county council. A certain section of the members of the council wanted to reduce the speed of motor-cars from twelve to ten miles an hour, but at the meeting last week the motion was defeated. Colonel Stopford Sackville thought there was no danger in cars travelling even fifteen miles an hour. The Marquis of Northampton said motor-cars generally went about eighteen or twenty miles an hour. If the speed were limited to twelve miles that would, he thought, be sufficient. If he had to choose between two dreadful alternatives he would just as soon be pitched out of a motor-car running at full speed as out of a carriage drawn by a pair of horses.

Middlesex Moving.

THE Middlesex County Council have adopted a recommendation of the Highways Committee, that bye-laws be made putting the maximum speed of motor vehicles at ten miles an hour, instead of twelve as at present, and laying down that when approaching a curve, or the junction of two roads or a horse, the speed be reduced to six miles an hour, and that all locomotives should be registered and numbered. The chairman of the Council said it was the intention of the Local Government Board to fix a maximum rate of speed—a fact which he evidently thought was a bit of news worth retailing.

A Word to Mr. Spear, M.P.

WILL the motorist M.P.'s kindly take one of their new colleagues, Mr. J. Spear, M.P., in hand, or rather take him for a ride on a motor-vehicle? At a conference of parish and district councillors in the Holsworthy district of Devonshire he has been declaring in favour of the taxation of motor-cars. At the same time a resolution was adopted in favour of the taxation of cycles and motor-cars. Really some kind legislator should explain matters to Mr. Spear.

Attempts at Record-Breaking in America.

MR. WILLIAM K. VANDERBILT, the well-known American *chauffeur*, recently attempted to make a record run from Newport to New York, but the attempt was not successful owing to a lack of preparation, no knowledge of route, too much bad roads, and worse weather. Leaving Newport on Saturday, the 29th September, at 7.15 a.m., the journey ended in New York a few minutes after 11 o'clock on Sunday night the 30th ult. The big German-Daimler racer carried three passengers—Mr. Vanderbilt at the wheel, an expert mechanic on the seat beside him, while the rear seat offered a not too comfortable lodging place for a coachman, who earned his keep by manipulating an ear-splitting syren of gigantic proportions. During the evening and early morning hours the road ahead of the big car was brightly illuminated by an electric headlight of searchlight power. Mr. Vanderbilt's own ideas of the journey were these: "It was a very hard trip, because the rain had made the roads very muddy and soft. Early in the journey I saw the futility of trying to make a record and concentrated all my energies on bringing the machine through in good order. But despite all I could do we experienced more than our share of hard luck and seemingly unexplainable breakdowns and delays. I nursed the big fellow all through the ride to prevent any serious breakdown occurring, and I congratulate myself that I succeeded in doing so when almost any other machine would have gone down under the roads we were driving over at almost top speed. Finally the rain became so bad that we had to seek shelter and wait until the worst of it was over. This of itself settled any idea of

record work, and while I am of course disappointed, I am sure with the experience I have had on this trip and with only a fair share of good luck and weather I can and will put up a set of figures for a journey between New York and Newport which will be worthy of vehicle and of its driver as well."

In Madagascar.

WE HAVE previously referred in these columns to the use made by General Galliéni of automobiles in the island of Madagascar, and it is now reported that the general's trials of a car between Mahatsara and Tananarive have proved so successful that he has decided to largely extend their sphere of action. Both the valley of the Mangoro and the Majunga route will have automobile services, and it is rumoured that the lorries sent out some time ago to the Soudan will be shortly transferred to Madagascar, where they will be able to work under more advantageous conditions than those prevalent in Northern Africa. The French colonies are practically enthusiastic on automobile matters, and hardly a week passes without a new service being opened up in one or other of them. Given some sort of roads, the cars acquit themselves creditably, but are not in their element, when, as in the case of the Soudan, routes are conspicuous by their absence. In a few months Madagascar should be well to the front in the matter of automobile services.

Motor-Car Exhibition and Races at Leipzig.

IT was on Friday, the 19th ult., that the much talked of automobile exhibition at Leipzig opened its doors, and since that date it has been daily patronised by a very fair number of visitors. The inauguration was witnessed by a considerable gathering, and if several of the exhibitors' installations were not entirely finished, the show was no worse in this respect than are the majority of exhibitions. To celebrate the opening of Leipzig's first automobile show right worthily, a series of races had been organised for the 19th ult., and these were duly held, to the great delight of the local sportsmen, many of whom had never seen an automobile *course*. In spite of the terrible conditions of the roads not an accident has to be recorded; indeed, from every point of view the meet proved an unqualified success. Leipzig can boast of a sport-loving populace, and they turned out almost to a man to look at the motorists fly by, for not every day are they afforded an opportunity of seeing a motor race. Needless to say the local *chauffeurs* also mustered strongly, and many of them actually participated in one or other of the categories. The three classes of the principal event each received an excellent complement of entries, and even the special race reserved for the heavy transport cars did not lack competitors. The official returns were as follows:—Cars: 1, Schaller, of Berlin, in 3h. 9m. 46s.; 2, Popp; 3, Isbert. Voiturettes: 1, Kirchheim, of Eisenach, in 2h. 47m. 30s.; 2, Meyer; 3, Mathis. Motor-cycles: 1, Cudell, in 2h. 59m. 27s.; 2, Munkwitz (motor-bicyclist). Heavy cars: 1, De Dietrich, in 58m. 15s.; 2, Marienfelde Works; 3, Eisenach Works. The heavy vehicles were only called upon to run over the Wurzen-Leipzig route, hence the difference in times. Cudell was riding a De Dion machine and Kirchheim a Decauville. The latter took the special prize of three hundred marks presented by the town of Leipzig.

THE design of a 40-seated steam omnibus has been registered by Mr. Henry Mozley, general manager of the Burnley and District Tramways.

AMONG new recruits to the motor world is Mr. Webster, of Chislehurst, who has purchased a 6 h.p. Marshall dogcart. Mr. W. Jackson, of Bradford, has also become a devotee of the Marshall car, with which he has expressed himself completely satisfied. In fact he regards it as better in workmanship than any car he has previously owned.

THE Accumulator Industries, Ltd., of Silver Street, Bloomsbury, W.C., are introducing the "Cupron-Element" a constant current primary battery which is recommended for the charging of ignition accumulators. The element is being made in four types, viz., 50, 100, 200, and 400 ampère-hours.

A CRUISE ON LAND—OR THE LOG OF A MOTOR-CAR.

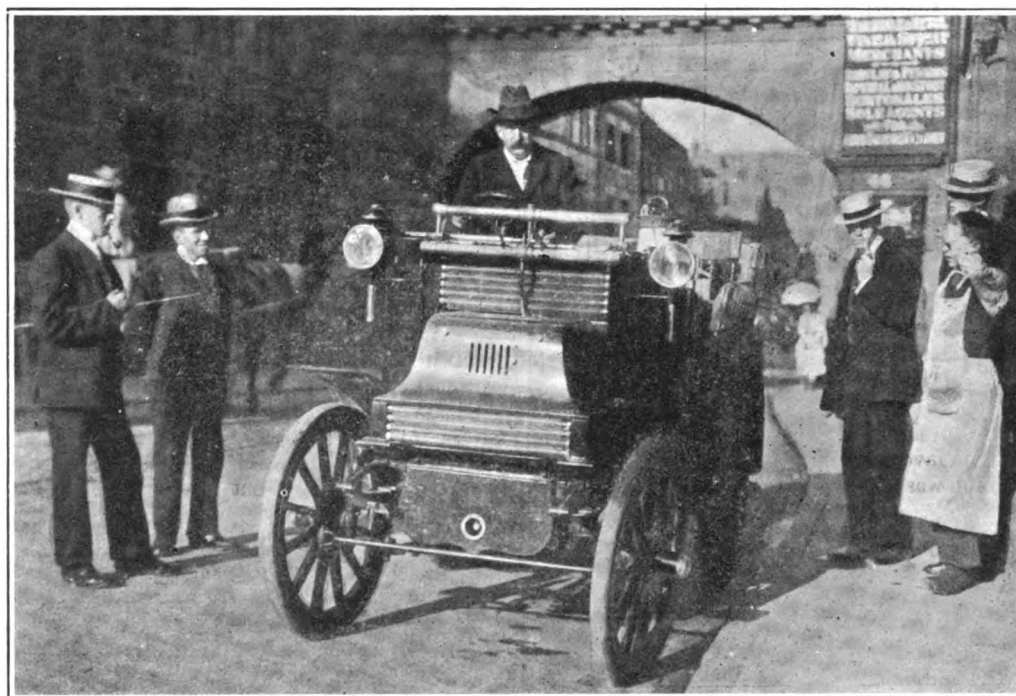


BY MISS DOROTHY EDMUNDS.



WHEN my father returned from the 1,000-mile Trial he said he would like to take my mother, brother, and myself on a similar journey, employing two cars, one to carry the passengers and the other the luggage, so as to make us perfectly independent of trains and their time-tables and connections, and to feel the freedom of being able to go as you please and stop when you like. We decided to start on August 3rd, at which date a new Parisian Daimler—6 h.p., fitted with all the most recent devices, such as Mossberg roller bearings, Escourt cooler, electric ignition, Falconnet of Paris compound tires, etc.—was timed to arrive. Owing, however, to some delay, the car could not be completed before the Bank Holiday,

Aylesbury. After tea, we replenished our petrol locally (at 1s. 3d. per gallon), and set off for Banbury, *via* Bicester and Aynho; but about twenty-five minutes after leaving, the storm which had been so long looming burst upon us in all its fury, and in a few minutes (in spite of mackintoshes and waterproofs) the rain came down in such torrents that some of the party were practically drenched, and here the difficulty of not having our luggage with us was severely felt. However, we determined to push on, and, in face of the terrific gale of wind and rain, the engine behaved admirably, the burners keeping alight, and the car making her average twelve miles an hour. Unfortunately, as the storm increased, the roads became so severely washed in places as to be in a dangerously slippery condition, and we had to proceed cautiously. Owing to the storm, we hardly encountered anything on the road. At one time, however, we met a drove of some twenty or more horses, the animals being entirely free from halters or bridles. It was interesting to note that though the car continued on its way, none of the horses evinced the slightest fear. It was fortunate this was so, for had there been a stampede no one knows what might have happened in an open country and a wild night such as we were experiencing. Later on we had to overtake and pass a long caravan (evidently proceed-



IN FRONT OF THE GROSVENOR HOTEL, CHESTER.

so we decided to leave London in the old car, the 6-h.p. Daimler (which was numbered A 12 on the 1,000-mile run) and to take up the new car *en route* at Leamington. Friends in Oxfordshire, Keswick, Ayrshire, and Yorkshire, knowing of our projected trip, had kindly invited us to stay with them while in their respective districts. It will probably be remembered that the latter end of July was warm and fine, and we hoped to have the same weather in August; but, unfortunately, on the morning of Friday, the 3rd, we saw that the glass had fallen precipitately, and ominous-looking clouds indicated we might expect a sudden change in the weather. After some deliberation we decided to make the start, and left Streatham at noon *en route* for Banbury, Oxfordshire, a distance of about seventy-eight miles, where we were due for dinner at 7 p.m.

Not having the second car, we sent the luggage in care of the man by train. We ran through Putney, thence to Uxbridge and Amersham, then to Aylesbury, where we arrived about four o'clock, and had tea at a very comfortable old-fashioned hotel there. The roads we had traversed were fairly good, though many of them were wet through recent showers; but we did not experience any rain to speak of before reaching

ing from and to some country fair) consisting of quite a number of vehicles and horses of all sorts and conditions. The drivers on their waggons could not see us, sheltering themselves from the storm, and as we were coming from the back it was with the greatest difficulty we could make them hear and give way for us to pass. The road at this point being none too wide, and not of the best, made this a somewhat difficult and delicate operation. However, we pushed on, the storm, if anything, increasing, evidences of its fury being indicated by miles of road strewn with leaves, branches, and in several cases large trees blown dangerously near our path. At 7.15 we made Banbury, our friends having given us up, never dreaming we should dare such a journey on such a night. Thanks, however, to our clothes having preceded us, and to certain mysterious draughts which the elder of the quartette drew from time to time from a large flask, none of our party seemed any the worse next morning for their thorough drenching. We remained in Banbury for several days, the weather for the most part being simply awful; but, notwithstanding that, the car took runs almost daily, conveying many friends to several points of local interest. On the 10th we left Banbury for Leamington, a run of

twenty-one miles, which we made in about two hours. We stayed at the Regent Hotel till our new car arrived, and left on the following Tuesday, having visited many of the charming spots in this lovely district. On the Tuesday we left for Shrewsbury, *via* Stratford-on-Avon and Wellington, and from here the run of the two cars began, the old Daimler (driven by the man-servant) carrying the luggage. The cars were weighed, the old one, with luggage and driver, complete, about 26 cwt., empty 22 cwt.; the new one with passengers (when weighed it had five on board) turned the scale at 31½ cwt., empty 24 cwt. An interesting point, however, was that both cars were built by the Daimler Company, the dimensions of the engines being practically the same; therefore we were looking forward with great interest to their relative performances. The new one was of the "Iveagh" phaeton design, carrying a hood and good leather aprons (to protect us from the weather), which on several occasions we found most useful, and which saved us from ever being drenched again. The run to Stratford was uneventful. The road is good, practically level; the distance about ten miles, which we ran in under fifty minutes. This being the first journey of the new car, we ran cautiously and not much on top speed, and, notwithstanding, arrived ahead of the old car by about ten minutes. She was running entirely on electric ignition and not using the burners at all. After lunching, and visiting several places of interest



THE NEW CAR ON ITS RETURN HOME AFTER THE RUN.

connected with the immortal bard, and taking several photographs, we continued on our journey, making very good running through Alcester, Bromsgrove, Kidderminster, and Bridgnorth. The very good roads through this part of the country are surrounded by picturesque and beautiful scenery. We stopped at Bridgnorth to inquire as to the way we should go to Shrewsbury, and were advised to go *via* Wellington. We soon, however, began to encounter very hilly and rough roads, in many cases very narrow, sharp inclines, which tested, for the first time, the hill-climbing capabilities of the new car. Seeing she was a new one, she negotiated these fairly well. After running through somewhat uninteresting mining country, with its ironworks and slag-heaps, we got on to the old Roman road for Shrewsbury, and on the last ten miles into Shrewsbury we were able to make up the average to twelve miles an hour. I do not know what speed we were running, but we seemed to overtake a good many cyclists, some of whom rode remarkably well. On this run the new car kept well ahead of the old one, being some 20 per cent. faster. The cars evidently caused considerable interest to the good people in Shrewsbury as we stopped to inquire the way to the old-time hostelry known as the "Raven."

Next morning we viewed several places of interest, amongst others the Quarry Walk, during which time the cars were being

cleaned and overhauled; and here it was noticed that several bolts were missing from the flanges of the French Falconnet tires. These had to be made good by a local cycle-smith, but at 12.52 we were enabled to take our departure for Liverpool. The roads were undulating, but the scenery most varied, on to Wem, where we stopped and had lunch, the cars evidently causing much interest among the people of this quaint village. We afterwards left for Chester, *via* Whitechurch, a run of some thirty miles. Soon the roads improved, the surface being magnificent, but as I could not see the mile-posts, and we had no cyclists to compare by, I am not sure at what rate we were travelling, but we were not at all disappointed with the performance of the car. We arrived in Chester at 4.15, and had tea at the Grosvenor, waiting for the second car, which had left Shrewsbury at the same time we did. After staying an hour and three-quarters we thought it better to push on in order to get to Liverpool in time for dinner. We made for Birkenhead, as we had to cross the ferry at Woodside, where we arrived a little after six. At the ferry we had to wait a very long time; the surroundings leading to the boat were not pleasing, and the behaviour of the horses, the drivers of which were unaccustomed to motor-cars, was very trying to the nerves of some of us. However, through the kindly offices of a man waiting to cross the ferry, the car was enabled to get an exceptionally good position on the boat, so that it was the first vehicle to leave on reaching the other side of the Mersey, greatly to our own relief and to some of our fellow-passengers. Our new friend volunteered to act as pilot to take us the most direct route to the Adelphi Hotel, where we arrived among a gaping crowd at 7.30.

Meanwhile nothing had been seen of the second car with the luggage, and as this was a somewhat necessary accompaniment to our night's enjoyment at the hotel our pilot was sent down to the ferry to make inquiries. However, it arrived at about 8.30. Though the Adelphi was a very comfortable hotel, we were very pleased to leave at 11.30 in the morning. I overheard father say something about the charge for storing motor-cars in the livery stables of the hotel being outrageously high. We were now making for Windermere *via* Ormskirk, Preston, Lancaster, Carnforth, and Kendal. Since this journey from Liverpool to Ormskirk I have wondered if there are any people in Liverpool who have motor-cars who ever made that journey twice and survived it. Fortunately the tires of the car were new and thick and we didn't go at any speed at all; the feeling was something like tobogganing in a bath chair down a flight of stone steps, and suddenly a few miles from Ormskirk the machine ceased to go altogether. I overheard some remarks about valves, electric ignition, and burners, and apparently a sort of game of hide and seek was going on which occupied over an hour, during which all sorts of spanners and tools seemed to be used in all parts of the engine, but still it refused to go; meanwhile the other car had come up, and a consultation was being held as to what should be done. Owing to the condition of the roads it could only just drag itself along, and therefore could not think of taking us in tow. However, I heard something about the spindle on the cam-shaft being jerked out of place; a single touch and it was immediately right, and directly afterwards we were again on the way. Shortly after this we reached Ormskirk; then the roads improved, and we rapidly began to make up for our serious loss of time. As we neared Preston we overtook two friends on bicycles who, knowing of our journey, had come out to meet us, but had given up expecting us in consequence of the delay. We, however, took them on board and put their bicycles on the luggage car, and arrived at Preston Park Hotel at 1.30, where we found a capital lunch awaiting us.

(To be continued.)

UNDER the name "Perfection" Messrs. Warburton, Allen and Co., of Rutland Street, Leicester, have introduced a special air cushion for the seats and back rails of motor-cars. The cushions, which are claimed to entirely absorb vibration, can be made in any size or shape and can be covered in any desired material; the firm, however, recommend Pantasote for motor-cars, this material being unaffected by grease or wet.

THE ANNIVERSARY RUN TO SOUTH-SEA.

THE following is a list of entries for the Automobile Run to Southsea on Saturday next, the 10th inst., so far as they have been received at the Automobile Club up to Wednesday night, the 31st ult. Automobilists are reminded that the run is open to all motor-car owners, whether they be members of the club or not.

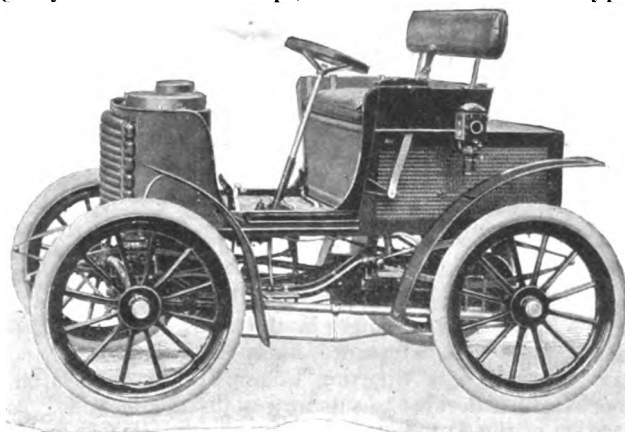
VEHICLES ENTERED FOR THE RUN.

Official Number.	Name of Owner.	Name of Makers, &c.	Horse power of motor.	Motive Power.	Number of seats, including driver.
1	Messrs. Frank Butler ...	Messrs. Panhard & Levassor ...	6	Petroleum spirit.	4
2	W. M. Hodges ...	London Motor Car, Ltd.	6	ditto	—
3	W. T. Pretty ...	Mors Voiturette ...	4	ditto	3
4	G. St. M. Willoughby ...	New Orleans Voiturette	3	ditto	2
5	H. Austin ...	Wolseley Voiturette ...	3	ditto	2
6	T. B. Browne ...	Panhard & Levassor ...	6	ditto	4
7	Roger H. Fuller ...	De Dion Bouton Voiturette	3½	ditto	3
8	G. D. Barnes ...	Benz & Co. ...	9	ditto	4
9	S. R. Roget... ..	Locomobile Co. of America	2	Steam ...	2
10	Earl Russell ...	The Haynes Apperson Co. ...	8	Petroleum spirit.	4
11	Noel B. Kenealy ...	Benz & Co. ...	5	ditto	4
12	H. R. Beckett ...	Benz & Co. ...	3	ditto	3
13	Motor Power Co., Ltd.	Gladiator Co. ...	3½	ditto	2
14	Motor Power Co., Ltd.	Clement-Panhard ...	4	ditto	2
15	Motor Power Co., Ltd.	Gladiator Co. ...	8	ditto	4
16	S. F. Edge ...	D. Napier & Sons ...	16	ditto	3
17	Chas. Jarrott ...	De Dion et Bouton ...	8	ditto	1
18	Robt. E. Phillips ...	Mors Voiturette ...	4	ditto	2
19	J. Ernest Hutton, J.P.	Ernest Hutton & Co., Ltd.	4½	ditto	2
20	J. Ernest Hutton, J.P.	Ernest Hutton & Co., Ltd.	4½	ditto	2
21	S. H. Pearce ...	D. Napier & Sons ...	8	ditto	4
22	Roger W. Wallace, Q.C.	Motor Mfg. Co., Ltd....	6	ditto	4
23	Mark Mayhew, L.C.C.	D. Napier & Sons ...	16	ditto	2
24	Alfred Harmsworth, J.P.	Daimler Co. ...	6	ditto	4
25	Sports Motor Car Co.	Sports Motor Car Co.	3½	ditto	2
26	Sports Motor Car Co.	Sports Motor Car Co.	3½	ditto	2
27	A. J. Wilson ...	Ariel Motor Co., Ltd. (Tricycle.)	2½	ditto	1
28	A. F. Ilsley... ..	Enfield Cycle Co. (Quadricycle.)	2½	ditto	2
29	Automobile Mfg. Co., Ltd.	De Dion (Quadricycle)	2½	ditto	2
30	Automobile Mfg. Co., Ltd.	Delahaye & Co. ...	10	ditto	4
31	Automobile Mfg. Co., Ltd.	Darracq & Co. ...	6	ditto	4
32	British Motor Traction Co., Ltd.	Panhard et Levassor ...	8	ditto	10
33	F. I. von Laer ...	Panhard et Levassor ...	6	ditto	5
34	Hon. C. S. Rolls ...	De Dion et Bouton (Tricycle)	2½	ditto	1
35	C. Friswell ...	Panhard et Levassor ...	12	ditto	4
36	Motor Car Co., Ltd.				
37	Motor Car Co., Ltd.				
38	Motor Car Co., Ltd.				
39	Motor Car Co., Ltd.				
40	Motor Car Co., Ltd.				
41	Motor Car Co., Ltd.				
42	Motor Car Co., Ltd.				
43	Motor Car Co., Ltd.				
44	Motor Car Co., Ltd.				
45	Motor Car Co., Ltd.				
46	Motor Car Co., Ltd.				
47	Motor Car Co., Ltd.				
48	Arthur Mulliner ...	Daimler Motor Co., Ltd.	6	ditto	2
49	Claude A. P. Truman	Renault ...	2½	ditto	2
50	F. R. Simms ...	Motor Car Supply Co., Ltd.	3½	ditto	2
51	—	David J. Smith & Co.	4	Steam	2

Official Number.	Name of Owner.	Name of Owners, &c.	Horse power of motor.	Motive Power.	Number of seats including driver.
52	Messrs. Motor Mfg. Co., Ltd.	Messrs. Motor Mfg. Co., Ltd.	6	Petroleum Spirit.	8
53	Motor Mfg. Co. Ltd.	Motor Mfg. Co., Ltd....	6		8
54	Motor Mfg. Co. Ltd.	Motor Mfg. Co., Ltd....	6		8
55	Motor Mfg. Co. Ltd.	Motor Mfg. Co., Ltd....	6		8
56	Motor Mfg. Co. Ltd.	Motor Mfg. Co., Ltd....	6		8
57	Motor Mfg. Co. Ltd.	Motor Mfg. Co., Ltd....	6		8
58	Motor Mfg. Co. Ltd.	Motor Mfg. Co., Ltd....	6		8
59	Motor Mfg. Co. Ltd.	Motor Mfg. Co.'s Voiturette	5	ditto	4
60	John H. Gretton ...	Motor Mfg. Co., Ltd....	6	ditto	4
61	M. H. Buckea ...	Motor Mfg. Co., Ltd. ...	6	ditto	4
62	Geo. Iden ...	Motor Mfg. Co., Ltd....	6	ditto	4
63	Alfred Burgess ...	Motor Mfg. Co., Ltd....	6	ditto	4
64	H. du Cros, jun. ...	D. Napier & Sons, Ltd.	8	ditto	2
65	John D. Hill ...	Panhard & Levassor ...	6	ditto	4
66	A. H. Howard ...	Marshall & Co. ...	5	ditto	4
67	F. W. Rogers ...	Daimler Motor Co. ...	6	ditto	4
68	James Highfield ...	Burford, Van Toll & Co.	3	ditto	2
69	Burford, Van Toll & Co.	Burford, Van Toll & Co.	3	ditto	2
70	Burford, Van Toll & Co.	Burford, Van Toll & Co.	6	ditto	3
71	Burford, Van Toll & Co.	Burford, Van Toll & Co.	6	ditto	3
72	H. E. Zacharias ...	Roots & Venable ...	3	Oil	2
73	Daimler Motor Co., Ltd.	Daimler Motor Co., Ltd.	6	Petroleum Spirit	6
74	Daimler Motor Co., Ltd.	Daimler Motor Co., Ltd.	6	ditto	3
	Locomobile Co. ...	Locomobile Co. ...	—	Steam ...	2
	Locomobile Co. ...	Locomobile Co. ...	—	ditto	4

THE COLUMBIA VOITURETTE.

HEREWITH we illustrate a neat little two-seated petroleum-spirit motor-car which has lately been put on the market by the Electric Vehicle Company, of Hartford, Conn., U.S.A., and Paris. The vehicle, which is known in America as the Columbia gasoline runabout, is operated by a single-cylinder motor of 4 h.p.; it is of the water-cooled type, and



THE COLUMBIA VOITURETTE.

is fitted with electric ignition. The water tank, which is situated in the front of the vehicle, holds four gallons, and is equipped with a radiating coil. The petrol tank, which has a capacity of five gallons, or sufficient for a run of 100 miles, is situated under the seat. The power of the engine is transmitted direct to the rear axle without the use of belts or chains. Three speeds ahead and one backward, operated by a single lever, are provided, the maximum speed being about twenty miles per hour. Steering is controlled by an inclined hand-wheel, the pillar of which is pivoted at the bottom to allow of easy access to the seats. The road wheels are of wood, all being 28 in. in diameter, and shod with 3 in. pneumatic tires. The car, which, as will be seen, has a neat and attractive appearance, weighs complete about 1,300 lbs.

MOTOR-CARS ON THE CONTINENT.



(From Our Own Correspondent.)

The Accident of the Paris-Roubaix Race.

It is interesting to note that on Friday, the 26th ult., at the Versailles law courts the report of the expert appointed to ascertain the responsibility of the Croix de Noailles accident was read, and the conclusion arrived at was that to the imprudence of the public must be attributed the responsibility of the mishap. And to this imprudence of the public did the Parisian motor world suffer three months of persecution, and French automobilism lose an entire season of racing. Paris-Bordeaux, Paris-Lille, Paris-Brest, Paris-Ostend—all were this year lost by reason of the unfortunate mishap at Saint Germain, an accident which would never have occurred at all had the spectators not been seized with the mad idea to mass themselves in the middle of the route and at a dangerous corner. But there it is, and now I wonder what will be done with MM. Martin and Dorel, the two motor-cyclists who ran into the crowd, and who have been regarded by many as the culprits in the affair. I take it that the court will abide by the expert's report and acquit these two unfortunate racers; but one is never sure in a court, especially where an automobilist is involved. In any case, it is time that the affair was finished, for the accident took place as long ago as April 15th.

The King of Belgium.

To the ranks of royal automobilists King Leopold of Belgium must now be definitely joined, and judging from his enthusiasm when in Paris his adhesion is likely to be a strong and lasting one. Last week I made mention of his call upon the President of the French Council at the precise moment when the latter was descending from a motor-car, and whether or not the sight inspired the monarch I cannot tell, but the fact remains that a visit to Charron's resulted, and a few days later His Majesty was seen speeding through the streets of Paris, driven by the winner of the Gordon-Bennett Cup in a 24-h.p. Panhard. From that day King Leopold has indulged in frequent trips, and, although mounted on a big racer, has so far escaped a police summons. What a chance to be a king! When I think that the Belgian monarch can drive at seventy kilomètres an hour through the Bois without receiving anything worse than bows and scrapes, while I, for the same performance, should receive a shoal of *contraventions*, I sympathise with the Socialists and similar animals. On Sunday last bad weather only prevented His Majesty from journeying to Chantilly *en auto*, and even as it was he made his promenade in the forest mounted on a car. Long live the King!

The South-Eastern Cup.

As was naturally to be expected after the experiences of the first competition for the South-Eastern Provincial Cup, changes in the rules governing the contest are likely to take place, and the Sporting Committee of the Automobile Club of Nice has decided to submit certain modifications to the Federation of the Automobile Clubs of the South-East. It will be remembered that the race of April 4th last was actually won by M. Cuchelet, representing the Salon Club, but upon the protestation of the Nice representatives the cup was eventually handed over to them. The ground of the complaint was that the winner was not a genuine member of the Salon Club, but had been elected simply for the purpose of contesting the race on its behalf. The proposed changes in the rules provide for a residential qualification, and further stipulate that every competitor shall have been a member of the club he represents for at least a year previous to the contest. This appears perfectly just, and will doubtless meet with the approval of all concerned. The race will be decided in the spring over the same route as last year, viz.: Salon, Aix, Orgon, Tarascon, Arles and Salon. A

keen contest is anticipated, and I am not alone in the wish that this time Salon will secure the trophy. They are sportsmen down yonder.

Parisian Tramways.

PARIS has been overwhelmed during the last few months with tramcar accidents, and undoubtedly the self-propelled specimens of this type of public conveyance are driven much too fast. That serious steps are at last about to be taken to reorganise the management of the vehicular circulation in general, and that of the tramways in particular, is evidenced by the action of Monsieur Touney, the director of the municipal police, who has circularised the police directing them to prepare a return showing, firstly, the accidents caused by the tramways during the month of May, and secondly those which have occurred since June 1st last to date. These returns are required to specify distinctly between mishaps where horse-drawn and self-propelled vehicles have been the victims, and all Parisian automobilists unite in the hope that this step is the forerunner of stringent measures about to be taken for the regulation of these huge cars. Paris is rapidly becoming a perfect network of tram lines, upon which half a dozen different electric systems, not to mention compressed air, horse, and steam cars, career at an alarming speed. The rails are dangerous enough for the Parisian motorists, but the cars themselves add tenfold to the danger, and not a day passes that an accident is not recorded.

Sentences in Belgium.

THE Belgian, following the example of the French magistrates, are condemning some of the unfortunate automobilists brought before them for excess of speed to imprisonment, and quite recently a well-known motor-cyclist was sentenced to no less than eight days confinement for exceeding the limit of speed prescribed by the law. This seems absurdly severe, and such treatment is hardly likely to be accepted tamely by Belgian *chauffeurs*. It will be remembered that in France the legality of imprisonment for scorching was very seriously at doubt, and that no less a personage than Monsieur Monis, the Minister of Justice, circularised the police authorities, expressing his opinion that offending automobilists are only liable to be fined. The contention of this high authority was based upon the ruling of Clause 475 of the French Penal Code, whereas the Paris police had been in the habit of prosecuting offenders under Clause 476. I am not aware whether this all-important question was ever definitely decided, but it was only by the continued agitation of the various interested clubs and journals that Monsieur Monis's attention was drawn to the point, and that the inclination of magistrates to sentence one and all to terms of imprisonment was restrained. To-day one practically never hears of such a sentence unless the offender has fallen foul of other police regulations in addition to those relating to furious driving. If, then, there exists the slightest doubt as to the legality of the Belgian authorities' action, automobilists should leave no stone unturned to put the matter on a proper footing, and that they will do so cannot be doubted for a moment by anyone with a knowledge of the Belgian temperament.

Motor-Cycles and French Customs.

SOME time ago Monsieur Ballif, the energetic president of the Touring Club of France, addressed a petition to the Government praying that motor-cyclists entering the country from the Swiss and Belgian frontiers might be accorded the same privileges as those enjoyed by ordinary cyclists; that is to say, upon presentation of the card of membership of a recognised club the rider would be permitted to introduce his machine into France without paying any deposit to the Customs. Such a privilege would have been invaluable, and motor-cyclists would have welcomed it with enthusiasm. But it is not to be, at any rate for the present, for the Government decision transmitted to Monsieur Ballif is that such a concession would prove detri-

mental to the industry in France, and that therefore it cannot be granted. This is the more peculiar inasmuch that recently the Italian authorities have decided to include motor machines in the same category as cycles, and French riders are therefore accorded a privilege which their own Government declines to grant to foreigners. It is a pity.

Fresh Records by Demester.

LAST week, when quoting the new records set up by Demester, I enquired, "Who will be the next candidate for record honours?" and in doing so had in mind more particularly Rigal. But it is not Rigal, but Demester himself, who has proved to be, not merely the candidate, but the successful candidate, and of whose performance I am now about to relate the history. It took place on the morning of Thursday, the 25th ultimo, on the famous track at the Parc des Princes, in the presence of Monsieur Tampier, the official timekeeper, and a mere handful of spectators. From the start Demester travelled not only at a great, but also at a wonderfully even pace, and upon reaching the thirtieth kilomètre he got inside record figures. From that point onwards he gradually augmented his advance on Béconnais' records, and then, when within appreciable distance of the hour, his tire burst. But Demester was not done with, and continuing to ride during the last two and a-half minutes without pneumatic, he managed to crowd no less than 71 kilomètres 265 mètres within the sixty minutes. This represents about forty-four and a-half miles, and is 1 kilomètre 896 mètres better than the previous record made by Béconnais on February 8th last. Ten minutes' halt to replace the tire and Demester was off again in his wild chase, but it was not until the ninetieth kilomètre that he again got inside the previous best. Once there, however, he stayed there, and finished by knocking over three minutes off Béconnais' figures for one hundred kilomètres. Demester was riding a Gladiator tricycle fitted with an Aster motor. His times *en route* were:—

Distance in kilomètres.	Record.	Former record.	Former holder.
	h. m. s.	h. m. s.	
30	0 24 54 ³ / ₅	0 24 59	Demester
35	0 29 7	0 30 26 ⁴ / ₅	Béconnais
40	0 33 20	0 34 45 ³ / ₅	"
45	0 37 33 ² / ₅	0 39 3	"
50	0 41 43 ¹ / ₅	0 43 22	"
55	0 45 55 ² / ₅	0 47 42 ³ / ₅	"
60	0 50 7 ⁴ / ₅	0 51 51 ³ / ₅	"
65	0 54 22 ² / ₅	0 56 15	"
70	0 58 44 ¹ / ₅	1 0 32	"
90	1 19 10 ³ / ₅	1 20 51 ³ / ₅	"
95	1 23 24	1 25 54	"
100	1 27 44 ² / ₅	1 30 49 ¹ / ₅	"

Undoubtedly this is far from the limit of speed at which his machine can travel, but very slight improvement can be made upon his figures at the Parc des Princes, for the track is not sufficiently large and the banking is not steep enough to allow of much faster times being made. But there is sure to be a candidate soon all the same—who will it be? Next, please.

A Fatal Accident in the Ardennes.

A SAD motor-car accident has occurred in the French Ardennes, resulting in the death of Comte Raphael Cahen d'Anvers. The accident took place at Lepron les Vallées, sixteen miles from Rocroy. They were going down hill, at the bottom of which there was a sharp turn of the road. It would seem that the brake gave way, for the driver lost control over the car, and, when going at full speed, it ran against a cliff facing the downward road. The driver jumped out, and was scarcely hurt, but the Comte was killed on the spot. Since the above was written additional details of the accident have come to hand. The deceased, who joined the Automobile Club of France four years ago, took great interest in the new mode of locomotion, but he was by no

means an expert driver. To this want of experience his death is attributed, for he insisted on engineering his car over bad ground, although he had a skilful conductor with him. Only a week since the Count bought a splendid motor-car from M. Girardot at a cost of £2,000. Accompanied by his *mécanicien*, he left his residence in the Champs Elysées last week for his château in the Seine-et-Oise. He was so delighted with his new purchase that he resolved to take a trip in it to Belgium, and started on Saturday last with the fatal result above chronicled. The deceased, who was 56 years of age, was a Commander of the Legion of Honour, and belonged to the Union Artistique, the Société Hippique, the Cercle Athlétique, the Acacias, and the French Automobile Club.

CELERIOR.

The shades of night were falling fast,
As through a country village passed
A youth who drove through mist and storm
A motor-car of Daimler form.
Celerior.*

His brow was scored, his eye was bright.
His lamps shone forth their dazzling light.
While like a syren in a storm,
Blared out the well-known motor horn.
Celerior.

By happy homes both warm and snug,
He wildly plied his sparking plug.
When right in front a helmet shone,
And from his lips escaped a groan.
Celerior.

Too fast! Too fast! the bobby cried,
And at the car his truncheon shied;
But speeding on like startled bird,
A loud and clarion voice was heard,
Celerior.

"O stay," the hostess said, and rest,
Of all the Inns this is the best.
He brushed a tear from off his eye,
And answered straight without a sigh.
Celerior.

Beware the newly metalled road,
Beware the drunken carter's load,
This was the hostess's last "adieu,"
As car and driver fled from view.
Celerior.

Some labourers at break of day,
To work proceeding on their way.
Of something strange became aware,
Such scent of petrol filled the air.
Celerior.

'Midst fragments scattered all around,
A motor man lay on the ground,
Still grasping in his hand of ice
The lever marked with plain device,
Celerior.

There in the twilight cold and grey
Lifeless, and scotched at last he lay,
While from the crowd which gathered round,
A voice fell solemnly profound,
Celerime.

T. FRED. HUNT.

* Celerior = Faster.
Celerime = Too fast.

THE proposal to institute a municipal motor 'bus service at Southampton has been adjourned for six months.

"MORE LIGHT" is referred to the article on "Tube v. Electric Ignition," in our issue of August 11th last, and one on "Electric Ignition Troubles," which appeared in the number for September 8.

THE Remington Automobile and Motor Co., Ilion, N.Y., have purchased the business of the Quick Manufacturing Co., Newark, N.J. Operations at Newark will be continued until orders in hand are completed, when the entire plant will be transferred to Ilion. The "Quick" motor will be improved and marketed under the Remington name in the following sizes: Three, four, six and eight horse power.

THE AUTOMOBILE CLUB'S TRIALS OF ELECTRICAL VEHICLES.



WE have already published the conditions in regard to the trials of electrical vehicles organised by the Automobile Club, and which are to be commenced on Monday next, the 5th inst. The following twelve vehicles have been entered.

The Leecoll Electric Battery Company, Ltd., seven cars, Nos. 1 to 7.

The National Motor-Carriage Syndicate, Ltd., one car, No. 8.

Carl Oppermann, one car, No. 9.

The Electric Motive Power Company, Ltd., two cars, Nos. 10 and 11.

Shippey Bros., Ltd. (Still Motor Company), one car, No. 12.

As stated in a previous issue, the trials comprise (a) a run over a given course for an unlimited distance on one charge. The driver to declare to the observer when the run is to be considered finished; (b) a course of 30 miles, to include considerable gradients; (c) a course of 30 miles of average road; and (d) a course of 30 miles of flat, or nearly flat, road.

Trial *a* will be carried out on Monday, the 5th inst., starting from the Chislehurst electric light station at 7.30 a.m., the route to be followed being Foots Cray, Farningham, Wrotham, Ightham, Seal, Pott Hill Summit, Orpington, Chislehurst.

Trial *b* will be made on Tuesday, the 6th inst., the route being Chislehurst, Orpington, Cudham, Scott's Lodge, Knockholt, Stonehouse, Green Street Green, Orpington, Chislehurst. The road between Green Street Green and Cudham rises from 300 to 680 feet above the sea, and at Knockholt it is 735 feet above the sea.

Trial *c*, for Wednesday, the 7th inst., will be carried out over the following route: Chislehurst, Foots Cray, Farningham, Eynsford, Shoreham, Otford, Bat and Ball Station, Orpington, Chislehurst.

The route for trial *d*, for Thursday, the 8th inst., is: Chislehurst, Sidcup, Eltham, Blendon, Sidcup, Eltham, Blendon, Sidcup, Eltham, Blendon, Sidcup, Chislehurst.

On Friday, the 9th inst., there is to be an optional trial, consisting of a run over a given course for an unlimited distance on one charge; the driver to declare to the observer when the run is to be considered as finished. The route is the same as that for trial *a*.

Trial vehicles must be at the Chislehurst Electric Light Station for charging not later than on Sunday, the 4th inst., at 6 p.m., and drivers or other representatives of owners must be prepared to superintend the charging of the vehicles at any time of the night which may best suit the convenience of the engineer. The owners' representative shall decide when the batteries are fully charged. On Monday, and following nights during the trial, the same arrangements will obtain for the charging of vehicles. No change or alteration may be made in the batteries, motors, or parts of them, or in the connections or other parts of a vehicle from 6 p.m. on Sunday, the 4th inst., until the judges' committee have notified at the conclusion of the trials that they no further require the vehicle, unless previous written permission be obtained from one of the judges or the secretary to the judges' committee.

M. BOURGEOIS, chief of police of Brussels, has lately been initiated in the management of motor cars. It was at Ostend where he made his debut. M.M. Goethais and Riviere piloted him in a 7-h.p. vehicle, and one of them, engaging successively the three speeds, and turning corners with much skill, executed a number of driving tricks, and then departed at the third speed, and, by applying the brake, brought the vehicle to a stop within 7 feet; the other gentleman meanwhile expounded the advantages of the new locomotion. M. Bourgeois was seemingly much impressed.

CORRESPONDENCE.



THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In March last I became the owner of a Werner motor-bicycle, and since then have been much exercised to induce the motor to work. Sometimes it will travel for a few miles; perhaps it may have done about 100 miles altogether. Experts and amateurs have come to my assistance, but so far no satisfactory result has been achieved. At present the motor will explode lustily through the compression tap when open, or in any direction where an escape can be effected, but it will not force down the piston. Every effort seems to have been resorted to in order to get the electricity into good order, and the engine seems in proper working condition, so why the machine refuses to do its duty is a puzzle to everyone who has devoted attention to it. I gather from the correspondence in your paper, that some writers at least have had success with their motor-bicycles, but no one has explained how other bicycles may be made to travel, even when they have announced their own good fortune.

I think there must be many amateurs possessed of the information which would overcome the troubles I have referred to, who would be pleased to impart the knowledge they enjoy for the benefit of those whose experience has not been so fortunate, and I should be obliged if such automobilists would favour me and others in my predicament with such advice as we appear to stand in need of.

Yours truly,
J. A.

Altrincham, October 27th, 1900.

MOTOR DRIVING AND INSTRUCTION SCHOOLS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was glad to see the suggestion made by your Continental correspondent last week, that there is room not only for a school for the teaching of motor-car driving, but also that provision should be made for giving technical instruction to enable novices such as myself to become versed in the mechanism of motor-cycles and cars. I for one would be only too glad to avail myself of such opportunities were they available, for while much interested in automobiles, my want of knowledge of motors and motor mechanism has hitherto made me refrain from investing in a car.

Kensington, W., October 30th, 1900.

Yours truly,
NOVICE.

NINETEEN entries have so far been received for the Chanteloup competition, which is to take place on Sunday next, under the auspices of the Motor-Club de France.

FOR the petrol consumption competition which is being organised by the *Auto-velo* for the 8th inst., thirteen entries have already been received.

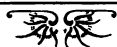
IN its recent annual statement the American Bicycle Co. lays stress upon the automobile branch of its business, and announces that four or five of its factories will be wholly occupied in producing them henceforth.

MR. JAS. E. TUKE, who has been appointed sole representative of the Yorkshire Motor-Car Manufacturing Company, of Hipperholme, Bradford, hopes to have a car on show in London at an early date. The company are, we hear, arranging for an increased output next year.

AN economiser for Locomobile and other light steam cars has been brought out by Mr. Hy. Brough, of Cornbrook Road, Manchester. It consists of a device for utilising the exhaust steam in heating the boiler feed water up to 202 deg. Fahr. In this way it is claimed that not only is a more uniform steam pressure maintained, but that the consumption of petrol is reduced.

MOTORISTS in the East End of London will be glad to learn that Messrs. Short and Co., of 363, Mile End Road, E., are keeping a stock of petrol, which they will supply any day of the week, including Sundays. They are laid out to undertake repairs, and also keep a supply of spare parts for Daimler, Benz, and De Dion motors.

The Event of the Year.



THE END OF THE 1,000-MILES TRIAL.

ALTHOUGH we have by no means heard the last of the great 1,000-miles Trial, organised and successfully carried out by the Automobile Club of Great Britain and Ireland, we have seen the last incident of the many events which have been called forth by that great tour. The initial stages were dull and common-place; the routine work of arrangement necessitated close application to matters of detail. Then came the Trial—full of incident, devoid of accident, and crowded with excitement, both pleasurable and worrying. That event over, there was the reunion dinner, when participants confessed their sins of omission and commission and told how rigorously they had adhered to the rules of the club. That was followed by the deliberations and the calculations of the judges. Interest was whetted again by the publication of the awards, and then there was another lull. And lastly, on Wednesday, a pleasant dinner at the Trocadero, Piccadilly, proved a fitting *finale* to the whole series of events comprised under the title of the 1,000-miles Trial.

The company present numbered over one hundred and twenty, and was widely representative of the automobile world. Owners of vehicles, representatives of manufacturers, and the drivers of cars sat down to a capital repast, and then a few minutes' interval enabled one to realise the comprehensive character of the gathering. Among those who had accepted invitations were Mr. Roger Wallace, Q.C. (chairman), Mr. F. R. Simms (vice-chairman), Mr. Frank H. Butler (hon. treasurer), the Hon. C. S. Rolls, Messrs. R. E. Phillips, H. Edmunds, W. W. Beaumont, J. Lyons Sampson, Staplee Firth, Mark Mayhew, C. Cordingley, S. Spooner, J. A. Holder, C. Vernon Boys, E. H. Bayley, J.P., T. Bayley, M.P., A. Bird, E. Kennard, J.P., R. H. Fuller, S. F. Edge, C. Jarrott, C. K. Gregson, T. B. Browne, C. Freeston, G. S. Critchley, G. F. Pedley, A. J. Drake, Percy Richardson, J. H. Gretton, Hewetson, R. Moffatt Ford, C. Grimshawe, C. Letts, J. J. Mann, A. Burgess, E. Pitman, W. E. Hart, H. B. Graham, F. F. Wellington, Van Toll, R. R. Banks, E. Dangerfield, E. M. Iliffe, T. G. Chambers, B. C. Joy, W. H. Kitto, F. O. Seyd, G. H. Thrupp, Sidney Straker, and C. Johnson (sec.). Most of these gentlemen were present, and among those who sent letters of regret was the Hon. J. Scott Montagu.

The toast of the Queen having been honoured, Mr. Roger W. Wallace made a short speech before proceeding to the business, or pleasure, of the evening, viz., the distribution of prizes and diplomas. He said that there was, unfortunately, one who had participated in the 1,000-miles Trial who was unable to be there. He referred to Lord Kingsburgh, who, since the Trial, had been honoured by the Crown in being made a K.C.B. Thus he had been recompensed for his helpfulness to automobilism and for his distinguished services to the country. On behalf of those assembled he (the chairman) proposed to send a telegram of congratulation to the Lord Justice-Clerk of Scotland. (Cheers.) He then proceeded to distribute the prizes and diplomas with a graciousness of phrase that gratified the recipients and delighted the observers of the ceremony. In our issue of July 7th we gave a full list of the awards—occupying more than five columns of the *Journal*—so that the publication of the list would be but a repetition. In the manufacturers' section the winner of the first prize in the class for vehicles selling at £200 or less—viz., the Benz car—occasioned the remark that many of the present owners of 12 h.p. Panhards had commenced their automobile careers with Benz cars. In the class for cars of a selling price between £200 and £300 the first distinction was obtained by the Wolseley voiturette, which was entirely an English car, and therefore its success gave great satisfaction to those who were anticipating a good future for the British motor-car industry. In Class C, the Daimler Company had taken the first prize with its triple entry of Nos. 35, 36, and 37—a fact which gave evidence of

the great improvements now being made by constructors in this country. In the class for motor-cycles carrying two persons the manufacture of the Ariel quadricycle in this country was favourably commented upon. Equally felicitous was Mr. Wallace in distributing the second class awards, occasioning much amusement by his lamentations over the prize money which had had to go to America, to the credit of the Locomobile Company, with whose cars many of his friends had expressed themselves well pleased. Diplomas (in all cases cheques had been previously sent) were also handed to the representatives of the New Orleans voiturette, the Motor-Car Company's Triumph, the Motor Manufacturing Company's car, the De Dion voiturette, and the Century tandem.

In Section II.—that for privately owned vehicles—the success of the Hon. C. S. Rolls overshadowed the distinctions of other entrants. He secured the gold medal for the most meritorious vehicle in the Trial, the silver cup presented by Mr. Owers, and a prize of £5, which had gone to the part purchase of a stop watch. On coming forward to receive his trophies, he was greeted with well-sustained applause, which, in the words of the chairman, showed how high he was held in the estimation of automobilists. He was a thorough sportsman, and had adhered most strictly to the rules of the Club within controls—(laughter and hear, hear)—and had gained ninety-three marks out of a possible 100. In presenting a silver medal to Mr. Phillips, high tribute was paid to his work as a member of the Club Committee, and Mr. E. Kennard was congratulated on the splendid success of his Napier car. Other recipients of prizes were:—Mr. F. H. Butler, Mr. T. B. Browne, Mr. E. Pitman, Mr. C. K. Gregson, and Mr. J. D. Siddeley, whose coming forward elicited an encouraging word to British manufacturers who were putting down works to go more completely into the manufacture of automobiles. Mr. J. A. Holder was welcomed as an early martyr to the cause—one who “has passed through the fire.” Mrs. Bazalgette received a silver medal amid loud applause, and was heralded by the chairman as one who had the united good wishes of the members of the club for her keen interest in automobilism. The mystery of the famous “Mr. Wm. Exe” was solved, as Mr. C. Johnson responded to the call for that gentleman, whose identity is now officially established. In the absence of Mr. H. R. Langrishe, Mr. Staplee Firth, who has represented that gallant motorist on more than one occasion, was called, but he had by that time disappeared, and many wondered if his departure had anything to do with further defence of automobilism and its votaries. Mr. S. F. Edge was heartily greeted as the driver of the Napier car, and Mr. E. M. Iliffe and Mr. Herbert Ashby were also among those who had the pleasure of becoming receivers.

A warm tribute to the skill of the drivers prefaced the distribution of driving certificates. 60,000 miles had been covered without accident, and the drivers deserved credit for their steady work. Then followed the presentation of the cups given by the motor-car journals in connection with the Automobile Club's motor-cycle meet at the Crystal Palace on June 30th last.

The next presentation was one in which the company joined with universal approval. Mr. Wallace referred to the early days of the Club. When Mr. C. Johnson joined—although there was a certain nucleus through the agency of Mr. Simms and Mr. Harrington Moore—he had a very difficult task before him. How he had surmounted that task all the members recognised. He (the chairman) hoped they would have an increased membership in the future, and be able then to adequately reward the work done by the secretary. The idea had occurred to Mr. Rolls to make an effort to show the appreciation in which Mr. Johnson was held by those who took part in the 1,000-mile Trial. That alone was a work which demanded very great ability

and constant and assiduous attention. He had accomplished that without any burden upon the finances of the club. The successful issue of the 1,000 miles Trial was due to Mr. Johnson almost entirely. He believed Mr. Johnson had organised the Trial better than any other man in the country could have done it. (Cheers.) The illuminated address which he presented to Mr. Claude Johnson asked that gentleman's acceptance of a purse of one hundred pounds in recognition of the valuable services which he had rendered to the interests of automobilism in this country. Through his able organisation and direction, the Club had carried to a successful issue the 1,000-miles Trial, which marked a distinct era in the history of locomotion. The address was signed by about eighty gentlemen.

Mr. C. Johnson, on rising to respond, was hailed with cheers. He said he was overwhelmed with the kindness of those who had given him that testimonial. When he first heard of it he wrote to Mr. Rolls pointing out that what he had done in connection with the Trial he had done as secretary of the club, and that he felt the pleasure it had given him was sufficient recompense. He thoroughly appreciated the kind expression of feeling, and the address was a possession of which any man might be proud. The organisation of the Trial was not altogether easy, and he had discovered that a man when he was driving a motor-car was not the same man as when not driving. He had realised the difficulties of adhering to rules, and he recognised how all had helped to make the event a success. The success was due largely to the way in which drivers had adhered to the rules. In conclusion he again said how grateful he was for the kindly appreciation that had prompted the presentation, and asked to be excused saying more (cheers).

Mr. Wallace then announced that Mr. Edmunds and himself had guaranteed £10 for a testimonial to Mr. Burrows, who was not only steward of the club, but also chief clerk, banker, and possessor of engineering information, always available for the members of the club. He had done much gratuitous work, and every member of the club would have pleasure in contributing to the testimonial, to which Mr. Edmunds and himself (the chairman) would each give a guinea. It would probably exceed the £10, it should not be less, and Mr. Edmunds would be glad to receive subscriptions. The incident was quite unexpected by Mr. Burrows, who was evidently too much taken by surprise to make a speech in reply. He modestly thanked the gentlemen present.

Then followed a series of resolutions, which, owing to the lateness of the hour, were more or less formally moved, but all of which were heartily endorsed. Thanks to the local committees were proposed by Mr. Wallace, seconded by Mr. F. R. Simms, and acknowledged by Messrs. Bird and Graham. Messrs. J. H. Gretton and S. F. Edge proposed the recognition of the judges, on whose behalf Professor Vernon Boys replied. To Mr. A. Harmsworth appreciation was rendered on the proposition of Mr. H. Austin, seconded by Mr. Hewetson; and the donors of the prize fund received the thanks of the meeting, voiced by Messrs. Pedley and Mann. Mr. Mann also proposed the acknowledgment of the services of the Press, which was seconded by Mr. Lanchester, and responded to by Mr. C. Cordingley. Messrs. Browne and Ford took charge of a resolution of thanks to the committee of organisation, and then, on the motion of Mr. H. Edmunds, the proceedings terminated with musical honours, rendered to the chairman.

THE Cycle and Motor Company, Ltd., Oriel House, Westland Row, Dublin, inform us that they are not only in a position to execute all repairs to motors, but also carry a large stock of petrol and motor lubricating oil.

In the report of the Caledonian Motor-Car and Cycle Company, Ltd., of Aberdeen, it is stated that the sales in the motor department show an increase of over £4,000 on last year's motor sales. The company's trade suffered very much through the disastrous fire at their premises on the 5th June last. The premises have been entirely reconstructed, and are now fire-proof and well equipped for motor business.

THE ALCOHOL MOTOR COMPETITION IN FRANCE.

(From Our Own Correspondent.)

ON Sunday last the *Vélo's* competition for automobiles employing alcohol as fuel took place over the trying route which unites Rouen to the capital. The second event of its kind, this contest had during the previous few weeks excited the greatest interest in automobile circles, and the number of entries had steadily increased until, on the evening previous to the start, no fewer than sixty-five vehicles had been booked to compete. The organisers had drawn up a very complete set of rules and regulations, from which it was made particularly manifest that no racing would be recognised, and that competitors would be required to keep strictly within the legal limit of speed, viz., thirty kilomètres (nineteen miles) per hour. Each vehicle was compelled to carry a commissioner, whose duty it was to keep careful watch over the conduct, both of car and driver. He was provided with four small bottles for the purpose of taking samples of the alcohol procured *en route*, and his route book contained a specification of the car under his charge. Each competitor was required to completely fill his tank at the moment of starting, and again at the moment of arrival, by which means the exact quantity of fuel used was ascertained. Naturally, should the operation be rendered necessary during the journey, the tank was also required to be completely filled. The start was ordered for half-past eight at the Porte Maillot, and long before that time a great crowd had assembled to see the preparations of the vehicles preparatory to getting under way. Monsieur Jean Dupuy, the Minister of Agriculture, was present, and many of the leading men in the automobile world, among whom I may cite: MM. René de Knyff, Paul Meyan, Serpollet, Charron, Gobron, Huillier, Michelin, Girardot, Richard, de Rothschild, Ballif, Cuénod, Scotte, and Ravenez. As they were ready so were the competitors despatched by M. Riguelle, and down that terrible *paré* of the Avenue de Neuilly they bumped. By the time Rueil was reached many cars were already *en panne*, for the jolting over the *paré* seriously affected the carburation, the intricacies of which all the drivers had not found sufficient time to master. By 9.13 a.m. the last car had got under way and then followed a great number of every type and class of automobile that can be found in Paris. No untoward incident occurred throughout the journey, and travelling by way of Nanterre, Chaton, Le Vésinet, Le Pecq, Saint Germain, Chambourey, Flins, Mantes, Bonnières, Vernon, Gaillon, Notre-Dame-du-Vaudreuil, Pont de l'Arche and Amfreville, the leading cars had covered the 127½ kilomètres of route by half-past eleven. Needless to say that some of them, as in the case of Giraud, for example, had travelled exceedingly fast in spite of the non-racing character of the competition. Giraud left the Porte Maillot at 9.3 a.m., and reached Rouen at 11.18 a.m., thus covering the distance in 2½ hours, or at the average speed of sixty kilomètres per hour. The other arrivals were:—

No.	h. m. s.	No.	h. m. s.
36. Charron and Girardot	11 34 30	56. Panhard	1 17 0
3. Gobron-Brillié	11 37 0	32. Clément	1 20 0
43. Degrais	11 55 0	28. Martha	1 21 30
8. Baras	12 8 30	53. Fernandez	1 42 0
61. Lefebvre	12 12 0	58. Peugeot	1 43 0
2. Gobron-Brillié	12 19 0	22. Richard	1 48 0
23. Richard	12 20 0	20. Le Blon	1 49 0
17. Zénon	12 20 15	60. Fram	1 53 0
11. Gobron-Brillié	12 20 25	37. Battailie	1 54 0
18. De Monchy	12 23 0	54. Panhard	1 56
48. Darracq	12 26 0	47. Darracq	2 16 0
4. Henriod	12 29 0	35. Clément	2 36
30. Peugeot	12 33 0	14. Vilain	2 53 0
12. Gobron-Brillié	12 37 0	52. Fernandez	5 10 0
50. Dausette	12 52 0	59. Dumont	5 30 0
33. Clément	1 14 0	10. Augé	5 32 0

It is interesting to note that the No. 3 Gobron-Brillié car was driven throughout by Madame Gobron, and ran on pure alcohol. A banquet in the evening at Rouen brought to a most successful conclusion a truly memorable day. The official results will be published in due course.

HERE AND THERE.

MR. ROGER WALLACE, the president of the Automobile Club, will welcome the time when British manufacturers are able to meet the demands of British patrons of the automobile industry, and at the Trocadero dinner he very clearly showed a prejudice, which all must feel, in favour of the further development of English enterprise in this direction.

SHARING in this enthusiasm, I gladly chronicle an event of some importance which took place at Luton on Wednesday afternoon. It was nothing less than the laying of the foundation-stones of a new motor-car works, which Mr. E. W. Hart intends to erect to manufacture electrical vehicles. I should mention that the British and Foreign Electric Vehicle Company is being formed to develop general electric traction work, and that arrangements have been made with Mr. Hart to supply carriages to the company. Those who attended the recent meeting of the English Motor Club will be familiar with the location of the new works, which stand upon a site of about four acres. The foundation-stones were laid by the Mayor and Mayoress of Luton and by Mr. and Mrs. T. G. Chambers, the latter gentleman being actively concerned in the new company. Luton is very favourably situated for the enterprise, being only thirty miles from London, and the train journey being slightly less than forty minutes. Both Mr. Hart and Mr. Chambers have great faith in the future of electricity in connection with automobilism, and have substantial visions of a car that will not only run more than 100 miles on a single charge, but which can be recharged in considerably less time than has hitherto been possible.

THE testimony of Mr. Neville Grenville, the High Sheriff of Somerset, with regard to the automobile is interesting, for he travelled 248 miles in 14 hrs. 10 min., saving 26 hrs. 29 min. as compared with the time it would have taken him had he trusted himself to the railway companies. Among his fellow councillors who were present at the meeting at which he gave that information were the Earl of Cork, the Marquis of Bath, and Earl Temple. Probably this trio will shortly be in the ranks of the automobilists.

AT Lidgate, near Haverhill, there is a clergyman who adds to the ability to preach the gift of being able to entertain lads with broken arms and compressed chests. The *South-West Suffolk Echo* thus announces the fact:—"Mr. S. Rolfe, of Cheveley, sent a motor-car to Lidgate to fetch Mr. T. Mould, groom at the Rectory, to record his vote at Brinkley. On leaving Lidgate something went wrong with the steering gear, and the car ran up a bank and overturned, injuring two of Mr. Rolfe's sons, who were in the car. The boys were promptly taken to Dr. Wilkin's surgery, when it was found that one boy had broken his arm and the other was slightly hurt on the chest. After the arm had been set the Rev. E. A. Gray entertained the boys at the Rectory till the evening."

MR. SIDNEY MATTHEWS, of Holly Lodge, Crawley, has been writing to the *Standard* suggesting that "the time has come when cyclists and motor-car drivers should be compelled to carry a number conspicuously placed." It will be interesting to see what happens.

GREAT waves of feeling sometimes rush over the country, immersing the common sense of ordinary people, and resulting in strange antics and sayings. Such an ebullition seems to be going on just now among the various county and other authorities. From almost every district I have received news of councils recommending the Local Government Board to reduce the speed of motor-vehicles, and the outburst is not only general but is pretty strong. In view of this sudden outbreak of the anti-automobile disease among the local authorities of Great Britain, I intend to publish a list of counties where motorists had better be careful. In all the places thus pilloried there is evidence of the existence of the disease in a more or less virulent form. I shall be glad to have the experience of readers in any of these counties. Motorists

can render a public service by informing me of other districts in which the outbreaks have occurred. So far I have heard of the following:—

Essex.
Lincolnshire.
Hampshire.
Norfolk.
Middlesex.
Surrey.
Somerset.

Among the towns deserving of publicity in this category, I mention—

Huntingdon.
Bournemouth.
Swansea.
Altrincham.

SEVERAL high personages are almost as bad as local authorities, and I would suggest that they should be given rides in motor-cars so as to ease their minds on the subject of automobilism. Additions to this list will be made from week to week. I begin with—

The Earl of Kimberley.
Lord Cranworth.
Lord Walsingham.
The Recorder of Bournemouth
(Mr. R. A. Kinglake).
Mr. J. Spear, M.P.

Particular attention should be paid to the latter gentleman, who is said to have views on the special taxation of cars.

THE other morning an impromptu motor-car run from the City Square, at Leeds, to the White Horse Hotel, York, was made by Dr. Orford, Pontefract, Messrs. S. Leuchter and Palmer, Leeds, and Mr. W. Burrows, York,—all members of the Yorkshire Automobile Club.

REALLY the ordinary newspaper man is incorrigible, and will have to be given periodical rides on automobiles to keep him informed of the fact that the motor-car is not the only element of danger in the streets of London. The other day a gentleman was knocked down by a horse and wagonette at the junction of Beaumont Street with that badly-kept piece of roadway called Portland Place. The driver of the wagonette said the horse was frightened by a motor-car; and, in reply to the coroner, said that when the vehicle passed it was not making much noise, but that it caused the horse to take fright there was no doubt, for there was nothing else near to do so. He confessed, however, that the horse had previously gone past motor-cars in a quiet, respectful manner. And even after such an acknowledgment the report of the inquest has appeared in the daily papers with the heading, "The Dangers of Motors."

AFTER such a gathering of automobilists as was seen at the Trocadero on Wednesday, it was rather disheartening to find so many antiquated horse-drawn cabs prowling about. In fact, the only practical evidence I saw of the industry about which so many kind things were said over the dinner table was a steam water-cart in the Strand. The flush of water was broad and expansive, and the vehicle was pursuing its way very stolidly and quietly. But the theatre and the fashionable world require something more at midnight than a motor water-cart.

LOLLIUS.

AMONG the disgraceful bits of road which motorists have had to endure for long is that between New Mills and Furness Vale, on the Buxton highway. The attention of the local authorities should be called to the matter.

MEDICAL men are recognising the value of the motor-car to them in their professional work. Now the dentists are adopting it; or, at least, one of that profession has become a pioneer, viz., Mr. James Gibson, of Oxford House, Hebden Bridge, whose new De Dion voiturette is interesting the people of the locality.

THE PRINETTI-STUCCHI MOTOR-TRICYCLE AND VOITURETTE.

IN the Italian section at Vincennes may be seen a tricycle with two motors and a voiturette similarly powered, both manufactured by Messrs. Prinetti and Stucchi, of Milan, Italy. The two engines are in each case placed side by side, and have the centre lines of their crank shafts in line. The two crank shafts are coupled together mechanically, and the action is, therefore, claimed to be that of a double-cylinder engine; facility for heat radiation is increased, on account of the distance apart of the two cylinders, which, as

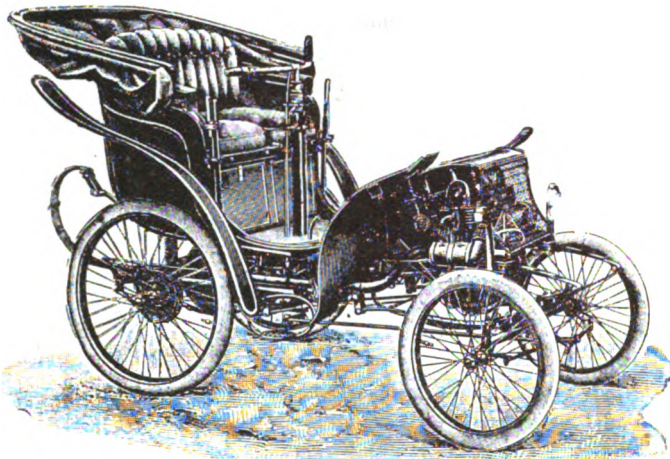


FIG. 1.—THE PRINETTI-STUCCHI VOITURETTE.

the motors are air-cooled, is of prime importance. In the motor-tricycle (Fig. 3) a pinion on the engine shaft, between the two motors, engages directly a gear on the differential, the latter being placed on the axle. The Prinetti-Stucchi machines have carried off many prizes in contests on the track and on the road in Italy, the latest occasion on which they covered themselves with glory having been the races at Padua in June last, at which voiturettes and quadricycles of this firm obtained first prizes, while the tricycle secured both the second and the third place in its category.

In the voiturette (Figs. 1 and 2) the two motors are placed in front, and are supported on a spring-suspended

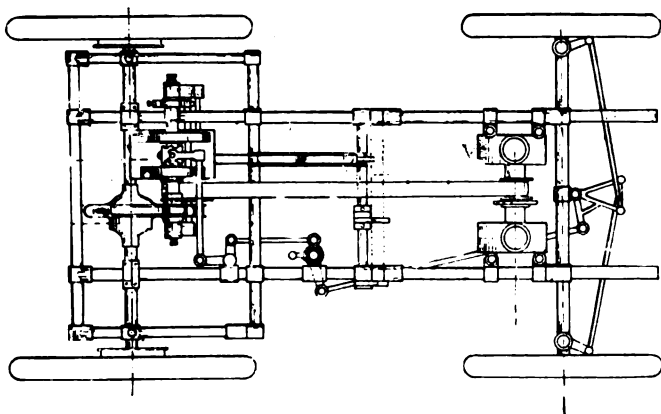


FIG. 2.—PLAN OF PRINETTI-STUCCHI VOITURETTE.

tubular frame. On the shaft, between the two motors, are fastened a pulley and a sprocket wheel, the latter being employed in connection with the starting of the engines. The rear axle is provided with a differential gear, a little to the right of the centre. With the differential gear meshes a pinion on an intermediary shaft, the centre line of which is in front of, and somewhat higher than, the axle. A second intermediate shaft is located below the first one, and connects with it through spur gearing. This last-named shaft is supported

by bearings on arms swivelling around the axis of the first intermediary shaft. The second intermediate shaft carries a pulley, a belt connecting it with the pulley on the engine shaft. By means of the swivelling bearing arms, and a coil spring, uniting their extremities, and a fixed point on the casing over the differential, the tension of the belt can be regulated at will. When it is desired to disengage the motors from the gearing, a foot lever is depressed, which counteracts the force of the coiled spring, and thus releases the tension of the belt. To prevent the belt from leaving the pulleys when the tension has been released, the latter are constructed with flanges on both sides. There are two sets of spur gears connecting the two intermediate shafts, the two gears, on what has been referred to as the first intermediate shaft, running loose upon it. A ratchet clutch will engage one or the other of these two gears, and thus two mechanical speeds are obtained. The petrol tank is placed under the seat of the vehicle. The petrol flows by gravity to the carburettor in front near the engine. Steering is effected by a cranked steering lever, the shaft of which passes up through a tubular column, fastened to the vehicle body. Around this column are grouped the levers for changing the gear, for regulating the carburation, and for

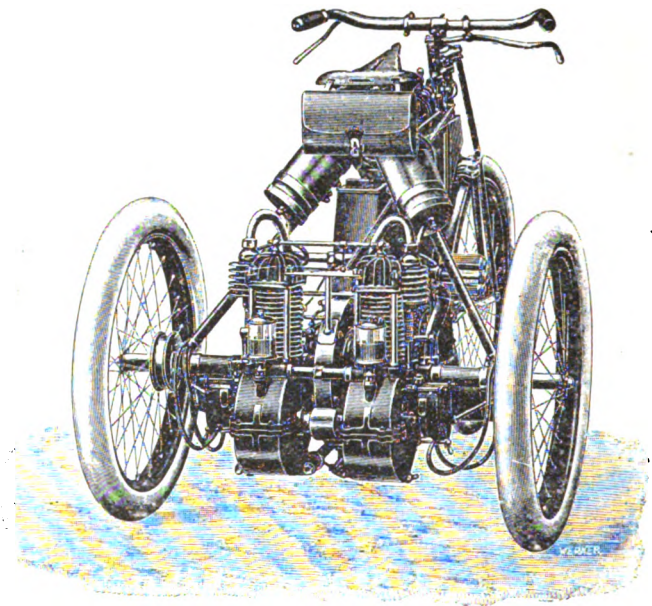


FIG. 3.—THE PRINETTI-STUCCHI MOTOR-TRICYCLE.

advancing the electric ignition. A foot pedal similar to the one by means of which the tension of the belt is released, operates a brake, and another brake is operated by a hand lever. The frame is of steel tubing, spring suspended in front, but fastened directly to the bearings in the rear. The body is, however, suspended by C springs.

THE captain of the guard of Fairmount Park, Philadelphia, reports that 674 automobiles entered the park in September last.

M. SERPOLLET appears to be making a speciality of taking important personages trips on his steam-cars, the latest addition to his list being M. Jean Dupuy, the French Minister of Agriculture.

THE Kingsburgh Motor Construction Company, Limited, has been formed to acquire by purchase the property known as the Madelvic Motor Carriage Works, situated at Granton, near Edinburgh. The capital is £50,000 in £5 shares. The first subscribers are:—Charles Allan, merchant, Edinburgh; Thomas Devlin, jun., shipowner, Newhaven; Mr. P. Galloway, shipowner, Leith; J. Macdonald, accountant, Edinburgh; T. Rowland Outhwaite, engineer, Elie; John Scott, shipbuilder, Edinburgh; and Lieutenant-Colonel T. T. Turnbull, London. The registered office is at 28, Queen Street, Edinburgh.

SOCIAL ASPECTS OF THE MOTOR-CAR.

THE automobile has a unique social record among improved transit instrumentalities. At the very outset it quickly leaped into high social regard. The horse, the source of chivalry and inseparable from the idea of knighthood, was at once supplanted in the favour of aristocracy by his mechanical rival. In France the Automobile Club straightway vied with the Jockey Club as a great social organisation and as the gathering-place for *la haute société*. It seems very strange, remarks a writer in the *Automobile Magazine*, that one of the most important instruments of modern progress should start out with such associations. But "motor sport" is the rage of the day in France, and as the golden youth of centuries past used to put on their coats of mail, mount their steeds, and go forth to the tournament, so their successors of to-day don garments that give them the aspect of mechanics, with overalls and oil-cloth jackets, and race over the highways on their motor-cycles, voituresses, or automobiles at reckless speeds that rival the railway express. Like the sports of chivalry, the new pastime requires courageousness and coolness; but, more than those, it demands a mental equipment and physical training in accord with the spirit of the age—an adequate knowledge of mechanical science, together with a technical experience in which the oil can and the monkey-wrench have taken the place of the sword and the lance. It is, therefore, significant that in its pre-eminently aristocratic phase the automobile should exhibit a socially levelling trait, making the very attributes of the trained mechanic those which are most necessary to proficiency in its use.

Other instrumentalities of progress in transportation have both their aristocratic and their plebeian phases. The railway, for instance, has its private cars and first-class coaches, and its third-class accommodations. The bicycle had a gradual development; at first an athletic device and an instrument of popular sport, it suddenly sprang into the highest fashionable favour, and is now a universal convenience, its use an accomplishment almost as indispensable as a knowledge of how to walk. The automobile will inevitably have its broad, utilitarian phases; the high social favour in which it now stands in the days of its beginning will undoubtedly continue, but it will be insignificant in comparison with its manifold services in many other ways. The reason for this remarkable social regard may easily be seen. It lies very largely in the great cost of motor-vehicles in their present stage of development. There is a large demand for them, and the supply is exceedingly limited. So only those who can afford to pay high prices can obtain them. Their cleanliness, their ease, comfort, and rapidity of motion make them particularly desirable, and at present their possession and use is a mark of social distinction.

In time, however, the social monopoly of the automobile must give way to the demand for its universal use. This demand will be met by the increasing facilities of production which will suit all tastes. As with the horse and carriage, the most luxurious forms will supply the requirements of the wealthy, while good vehicles will come within the means of the moderately circumstanced, including a large constituency for whom the keeping of a horse and carriage is too expensive a luxury. Therefore, notwithstanding its distinctively aristocratic advent, the automobile will become one of the most powerful of social levellers. But its effect will not be that of levelling down; it will level up, by building a strong course in the structure of modern civilisation, with its diffusion of comfort, its abatement of the nuisances that proceed from animal traction, and the development of better and more convenient ways of life and superior means of intercourse in both city and country.

THE Joseph Dixon Crucible Co., of Jersey City, N.J., have issued a little pamphlet, entitled "Graphite for Automobiles." It contains a description of the physical qualities of graphite, and particularly its lubricating qualities. The Dixon Company manufactures a special motor-chain lubricant called graphitoleo. The firm also manufactures a graphite pipe-joint compound, a graphite axle grease, graphite wood grease, etc.

FURIOUS DRIVING CASES.

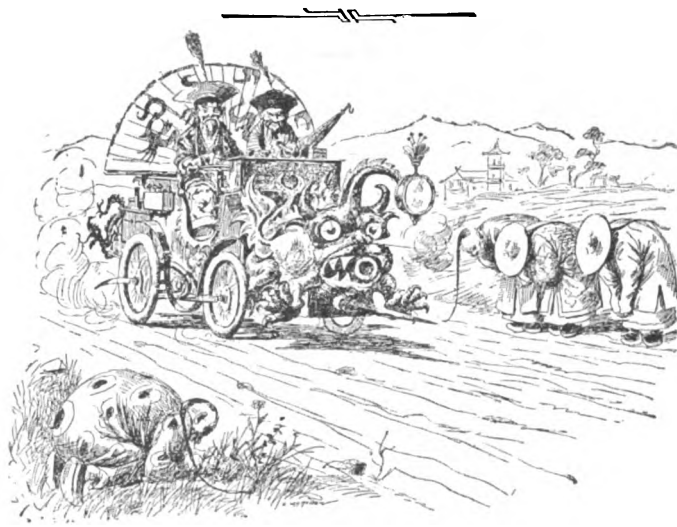
AT Brigg, last week, Richard H. Griffin was summoned for driving a motor-cycle through Brigg Market-place at a furious rate on Thursday, October 4. Sergt. Cook said the motor-cycle was being driven at the rate of 15 miles per hour, and people had to rush out of the way to avoid being run over. Corroborative evidence was given by Geo. Richardson, who stated that a man pulled him out of the way or he should have been run over. The motor cycle was going quite 15 miles per hour. The Chairman said he could not help thinking that the witnesses had exaggerated. He should be very much surprised if ever anyone saw anything going through Brigg market at the rate stated. The defendant, however, was going much faster than he ought to do in Brigg Market-place, and he had written admitting the offence. A fine of 20s. and 10s. costs was imposed.

AT Lutterworth Petty Sessions, last week, Mr. Edward Kennard, J.P., of Market Harborough, was charged with driving his car on the road near Welford Station at more than twelve miles an hour, on October 13th. The speed at which he drove over the railway crossing was estimated by a police-superintendent at eighteen miles an hour. It was also stated that on passing a trap he failed to slow down, although the driver held up his hand as a warning. Defendant declared he was only going seven or eight miles an hour. The Bench imposed a fine of £2 and 12s. costs.

AT Barry, on Monday, Thomas Williams, the driver of a local motor-car, admitted that the evidence of Inspector Morris and Acting-sergeant Gill was correct that he drove the carriage along the highway at Barry Dock at the rate of about twelve miles an hour. The Bench, therefore, fined Williams 20s. for furious driving, as well as 2s. 6d. for driving without lights.

AT Chelmsford County Sessions, last week, Edward Harry Lancaster, 1, Masons' Gardens, Berkeley Square, London, W., was summoned for driving a motor-car at a pace in excess of the rate prescribed by law, on Sunday, September 2nd. Defendant pleaded guilty. Mr. C. E. Jones, who appeared for the prosecution, observed that motor-car drivers in this district were taking a very great risk upon themselves in travelling at the rate they did. The defendant and three or four other gentlemen were riding from London to Chelmsford on Sunday, September 2nd. They were seen by Sergeant W. Cowell, at Ingatestone, travelling at a great speed, and he put himself in telephonic communication with the police at Chelmsford. Inspector Peters, at Chelmsford, telephoned to Sergeant Peters at Widford, and the latter stopped the car on its arrival at Widford. The distance from where Sergeant Cowell saw the car to where it was stopped at Widford was found to be 4 miles 5 furlongs 220 yards, and on comparing watches the police found it had been covered in twelve minutes, or at the rate of nearly twenty-three miles an hour. Defendant said he held a French licence for motor driving, and the road was clear. The Chairman imposed a fine of £5, with £2 8s. 3d. costs.

AT the South-Western Police Court Mr. Percy Twigg, of West Norwood, has been summoned for driving his motor-car furiously, contrary to the statutes, on the Norwood road. The officer stated that while he was on duty in the Approach Road, Norwood Road, on Sunday evening, October 7, the defendant came driving furiously under the railway arch down the Norwood Road and was travelling at the rate of fifteen miles an hour. The constable held up his hand and shouted to Mr. Twigg to stop, but he continued along the road. Subsequently, about half an hour afterwards, Mr. Twigg returned up the road, and the policeman then took his name and address and summoned him. Mr. Staplee Firth called evidence for the defendant, and criticised the speed sworn to by the officer as wholly erroneous and mere guesswork. Ultimately the magistrate dismissed the case.



LI HUNG CHANG GOES A-MOTORING.

Click de]

[L'Automobile Illustrée.

OBSTRUCTION BY A MOTOR-CAR.

At the Leicester Borough Police Court, last week, John Weedon, motor-car driver, was summoned for causing an obstruction in the London-road, on October 10.—P.C. Warner said defendant left his motor car unattended near the Hind Hotel for 20 minutes. Witness then went into the hotel, and told the defendant he should report him, and he then drove it into Regent-street, where he left the car in the cab-stand for another 25 minutes.—Defendant said he was chartered to convey three constables of the county force to different places, and was waiting at the Hind for one of them to get orders as to where he was to go, this being his instructions.—He was fined 10s.

DRIVING WITHOUT A LIGHT.

At the Slough Petty Sessions, last week, Thomas Hesketh, a student of the Royal Military College, Sandhurst, who did not appear, was summoned for driving a motor car in High-street, Eton, after sunset on September 14th, without a light.—P.C. Blencowe stated he saw defendant driving a motor car through High-street, Eton, at 9 p.m. on the evening of Sunday, September 14th, without a light. Witness stopped the motor car, which was going at ten or twelve miles an hour, and on being questioned defendant said the lamps had gone out and that he was going to get some candles at Windsor. He examined the lamps, which were both cold, and found a small piece of candle in one, but the other was broken. Defendant rode on without any lights and witness told defendant he should report him.—The Bench inflicted a fine of £1 and 9s. 6d. cost, or seven days in default of payment.

THE LONDON ELECTRICAL CAB COMPANY.

THE petition of C. E. Foster and others for the compulsory winding up of the London Electrical Cab Company, Limited, was before Mr. Justice Wright in the Companies Winding-up Court on the 25th ult. Mr. Counsel, who appeared in support of the petition, read a lengthy affidavit, which stated that the company was formed in November, 1896, with a capital of £150,000, of which £100,000 was to be paid up. Its business was to acquire licences from other companies for the sole use of electrically-propelled cabs in the metropolitan area. Only 63,614 shares were taken up on the strength of the prospectus and allotted. Certain cabs were placed on the streets, but no dividends had yet been paid by the company. Afterwards the public was invited, in another prospectus, to subscribe the balance of the £150,000, but only about £12,900 was applied for and allotted. The petitioners complained that the directors were not justified in going to allotment on the shares applied for, and that the allotment was not made properly and in the interests of the company, and did not leave sufficient money for working expenses. It was also alleged that by the payment of £21,000 to the vendors the directors had been guilty of misfeasance. Mr. Stewart Smith, for the company, said the only effect of the petition would be to put an end to all the assets which the company possessed. His Lordship said it was clear the company could not go on. Mr. Smith said it was not carrying on business. The undertaking had been sold in so far as it could be sold, and had realised £3,362 gross, which, of course, was divisible among the debenture-holders of over £15,000, amongst whom were his friend's clients. The company's assets were two licences from the British Motor-Car Company and the Electrical Power Syndicate. These were exclusive licences, and had a surrender value. Some of the petitioners were shareholders and debenture-holders as well. As to the alleged misfeasance, he argued that the onus was on his friend to show specific acts. The winding up of the company, he argued, would put an end to the licences, which were its only assets. His Lordship asked what evidence there was of any value in these assets. Mr. Smith said they were exclusive licences for the use of certain patents in the metropolitan area. Mr. Reed, Q.C., said he appeared, with Mr. Dunham, for two contributories whose conduct had been called in question, and they had filed affidavits dealing categorically with the charges made. He submitted that no useful purpose could be served by making an order to wind up, because there could be no assets available for distribution amongst the shareholders. He argued that it was for the petitioners to show that some benefit would accrue to the general body of creditors on a winding-up order, which had not been done.

Mr. Bramwell Davies, Q.C., appeared for Mr. Evelyn Ellis (a director of the company), who, he said, held debentures to the extent of £7,000 and shares for £4,000 odd. He had put into the company £11,000, as compared with about £1,200, which represented the petitioners' interest. He contended that no possible good could accrue to the creditors from winding up unless misfeasance proceedings against the directors were successful. He submitted that his lordship had no evidence of misfeasance before him, and that he should have something of a more tangible nature before him before he made an order. Mr. Ellis had filed an affidavit absolutely denying the statements made by the petitioners, and saying that he had acted bona fide throughout. The only thing was whether the directors were justified in paying over one-third of the amount subscribed to the vendors, who sold them the licences under which the cabs were made. In reply to his lordship, counsel said the company had paid royalties of about £4 per annum on the cabs whilst they were in use. The whole of the plant has now been sold. He did not think the petitioners had shown any real, substantial prospect of getting any assets by using the machinery of the court and winding up

the company, and urged that the allegations made against the director were too vague for the court to go upon. Mr. Counsel, in replying, said there were many matters which required investigation, and there had been irregularities and concealments from the shareholders on the part of the directors which amounted to misfeasance. The whole of the cabs, for which the company paid some £60,000, had been broken up and sold for some £3,000, on the ground that the licences could not be used. The licences were therefore valueless. His Lordship said he would read the affidavits, and give his decision later.

Mr. Justice Wright delivered judgment on Wednesday last. His Lordship said the petitioners were secured shareholders and debenture-holders, and they were entitled to an order if an order would do them any good. The only possible benefit he could suggest was that there might be results arising from certain proceedings. If there were any such results, they would to the extent of £15,000 go to the debenture-holders and not to the shareholders. If more than that were recovered it would go to the benefit of the shareholders. The petition was opposed by some large shareholders, some of whom were threatened with misfeasance proceedings, on several grounds; but he did not think the objections were substantial enough to prevent his making an order. The petition, however, made a number of serious allegations; but it was supported by nothing in the way of evidence, other than the statutory affidavit. He was clearly satisfied, on the evidence before him, that the main ground on which the petition rested was a misconception founded on no basis of fact. In short, he did not think that the suggested misfeasance proceedings would produce any result whatever. The petitioners might be quite right in saying that the company was crippled from the first by having to pay two-thirds in cash for the licences to the vendors; but there were not sufficient grounds for making the order asked for. In the meantime nothing could be done for the benefit of the shareholders or debenture-holders, and it would be wrong to terminate the existence of the company on the ground that it had ceased to carry on business. Making an order, too, would destroy the value of one, at least, of the licences. The best course he thought, therefore, would be to let the petition stand over generally, and, if the parties desired it, he might appoint an official independent liquidator to act in conjunction with the receiver in relation to the licences and other matters, and whose sole function would be to protect the interests of the licensees and shareholders. The receiver for the debenture-holders was only concerned to get the debenture-holders satisfied, and he would accept any sum that would satisfy them, and it might be that the real value of the licences would be sufficiently large to leave a considerable sum over for the shareholders. As to the order made by Mr. Justice Byrne, that might probably be rescinded. The matter of costs could be mentioned again on Wednesday next.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editor's hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



AUTOMOBILISTS have a busy time before them, and as the wet days of the early part of the week gave way to brighter conditions on Thursday, the Southsea run should be a great success. Elsewhere we give a complete list of entries, including many which did not appear in last week's issue, and we are also publishing some useful information with regard to the condition of the roads *en route*. At Portsmouth, the Mayor (Alderman A. L. Emanuel, J.P.), will receive the automobilists at the steps of the Town Hall, past which the vehicles will defile in single file procession at slow speed. We are glad to hear that the roads in the naval town are being put into proper condition, so that there should be no danger to pneumatic tires. The Borough Engineer will also endeavour to see that no glass or other matter likely to injure tires is on the roads in Portsmouth. It is to be hoped that all drivers will obey the club injunction to moderate speed to eight miles per hour in passing through towns and villages, and that all caution will be exercised in turning corners, etc. As already announced, non-stop diplomas will be given by the Automobile Club in respect of vehicles completing the journey from London to Godalming and from Godalming to Portsmouth without a stop, and at a speed not greater than twelve miles an hour.

Annual Dinner.

become automobilists.

The Duchess of York on a Motor-Car.

LAST week we chronicled the Duke of York's motor-car rides round Monmouth. While staying with Lord and Lady Llangattock the Duchess of York also went for drives on the Hon. C. S. Rolls's motor-car. On Thursday she renewed an old acquaintance with the venerable pile of Raglan, and again on Friday took a trip by motor-car, going to Tintern Abbey. She was accompanied by Lady Llangattock and Lady Eva Dugdale. The Hon. C. S. Rolls drove his party from Tintern to Chepstow, and returned to The Hendre by Wyndcliffe, the Moss Cottage, and Monmouth. More than seventy miles were covered by the motor-car on that day, thus giving Her Royal Highness a very fair idea of its powers.

Motor-Cars for Fire Brigades.

This has already been done in many Continental cities, and in

New York the automobile is employed by the chief of the Fire Brigade with every success. This week among our visitors has been Mr. J. Havemeyer, who is starting for Paris, from whence he will go to all the principal European towns in the interest of the Locomobile Company whose car is favoured by the fire authorities of New York, as well as by many police authorities and postal services in the United States. He cannot understand the backwardness of officials in this country so far as the automobile is concerned. We are glad that there is a prospect of the London Fire Brigade considering the subject, and also to hear that the Corporation of the Lancashire borough of Eccles has decided to invest in a motor-vehicle. Manufacturers should keep their eye on both London and Eccles.

An American Visitor.

CHATTING with Mr. Havemeyer, it was satisfactory to learn that many of the company concerns that have been interested in the financial rather than the manufacturing aspect of automobiles in the United States are going under. In fact, some have, in their extremity, suggested the formation of a trust in which they should combine to bolster up each other. But the American public are beginning to realise that, while a score of such companies have endeavoured to make a vehicle, three or four other organisations have succeeded in getting their cars on the streets. The Locomobile Company, for instance, have sold 2,500 cars, most of which are now in use in the United States. Their works have a capacity of 125 vehicles per week, and they are now turning out seventy-five per week. At their London depôt it is proposed to store 200 cars, and a shipment of sixty is now on its way, including four-seated cars as well as two-seated vehicles and a racing car similar to that on which Mr. Griffin recently made a pace of a mile in 1'6 minute. Mr. Havemeyer showed us a copy of a splendid catalogue shortly to be issued, in which we noticed the Locomobile in several situations, including a view in the Yosemite Valley, California. Overhanging a precipice 3,200 ft. deep was one of the cars—a risky location, indeed. Curiously enough, the next day we noticed in the *Traveller* for this week an enlarged view of the same scene, supplied by Mr. Arthur Inkersley, of San Francisco.

A Clubhouse for Automobilists.

THE committee of the Automobile Club is now considering the question of the provision of a suitable clubhouse in which the usual club accommodation should be supplemented by a *garage* in which members' motor-vehicles could be stored. There they would be repaired if necessary, cleaned, and prepared for running by trained mechanics employed by the club. Of the advantages of such provision there is no need to dwell at length. At the present time an opportunity is offered of securing a central site of 3,400 square feet area, with a frontage of 44 feet and a back entrance 19 feet wide. Upon this a handsome building of six floors could be erected for about £12,000. To enable the committee to undertake such a work £15,000 will have to be raised, and an annual sum of nearly £6,000 will have to be assured to meet the ordinary expenses and interest.

The 1901 Gordon-Bennett Cup Race.

As entries of vehicles to represent the United Kingdom must be made by the Automobile Club before the end of this year, those motorist gentlemen who desire to compete on behalf of Great Britain are requested to communicate without delay to the secretary of the Club. At a recent meeting of the Club committee, letters were submitted from Count Zborowski, the Hon. C. R. Rolls, and Mr. Mark Mayhew, in connection with the cup race of 1901. It was decided that in the event of there being more than three entries, there should be an eliminating race, at the conclusion of which the delegates of the Club committee will select the three vehicles which in their opinion are most likely to win the cup. The competing members will be called upon to pay their proportions of the entrance fee, *i.e.*, £120 in all, which has to be transmitted by the club to France.

The Accident to Mr. Sturmev.

MR. HENRY STURMEY is still in hospital at Canterbury, but the latest reports bring cheerful news, and he will probably be returning to Coventry towards the end of next week. The unfortunate accident occurred owing to the tire of one of the steering wheels coming off. The flanged edge of the steel wheel struck out a radius of motion for itself, and the steering gear was not able to counteract it before the car was up a raised footpath on the other side of the road. The tired wheel surmounted this, but that which had shed its tire did not. So the car got up behind and swivelled round on the stationary wheel parallel with the road. The 4-in. ash beam forming the front axle gave way with the strain, and the car stopped suddenly and went completely over. She landed on her back on the path with the engines going about 2,000 revolutions to the minute. Mr. Sturmev and Mr. Dawson were on the front seat, and they were sent forward, happily a good distance from the car. The steering post was carried away, the springs were bent or broken, and the steering connections bent. Regrettable were the damages sustained by the passengers, and all automobilists will be glad to welcome both gentlemen back again to the motor-car.

In Defence of Motorists.

A MEETING of the Committee of the Motor Vehicle Users' Defence Association was held on the 1st inst., at the Automobile Club. Amongst those present were:—Mr. Roger Wallace, Q.C. (in the chair), Major Holden, R.A., and Messrs. C. Cordingley, F. F. Wellington, and J. J. Mann. A variety of claims were considered, and in several of those cases which involved a question of principle affecting the interests of automobilists generally, substantial sums aggregating over £100 (including twenty guineas to the defence of Mr. C. A. Smith, of Cobham), were contributed by the Committee towards the expenses incurred or to be incurred by members in resisting claims and unjust demands, and in several other cases smaller sums were contributed by the Committee towards the expenses arising out of police and county court proceedings. Mr. G. R. Helmore, the treasurer and secretary, mentioned several cases that he had satisfactorily dealt with since the previous meeting, and reported that many new members had recently joined the Association, including Earl Russell, Baron Barreto and Mr. R. J. Mecredy. A vote of thanks to the chairman concluded the meeting.

Necessity of Unity.

WHILE recording the foregoing meeting, we would urge the claims of the Association to the support of motorists, for it is becoming possessed of much information which must be extremely helpful to owners. Nowadays none are secure against the attention of the police and the difficulty of successfully defending cases has been considerably minimised on several occasions by the efforts of this Association.

The Tare Limit.

THE draft report of the Liverpool Self-Propelled Traffic Association on Tare Limit has been considered by most of the makers of heavy vehicles, and they are in favour of raising the limit. The Thornycroft Steam Wagon Company, Ltd., say they are building vehicles in the United States carrying seven tons of load, designed to meet an acknowledged want. The vehicles have a tare of about five tons and a gross of 13½ tons. The Lancashire Steam Motor Company are sure the tare limit must be raised to four tons before a satisfactory vehicle can be made to carry loads over four tons, and Messrs. Coulthard and Company, Ltd., think that the matter would be met by an increase of 5 or 10 cwt. upon the present allowance. The only disapproving voice is that of Mann's Patent Steam Cart and Wagon Company, Ltd., who remark that for every customer wanting a heavier vehicle they have half-a-dozen asking for lighter ones to carry two tons. Speaking generally, there is a notable indication of what English builders of motor-wagons for heavy traffic will ultimately be able to do, in the fact that the tare weight of a vehicle to carry less than three tons, by the most eminent French builder, is five tons.

Berkshire Becomes Antagonistic.

SIR WARWICK MORSHEAD is a member of the Berkshire County Council, and regards motor-cars as dangerous things. Convinced of the folly of dealing with such rapid vehicles in small areas he wants national regulations, and at the last meeting of the body of which he is a member he proposed: "That the Clerk to the Council be requested to communicate with the Clerks of the different County Councils in England to co-operate with this Council in drawing the attention of the Home Secretary to the way in which motor-cars now traverse the roads, and to suggest that every car should carry a number in a conspicuous place, to be registered, and to be obliged to stop if signalled to do so." This motion was seconded by Major Thoyts, who naively remarked that "it was useless to turn and gallop after them (the motor-cars) because they vanished out of sight." After a long discussion the resolution was adopted.

Wisdom in Warwick.

THE Roads and Bridges Committee of the Warwickshire County Council has reported against reducing the speed of motor-cars from twelve to ten miles per hour, also against reducing the speed in turning corners to six miles an hour, but has recommended that Bye-law No. IV. (2) should be rescinded, and that a bye-law should be made requiring a registered number to be so placed on the light locomotives, and kept exposed as at all times to be easily legible. During the discussion at the Council meeting the Rev. C. Elsee asked for some justification of the action of the committee in the face of the recommendations of the County Councils Association. Lord Hertford said that they did not think that twelve miles an hour was an unreasonable speed, and they did not wish to hamper a new industry. The numbering of motor-cars would act as a check on dangerous driving. The Chairman remarked that, although the maximum speed was fixed at twelve miles an hour, the drivers were obliged to take all reasonable care, like the owners of ordinary carriages, or take the consequences. It did not mean that they could always drive at this rate. Lord Norton thought the regulations were now based on common sense, but a good deal of further caution was needed in driving through towns. Alderman W. Evans said there was no limit of speed mentioned in regard to other vehicles, but there must be no furious driving, and they ought to be content with this condition in the case of motor-cars. The public safety would be better safeguarded with this general condition than by any special regulation as to speed. The recommendation of the committee was adopted, and the credit of the Warwickshire Council for common sense maintained.

The Education of Councillors.

A SUGGESTION has been made that the Automobile Club should invite deputations from the county councils to attend a conference to be held near London in May next, when they would have an opportunity of thoroughly examining various kinds of motor-vehicles and also of riding thereon. In view of this the action which many county councils have proposed to take with regard to the restriction of the speed of motor-cars might well be postponed, so that there should be ample information obtained before legislation is proposed. County councillors throughout the country will have a chance of realising the reliability of the automobile and also its speed—two circumstances which seem essential to any well-directed proposal to the Local Government Board. Automobilists are well aware of the serious loss which may accrue to the engineering industry should the suggested arbitrary action of many councils secure the ear of the Local Government Board, and they know, from unpleasant experience, that there is no difficulty in securing prosecutions under the existing bye-laws. Why then should undue haste be shown by the county councils in ignoring the means provided for their education, and in desiring restrictive regulations which can only retard an industry in which other countries have long been ahead of us.

The Prejudice Against Motor-Cars.

THIS opposition to motor-cars is simply following the line of resistance offered to the tram and the bicycle. People regard the horse as the natural means of locomotion and decline, at first, to accept any innovation. But we are now nearing the Twentieth Century, and old-time prejudices should surely soon die out. An automobile has brakes and can be stopped within its own length with ease; it is not subject to fright as horses are; nor does the appearance of an unusual object or the hearing of a novel noise alarm its nerves. The present limit of speed is less than that of the stage coaches as far back as 1830, and is considerably below the Canadian tram line contract requiring a speed of twenty miles an hour. All these things, and many more, should be urged on county and other councillors by automobilists throughout the country, and the Club will be glad to have suggestions and facts suitable for inclusion in a memorial on the subject which, it has been suggested, should be sent to county and local councils as well as to the Press.

At Kingston.

HIS solicitor made a very persistent defence of Mr. C. A. Smith, of Cobham, whose case is reported in another column. But it was apparently of no avail, for the chairman of the Kingston County Bench is no friend of motorists—as was clear from his attitude in the court. The offence was alleged to have been committed at noon, whereas defendant declared that he was in his hotel up to three o'clock in the afternoon of the day in question. Evidently there is need for further investigation in this particular case.

How to Irritate a Groom.

MR. STAPLEE FIRTH has been enjoying himself of late, and although his three tussles with the magisterial bench, reported in another column, have not left him the victor, they have enabled him to do some good educational work on behalf of automobilism. Previously we have pointed out the peculiar antipathy which Norfolk County Councillors have to motor-cars, and this found partial vent in the prosecution of Mr. J. R. Hargreaves, J.P. Two offences were alleged against him by the police at the instigation of the members of the County Council recently reported. Both suggested delinquencies occurred on the same day, but being in two different parishes the sapient police authorities thought that two summonses would, perhaps, give them a chance of at least one verdict. Shibley, the groom who gave evidence, is evidently an old-fashioned type of fellow who cannot stand the smiles of fair ladies. He confessed he should have taken little notice of the motor-car but for the fact that "the

ladies who were sitting at the back (of the car) laughed at him when his pony jumped about." With two or three other witnesses of similar calibre and a cottager who acknowledged she ran a hundred yards to fetch her children off the road, beating the motor-car in the attempt, Mr. Firth had a splendid defence.

Against Automobilists.

AT Swansea a motorist was recently fined without a chance of defending himself; in Norfolk they manage things on somewhat similar lines. Mr. J. R. Hargreaves, J.P., was ably defended by Mr. Staplee Firth, who was, however, refused information as to the exact time and exact place the alleged offence took place. If justice is to be respected it will be necessary that every detail of the offence shall be given to the solicitor for the defence; otherwise how can anything like proper replies to allegations be given? This is a point upon which Mr. Firth insists with characteristic tenacity, and, although he has failed in the Norfolk case, he is not likely to be discouraged in his laudable attempts to secure fair play for automobilists.



MR. JARROTT STARTING ON HIS RECORD-BREAKING RIDE ON THE CANNING TOWN TRACK.

Photo by

[Argent Archer, Kensington.]

Councillors and Magistrates.

IN the second case against Mr. Hargreaves, Mr. Firth elicited that the County council and a so-called joint committee of Magistrates and County Councillors had decided to instigate prosecutions against the owners of motor-cars. He pointed out that the first witness in the case had stated that he should never have complained, but that his inspector told him to report all cases. The secret of the affair leaked out when the Chairman of the Bench admitted that the County Council were at the back of the prosecution, and the Chief Constable had apparently been anxious to carry out their wishes in the matter. We are glad to notice that Mr. Firth emphasised the position of the Chairman of the Bench, who, as a County Councillor, was a member of the body that had incited the prosecution. It certainly is not conducive to the dignity of the bench or the due administration of justice when the magistrates allow themselves to be the stalking horses for Councillors—whether county or rural. If they are to be the servants of the County Councils, to carry out their behests, the original idea of their appointment is being entirely ignored.

A J.P. "to the Rescue" of the Police.

SEVERAL incidents of the trial were very amusing, notably Mrs. Palmer's 100 yards' race against the motor-car, in which she won, and the groom's annoyance at the smiles of the ladies, who, according to another witness, "were hanging on the seat at the back of the car." But there was one little circumstance during the cross-examination of a policeman that should be more severely regarded. The constable said he had seen Mr. Hargreaves driving daily for some months past, but had never reported him until he had orders from his inspector to report all motor-cars. Mr. Firth commenced to write down the identical words used, and before he had time to resume the cross-examination Mr. Stracey (the chairman) asked the policeman if he did not mean to say all motor-cars driven furiously. The constable replied that that was what he meant to say, whereupon Mr. Firth protested that the magistrate should not put words into the mouth of a witness. He again asked the constable as to the exact order, eliciting the reply that he had to stop all cars going between twelve and fourteen miles an hour. Then the chairman said he would come "to the rescue of the witness," and stated that the County Council, etc., etc. But surely the County Council that was really instigating the prosecution should not have a voice on the bench.

Another Fuel Competition in France.

THE technical committee of the Automobile Club of France is now organising a competition for the purpose of determining the best fuel, having alcohol as base, for explosion engines; and this contest should bring to light many interesting details in connection with this all-important subject. The recent competition for alcohol motors has drawn a great deal of attention to the possibilities of driving motors by a more efficient and economical agent than petrol, and the coming tests should stimulate the energies of students of the question. Evidently we cannot depend upon an unlimited supply of petrol, and with the increased demand prices will augment until automobilism, so far as petrol engines are concerned, will become the sport for the few, and will, from a purely industrial point of view, cease to exist. Something must be formed to supersede the light oil, and the sooner that the question is solved the better for the future of the industry. It is due to the initiative of the Count de Dion that this new competition is being organised. We shall give as early an indication as possible of the lines upon which it will be held.

The Automobile Club of America.

It was a case of new blood to the fore in the annual election of officers of the Automobile Club of America, at the annual meeting of the club, held a few days ago in New York. The officers chosen were:—President, Mr. Albert R. Shattuck; first vice-president, Mr. Albert C. Bostwick; second vice-president, Mr. J. Dunbar Wright; third vice-president, Mr. David Wolfe Bishop; treasurer, Jefferson Seligman; secretary, Mr. Malcolm W. Ford; governors (class of 1903), Messrs. Sydney Dillon Ripley, J. M. Ceballos, and Dave H. Morris. Mr. George F. Chamberlain, who has been acting-president of the club for nearly a year, presided, and over one hundred of the 262 members were present. The election's result showed the sentiment of the club toward racing and automobile competitions, as Mr. Bostwick has been a pronounced supporter of these tests since the organisation of the club. That sentiment received further recognition in the new president's speech of acceptance, for he strongly advocated more competitions, more tests, and more activity all along the contest line. The question of a new clubhouse was left for consideration to the new Board of Governors. Mr. Shattuck, the new president, after his election said that in all probability a petition would be laid before the next Congress asking for a modification of the present rule in the United States Revised Statutes, which prohibits the carrying of gasoline or any volatile oil on passenger boats, the Automobile Club particularly seeking a modification of this prohibitive clause in regard to ferry boats.

THE BIG EVENT OF 1901.

MEETING OF MANUFACTURERS AND AGENTS.

A MEETING of manufacturers and agents was held at the Automobile Club on Friday, November 2nd, at 5 p.m., to consider what, if any, should be the big event of 1901, corresponding with the 1,000-Miles Trial of 1900.

Mr. Roger W. Wallace, Q.C., the chairman of the club, was in the chair, and among members of the Club Committee present were Mr. Richard Muirhead, Mr. Hancock, Mr. Spooner, Mr. Cordingley, Mr. Shrapnell Smith, Mr. Butler, etc. The representatives of manufacturers and agents included Mr. Thomas Clarkson, Mr. Siddeley, Mr. Edge, Mr. Jarrott, Mr. Wellington, Mr. Ritchie, Mr. Buckea, Mr. Gretton, Mr. Critchley, Mr. Hewetson, Mr. Astell, Mr. Cappellen, Mr. Chambers, Mr. Hart, Mr. H. Mulliner, Mr. Foster Pedley, Mr. Beasley, etc.

The chairman explained the purpose of the meeting and asked for the opinions of manufacturers and agents.

Mr. Edge said that he thought a trial of some sort in 1901 was very desirable, in order to demonstrate new vehicles.

Mr. Gretton thought that a trial was desirable, but that it should not be so long or so intricate as that of 1900. He thought there should be some scheme to keep the capabilities of motor-vehicles before the public. He thought there might be periodical runs to big centres where vehicles might be exhibited in suitable buildings. He hoped the fastest car would not obtain most kudos.

Mr. Critchley said he thought manufacturers would support a 1,000-miles Trial, but that the Trial should consist of ten days of 100 miles a day and returning to the same place every night, with a non-stop run for the eleventh day and speed contest for the twelfth day. He also suggested that two hours or two and a-half hours a day should be the most for cleaning and repairs, and that on one day there should be a test of consumption. The cars should then be exhibited at the Club Exhibition.

Mr. Shrapnell Smith suggested that the Glasgow Exhibition might be visited.

Mr. Buckea suggested a series of runs under observation ending with an exhibition in London.

Mr. Cordingley said if Trials were held in connection with the Exhibition, they would help the Exhibition, but the display of trial cars would probably be confined to manufacturers' cars.

Mr. Mann pointed out that the consumption of vehicles was tested at periodical 100-mile Trials. He suggested a run to the Glasgow Exhibition.

Mr. Moffat Ford suggested "non-stop absolute" runs should form a strong feature in a Trial.

Mr. Butler suggested a run from London to Paris.

Mr. Clarkson agreed with the Glasgow Exhibition proposal.

Mr. Siddeley suggested that the Trial should take place in August, and that it should be a tour through the country in preference to tours round London.

Mr. Pedley said he thought the 1,000-miles Trial failed in that the public saw the cars and owners at a disadvantage, and suggested that, instead of exhibitions, owners should give rides to the public in the various districts.

The Secretary spoke on the points which had to be considered—as to the time of year. He suggested August or September, as it would then be easier to procure observers.

The duration must depend on the time of year and the convenience of manufacturers, and the duration would to some extent decide the total distance to be covered. He hoped that the total would not be less than that covered in 1900, as the inclination in France was to increase the distances from year to year, and he would be sorry to see this country going backwards.

He submitted that observers should be placed on every car, and should be on a different car every day in rotation. The reports by observers as to exactly what happened to each car would enable the judges to form a more accurate judgment of the excellence respectively of the various cars than was possible under the 1900 system. He believed that there were many

independent gentlemen in the club who would be willing to act as observers if the Trial were held in August or September.

The Glasgow Exhibition of 1901 promised to be the biggest exhibition which has taken place in the United Kingdom since the Colonial and Indian Exhibition of 1886, and if manufacturers thought that the display of their cars before thousands of spectators was of value to their businesses they could be certain of obtaining this end by visiting the Glasgow Exhibition during the Trial.

The daily time of starting had been discussed at the club. The difficulty was that if there were not to be daily exhibitions, but only evening exhibitions of the vehicles, it was important that vehicles should arrive at their destination early in the evening. If the starting time were made 9.30, and there were compulsory stops for meals of a total duration of an hour, then a journey of 100 miles would not terminate until 6.50 p.m., or 120 miles until 8.30 p.m. at a twelve miles per hour average.

The Chairman upheld the suggestion of a visit to the Glasgow Exhibition.

Mr. Edge proposed that the Trial should be not less than 1,000 miles; not longer than two weeks; that there should be observers; that large cars should travel not less than 150 miles per day, and smaller cars not less than 100 miles per day, and that a Committee be formed to go into details, and report to another meeting. Further that the Trial should take place during the last two weeks in August.

Mr. Mann proposed a week's automobile exhibition at Glasgow.

Mr. Shrapnell Smith suggested that no car should be allowed into the Glasgow Exhibition which had not covered a certain distance.

After discussion the following resolutions were passed:—

- (a) That there shall be a Trial in 1901 having a total mileage of not less than 1,000 miles. Carried unanimously.
- (b) That Glasgow shall be the principal destination of the tour. Carried unanimously.
- (c) That the Trial vehicles shall start from one locality, and follow one route. Carried unanimously.
- (d) That a Committee be appointed to consider details, and report to a further meeting. Carried unanimously.
- (e) That the Trial take place in August or September, 1901.

Mr. Moffat Ford did not agree to August.

Mr. Cappellen suggested early in the year, March or April.

Mr. Edge suggested second week in August, because he felt that by next spring the benefits of the last Trial would not be worn off, and because observers could be better obtained in the holiday season.

The proposal for August or September was carried by fourteen votes to five votes.

(f) That there shall be a week's motor exhibition in Glasgow. Carried by fifteen votes to two votes.

(g) That the following shall compose the committee to consider details and report to a further meeting:—Messrs. Wallace, Gretton, Edge, Critchley, Pedley, Jarrott, E. W. Hart, Moffat Ford, Siddeley, Beasley, Cordingley, Clarkson, Mann, Butler, Shrapnell Smith, Astell, Scott Montagu, M.P., Rolls, Phillips, Sturme, Hewetson, and the Secretary (*ex officio*). Carried unanimously.

The committee then appointed the following sub-committee to prepare a preliminary scheme for consideration by the committee above referred to:—Messrs. Edge, Pedley, Siddeley, Cordingley, Gretton, and the Secretary.

The meeting then concluded.

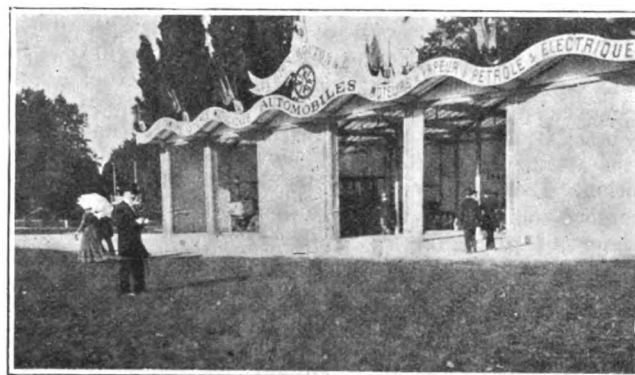
MR. H. M. FLETCHER, of Oxford, has made a suggestion that public motor-cars should be run in the streets of the University city.

MR. ERNEST HUTTON, J.P., has been elected to the committee of the Automobile Club, in the place of Mr. Hugh Campbell, who has resigned owing to pressure of engagements.

THE FINAL AUTOMOBILE FETE AT VINCENNES.

(From Our Own Correspondent.)

TO mark the closing days of the Exhibition, an automobile fête took place at Vincennes on Saturday last, and, in spite of adverse circumstances, scored a fair success. Poor annex, how unfortunate have you been in your efforts to attract the public within your gates, and secure a share of the wealth this year brought to Paris. Fêtes galore have you organised, but fruitlessly so far as securing the presence of the moneyed class. Parisians residing in the West End have, equally with the great majority of visitors to the gay city, abstained from "doing" the annex, because the journey is long and the means of communication inconvenient. On the other hand, Parisians living in the eastern quarters are not of the leisurely class who can patronise exhibitions and fêtes during the week, so the Thursday festivities received no support from them. No, the efforts of the organisers of the Vincennes fêtes have not reaped the reward so justly due, and one can heartily sympathise with M. Jeantaud and others who have done so much for the Exhibition and with



MESSRS. DE DION, BOUTON AND CO.'S EXHIBIT AT THE VINCENNES ANNEX OF THE PARIS EXHIBITION.

such meagre results. Often, too, has the weather proved inclement, a veritable death-blow to the success of any open-air festivity. Saturday last was in this respect no exception to the rule, for, without actually raining, the weather was threatening, and a downpour was momentarily expected. Little wonder, then, that, in spite of the strenuous efforts made to secure a large attendance for this closing fête but comparatively few people put in an appearance, while competitors also were not strikingly numerous. Timed to commence at one o'clock, that hour found certain officials, competitors, and other interested persons still at lunch at the Restaurant de l'Automobile et des Sports, and it was not until two o'clock that a move was made for the scene of operations. The public, too, versed doubtless in the punctuality of automobile fêtes, had only just begun to assemble, while, as for the majority of the competitors, they were still conspicuous by their absence. But at last the jury succeeded in finding nine of those entered for the event known as the *Jeux pour Voiturette*, and after a somewhat lengthy preparation succeeded in despatching them on their journey. An out and home run of some four hundred yards, a cutting of suspended ribbons, a second clear run, and then a drive among obstacles, was the task set the conductors of the miniature cars, and out of the ordeal Mercier, Ygrec, and Ricard emerged successful, in the order named. Then came a race of 7,200 mètres for the same class of vehicle, an event rendered noteworthy by the wonderful performance furnished by George Prades, mounted on a car the construction of which was as strange to him as was its management. Small wonder, then, that at the precise moment when Mercier was finishing Prades was but about to battle with the trials and tribulations of the third lap, that his place upon the official return qualified him for the historic wooden spoon. And then came the motor-cyclists, only, to the universal regret, Béconnais was not

among them, and many were the conjectures as to the why and wherefore of his absence. Is he waiting for something with which to wipe out Demester and Rigal? More than probable, I think, for he is not a man to lose his records without a struggle, and I fancy that ere long we shall see him regaining his own. The absence of Béconnais naturally robbed the event of some of its interest, but with Demester, Rigal, and Fossier competing, excellent sport was assured. The first-named rode his Gladiator tricycle, carrying a couple of Aster motors, while both Rigal and Fossier mounted machines fitted with two-cylinder engines. The other riders were Denesle, Ricard, Reculez, and Vasseur, the latter competing on a forty-four-pound motor-bicycle. Upon the signal to start being given Demester got quickest away, and speedily secured a fifty-yard lead. At eighty kilometres an hour did he and Rigal pass the grand stands upon completion of the first lap, and this pace they maintained to the finish. The official return was:—1, Demester, 6min. 8sec.; 2, Rigal, 6min. 31½sec.; 3, Fossier, 6min. 39½sec.; and the fastest lap was made by the winner, his time for the 2,400 yards being 1min. 59sec., or 15sec. slower than Béconnais' record. The road, however, was on Saturday dangerously wet and slippery in places, so the two performances can hardly be compared. Finished with their *course*, the cracks proceeded to furnish sport in a gymkhana event in which each competitor had to secure a ring by means of the wooden sword with which he was provided. Rigal's attempt to do so while travelling at forty miles an hour was not happy, and Denesle's method of stopping, securing the ring and restarting, although less sensational, was more practical and gave him the prize. Then out came the cars, and the mount of Caillois and Renault immediately attracted attention. Low and very light, this little car is torpedo-like in appearance and carries a four cylinder air-cooled motor developing some 24 h.p. Degrais was there on his 12 h.p., and Schneider and Prades completed the list, both driving 8 h.p. vehicles. The *Auto Vélo's* representative had no better luck than in the voiturette event, for after struggling in the rear for a lap his carburettor float began to leak and brought "G. P." up, helplessly *en panne*. Caillois, on the contrary, travelled superbly, and had he dared let the car go, a very fast performance would have been made. But the muddy state of the road forbade it, and 8min. 43½sec. was his time for the three laps (7,200 mètres) round the lake. Degrais finished second some four hundred yards behind the winner. A *défilé* then gave us an opportunity of seeing the easy manipulation of a variety of automobile vehicles, and after the commemorative banners, etc., had been presented to the drivers of the various cars, a general move was made to the borders of the lake, upon whose dead-leaf covered bosom the motor-boats were to contest a race of 1,650 mètres. Honestly, this event was not wildly exciting, for so hampered was the progress of the competitors by reason of the fallen leaves that we really began to wonder whether they would ever finish, and, when at last the struggling boats came wearily round the corner of the island, a sigh of relief went up from the impatient officials, who had begun to fear a forced attendance until a late hour. M. Pérignon's boat "Cosaque" won, followed home by "Joujou," "Nautilus," and "Loufoe" in the order named. And then we paid our adieus to the lake, the track, the Exhibition, and Vincennes, and set out upon the long journey to Paris content to think that for this year, at any rate, all automobile fêtes in that part of the capital are finished.

LOOSE stones are reported to be plentiful on the Portsmouth road between Milford and Thursley.

A SALE by auction of the stock and plant of the Automatic Conveyance Co., Limited, Torquay, is to be held on the 14th inst. Included in the sale are three or four light cars.

ABOUT eighteen motor-cars are at present in use in Stuttgart for street passenger traffic, competing with the electric trams. The hilly configuration of the ground is, however, rather against them. A few are also used for the conveyance of goods.

MR. ROWLAND HILL, of the Albion Foundry, Coventry, is making a speciality of high class motor castings, in both cast iron and gunmetal. He is prepared to supply all kinds of castings, such as cylinders, cylinder tops, combustion and crank chambers, etc., etc.; also valves of all kinds.

CORRESPONDENCE.



AN UNATTENDED HORSE AND ITS RESULTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A rather severe injury to my right arm has prevented my sending you an account of my recent accident. You have, no doubt, gleaned the particulars you publish from the local papers, but it is somewhat singular that these make no mention of the real cause of my trouble. This was a baker's horse and cart, left unattended outside a public-house. I sounded my horn repeatedly, and nearly pulled up, but no driver appearing, I ran slowly by, when the horse bolted in my direction. In front of me was a sharp turning forming a complete semicircle, the view in this direction being completely obstructed by a hill and builders' sheds. Here I found myself confronted by two heavy wagons abreast, both advancing towards me at a good speed down the incline. There was no escape but by turning sharply round, and the car was in contact with the nose of one of the horses in doing so; but the sharpness of the curve described and the slope of the road caused the car to turn completely over. I was firmly fixed beneath it, whilst my wife was thrown almost under the feet of one of the horses and severely bruised and shaken. With the runaway horse on one side and two wagons on the other, I was caught in a complete trap.

Yours truly,

G. W. GRABHAM, M.D.

Mathyus, Witham, Essex, November 3rd, 1900.

THE SPEED OF MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In view of the excessive speed of motor-cars, and the heavy fines which have recently been imposed in consequence, would it not be well if all motorists would keep to the regulation speed? For most persons and for most purposes (except in the case of a motor fire-engine) twelve miles an hour should be sufficient. For those persons who may wish to travel at the rate of twenty to thirty miles an hour, a properly prepared racing track would be the best place for their purpose. If motor pacing upon the highways is not restrained, I feel certain it will lead to further restrictions being placed upon light locomotives. Let those motorists who value their present freedom keep their motors within bounds.

Yours truly,

G. D. J.

London, November 3rd, 1900.

A WARNING FROM LINCOLN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your contributor "Lollius" was good enough to mention certain counties in which motorists must be particularly careful, in last week's issue of the *Motor-Car Journal*. Lincolnshire being so painfully and purely agricultural no doubt is the cause of the present unreasonable prejudice to the automobile. I was last Thursday fined the exorbitant sum of twenty-six shillings for riding my motor-tricycle through the streets of Louth, Lincs., the policeman telling me that my pace was "a deal over fast." The constable informed the magistrates I was travelling from sixteen to seventeen miles an hour. How I got round a somewhat sharp curve on the greasy road simply must have been a marvel, had his remark been near the truth! On my questioning him in court as to what pace motor-vehicles were allowed to proceed in a town he confessed he did not know. When asked if he used a stop watch, his reply was again "no." My advance ignition was right back, and my impetus kept up by momentarily switching on my current about every ten yards. If that is furious driving, I am very sorry for the police of that sleepy and out-of-date town, as it is evident they have never seen a motor-vehicle before, and I also feel sure there is a little for some of these small borough magistrates yet to learn as regards automobilism.

Yours truly,

PARSONS WRIGHT.

Wold Newton Manor, North Lincs., November 5th, 1900.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read your correspondent's letter of the troubles with his Werner bicycle, and happen to know this particular machine, having seen it running about in my district. His real trouble lies in the timing gear, which has probably been taken to pieces by novices to see why it won't go. Many similar troubles would be avoided if such vital parts were left alone.

Yours truly,

Altrincham, Nov. 6th, 1900.

PEEL CAUSEWAY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to "J. A.'s" letter in your last issue complaining of his difficulties in getting his Werner motor to work, might I venture to point out to him that it is neither more nor less difficult to drive than the ordinary motor of De Dion and Bouton, which is at work in thousands, probably, all over the world. In fact, in the '99 model of the Werner machine there is one distinct gain, for the inlet valve is visible, which is not true of De Dion's engine, and any stoppage of its action through gumming of oil is at once seen. "J. A." may rest assured that there is no mystery whatever about the motor, which is really remarkably simple in its action. There is but a constant result to be had from constant conditions, and he has but to ensure these conditions of working and his motor will continue to give him a constant result. If it has carried him two miles it can carry him two thousand, for over heating is quite out of the question if he uses the proper lubricant, "D" oil for instance. It is impossible to detail here all the little points to which attention has to be paid, but Messrs. Werner give a very comprehensive little guide with each machine. If really "J. A." can only get his explosions with the compression tap open, it points to two defects. Either his carburettor is giving too much gas, and he must decrease it, or give more air, which comes to the same thing, or, which is probably the case, the sparking gap of his plug is too great, for the spark will pass at the ordinary pressure when it will quite fail to do so at the increased pressure due to the compression. So he must either decrease the space between the sparking points or increase his battery power. Perhaps his accumulator is exhausted. I would like to say here that I have found no plug, not even De Dion's, equal to that of Messrs. Bassé and Michel's. Its insulation resistance is so much greater that one can use it in heavy rain, which is not the case with several plugs I know of, where the spark leaps the wet porcelain. Its one fault is fragility, for it cannot stand a blow so well as others, but one can easily insert a new porcelain. I don't know anything of the makers, and I merely give the results of my personal experience. I believe it is quite an old-fashioned plug, but that doesn't matter. "J. A." should take courage from my own experience, for my Werner has carried me 2,000 miles without a single breakdown, and the accumulator was not charged once during that period.

Yours truly,

London, W., Nov. 6th, 1900.

A. L. B.

THE TAXATION OF MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Regarding your note re Mr. Spear, M.P., and his declaring in favour of taxation of motor-cars, what is meant by this? I have seen several times comments on the same subject, but as far as I can make out cars are taxed, and doubly so. A motor-trike has to pay 15s. as an ordinary carriage tax, but a car, I take it, has to pay the ordinary carriage tax, £1, and also the further tax same as for a traction engine, and according to its weight, which I think is most unfair. Surely one tax should be sufficient.

I suppose I am right in what I say; if not, will you please explain? For myself, I don't see why cycles should not be taxed as much as a motor or carriage, for hundreds of them cost quite as much as a small pony and trap turn-out, and the latter circulates far more money in up-keep, and therefore must do far more good to the public at large.

Yours truly,

Scarborough, Nov. 5th, 1900.

AMATEUR MOTORIST.

THE AUTOMOBILE CLUB'S QUARTERLY 100-MILE TRIAL.

THE quarterly 100-miles trial of the Automobile Club was held on Thursday, the 1st inst. The usual route was followed, viz., from the second milestone from the Marble Arch, via Ealing, Uxbridge, Beaconsfield, High Wycombe, and Stokenchurch to the fifty-second milestone (outskirts of Oxford) and back. Total: 100 miles. The road was very heavy throughout, the greater portion being thick in mud. In fact, the conditions generally were very bad indeed. Heavy showers and fresh wind, slightly ahead on the outward journey, were encountered. The hills on which hill-climbing trials took place were:—

(a) Dashwood Hill, commencing at the thirty-third milestone, and terminating at the thirty-fourth milestone, having a total rise of 241 feet in one mile, including 275 yards of a gradient of 1 in 21.7, and 600 yards of a gradient of 1 in 11.

(b) Aston Hill on the return journey. Distance 1 mile 1,100 yards, having a total rise of 316 feet, and including 1,910 yards of a gradient of 1 in 21.

Six vehicles altogether took part in the trial as follows:—

A Darracq car entered by the Automobile Manufacturing Company. The new vehicle which, with its attractive *tourneau*



THE SIRENE VOITURETTE.

Photo by]

[Curzon, Robey & Co.

body, is fitted with a vertical water-cooled engine having cylinder 100 mm. diameter by 102 mm. stroke. It is water-cooled and provided with electrical ignition. The carburettor is of the Phénix type, with automatic admission. The transmission gear, which is on the lines of the Panhard, except that the power is transmitted direct to the rear axle by bevel gear in place of sprocket wheels and chains, is adapted to give three speeds forward and a reverse motion. The car, which is fitted with wheel-steering and pneumatic-tyred wheels, weighs 9cwt. The following are the tabulated results as given by the observers:—

Quantity of petroleum spirit used on the journey.—3½ gallons.

Quantity of water used on journey.—3½ gallons (pump leaking).

Average cost of fuel, at 1s. 3d. per gallon.—562d. per mile.

Speed, including time occupied by all stoppages.—Up to the legal limit of 12 miles per hour.

Number and cause of stoppages.—(1) 5mins. to fill water tank owing to leak in pump. (2) 30 sec. to light carriage lamps.

Hill-climbing speeds.—(a) Dashwood Hill: Took four passengers all the way up, except for 40 yards, when only two were in the car. To danger board 5mins. 8sec. For the mile

6min. 30sec. = 9.2 miles per hour. (b) Aston Hill: Took four passengers up. Time 10min. 15sec. = 9.5 miles per hour.

General remarks.—Water leaked from the pump on to the commutator of electric ignition, and this, probably, caused misfiring, which was frequent throughout journey. Otherwise the alighting of two passengers, even for a short distance on Dashwood Hill, would have been unnecessary. In other respects, the carriage ran steadily throughout.

A Daimler light car by the Daimler Motor Company, Limited. This is an example of the latest production of the Daimler works—a two-seated car fitted with a two-cylinder motor, having cylinders $2\frac{1}{8}$ in. diameter by $4\frac{1}{2}$ in. stroke. Belt and gear transmission is adopted, the weight of the car being 12cwt. The results obtained with the car in the trial were:—

Quantity of petroleum spirit used on the journey.—4 gallons.

Average cost of fuel per mile, at 1s. 3d. per gallon.—6 of a penny per mile.

Quantity of water used on the journey.—1 gallon three quarts 1 pint.

Speed on outward journey.—Up to the legal limit of 12 miles per hour.

Speed on return journey including stops.—9.6 miles per hour.

Number and cause of stoppages.—Outward journey: None. Homeward journey: (1) After 3 miles, driver missed in changing gears. Carriage stationary 30sec. Engine did not stop. (2) After 13 miles, 10min. stop for lubrication and put preparation on belt. (3) Later, a further stop for belts. (4) After 33 miles engine was not running well and car was stopped for examination. Eventually found induction valves stuck and changed them. This stop was of 55min. duration. (5) Later, driver missed gears in changing and engine was stopped. Belt slipping, 8min. delay. (6) 6 miles from home, 3min. delay owing to slipping belt.

Hill-climbing speeds.—(a) Dashwood Hill: Both passengers alighted for 2min. during ascent. To danger board, 6min. 30sec. For the mile, 8min. 30sec. = 7.05 miles per hour. (b) Aston Hill: 15min. 27sec. = 6.3 miles per hour.

General remarks.—The principal cause of trouble was road-water on belts.

A Pieper voiturette entered by the British and Colonial Motor-Car Company, Limited.—Four miles after completion of first half of journey this vehicle was withdrawn owing to heating of engine.

A $3\frac{1}{2}$ h.p. De Dion-Cudell voiturette, by the British and Colonial Motor Company, Limited.

Speed on outward journey, including time occupied by all stoppages.—Up to the legal limit of 12 miles per hour.

Number and cause of stoppages on outward journey only.—(1) For 30sec. for lubrication. (2) At end of 50 miles owing to puncture when vehicle was withdrawn.

Hill-climbing speeds.—(a) Dashwood Hill: To danger board 6min. For the mile 7min. 35sec. = 7.9 miles per hour. One passenger alighted during ascent of steep portion of hill.

Two Sirene voiturettes, entered by Mr. E. W. Hart, of Luton.—This type of car was fully described in our issue of July 28 last. It is therefore only necessary to mention that it is fitted with an inclined two-cylinder motor; it is of the air-cooled type, of $3\frac{1}{2}$ h.p. Three speeds forward and a reverse motion are available, any intermediary speed being obtained by the variation of the electrical ignition. The motor is located in the fore part of the frame, where air has free access to the radial fins of the cylinders. The variable speed gear is very much on the lines of the Panhard, the box gear containing three pairs of spur wheels, any one pair of which can be brought into mesh at a time. The reverse motion is obtained by the interposition of a small pinion between the gear wheels giving the slow speed. From the gear box the power is transmitted direct to the rear axle through a universally-jointed transverse shaft and bevel gear. The car complete weighs 7cwt. 2qrs. The results are tabulated below:—

No. 1 car: Quantity of petroleum spirit used on the journey.— $2\frac{1}{2}$ gallons.

Average cost of fuel per mile, at 1s. 3d. per gallon.—35 of a penny per mile.

Speed, including time occupied by all stoppages.—Up to the legal limit of 12 miles per hour.

Number and cause of stoppages.—(1) At end of 50 miles, stopped $2\frac{1}{2}$ min. to fill lubricators and fasten mudguard.

Hill-climbing speeds.—(a) Dashwood Hill: To danger board, 4min. For the mile, 5min. 25sec. = 11.07 miles per hour. (b) Aston Hill: 10min. 8sec. = 9.6 miles per hour.

General remarks.—The car ran very consistently throughout. Gave no trouble. Motor cool at finish.

No. 2 car.—Quantity of petroleum-spirit used on the journey.—2.5 gallons.

Average cost of fuel per mile at 1s. 3d. per gallon.—37d. per mile.

Speed, including time occupied by all stoppages.—Up to the legal limit of twelve miles per hour.

Number and cause of stoppages. (i) Engine stopped in ascent of Dashwood Hill. This stop was of 5min. duration. (2) Stopped in ascent of Aston Hill for 7min.

Hill-climbing speeds.—(a) Dashwood Hill: Passenger alighted for 50 yards. Total time (including stop) to danger board 11min. For the mile 12min. 45sec. = 4.7 miles per hour. (b) Aston Hill: Passenger alighted for 100 yards. Total time (including stop) 24min. = 4.06 miles per hour.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

At Chanteloup.

IN spite of all forebodings the rain kept off on Sunday last long enough to permit the Parisian visitors to Chanteloup to reach home in comfort, after having witnessed an interesting, if not wildly exciting, race up the famous hill. The sensational element was lacking by reason of the exclusion of the motor-cycles and racing cars from the event, a step rendered necessary by the impossibility of securing permission from the authorities to hold the race exactly on the lines of former years. The course was therefore reserved for the slower classes of automobiles, and as the fastest performance up the grade of ten per cent. represented the insignificant speed of twenty miles per hour, the authorities were afforded an opportunity of seeing how sedate is the march of the present day touring vehicle. The exact length of the hill is 1,800 metres, and to facilitate comparisons I may here quote the bests on record, viz.:—Cars: Jenatzy (electric), 3 mins. 2 secs.; cycles: Béconnais, 2 mins. $34\frac{1}{2}$ secs. It must, however, be borne in mind that the racers cannot do themselves full justice over this course, for the presence of several extremely awkward turnings renders very high speeds an impossibility. On Sunday last the exclusion of the big Panhard and Mors cars gave others an opportunity of distinction, and the 26 h.p. German Daimler of Baron Henri de Rothschild came out of the ordeal with flying colours, for it proved itself to be the speediest of all the competitors. With four up this car made 3 mins. $45\frac{1}{2}$ secs., while at the conclusion of the race it mounted with a couple of passengers in 3 mins. $26\frac{2}{3}$ secs. Among the smaller cars the representatives of the Gladiator-Aster firm secured a couple of first prizes, and the car mounted by Mercier in particular proved itself to be a regular flyer. After the termination of the official tests, Marcellin drove a voiturette up the grade in 3 mins. $4\frac{1}{2}$ secs., a truly wonderful performance. The official returns are as follows:—

1. Four-seated cars.—1, H. de Rothschild, 3 mins. $45\frac{1}{2}$ secs. 2, Gobron-Brillié, 4 mins. $11\frac{3}{4}$ secs.; 3, Serpollet, 4 mins. $32\frac{1}{2}$ secs.; 4, Serpollet, 5 mins. 4 secs.; 5, Bardon, 6 mins. $19\frac{5}{8}$ secs.; 6, Gobron-Brillié, 6 mins. $33\frac{1}{2}$ secs.; 7, Bardon, 6 mins. 51 secs.; 8, Chameroy, 7 mins. 10 secs.; 9, Bardon, 7 mins. 22 secs.; 10, Rochet Schneider, 7 mins. $30\frac{3}{4}$ secs.; 11, Vinot and Deguingand, 9 mins. $35\frac{1}{4}$ secs.; 12, Maison Parisienne (Benz), 9 mins. 37 secs.; 13, Audibert-Lavirotte, 9 mins. 57 secs.; 14, Poittevin, 10 mins. 28 secs.; 15, Delantre, 11 mins. 49 secs.; 16, Gassier, 13 mins. 25 secs.

2. Six-seated cars.—1, Lefebvre, 5 mins. 10 secs.; 2, Delahaye, 5 mins. $20\frac{3}{4}$ secs.; 3, Serpollet, 6 mins. 14 secs.; 4,

Champrobert, 6 mins. 27½ secs.; 5, Du Boys-Parisienne, 7 mins. 4½ secs.; 6, Delahaye, 7 mins. 16 secs.; 7, Delahaye, 8 mins. 8 secs.

3. Two-seated voiturettes.—1, Mercier-Gladiator, 4 mins. 8½ secs.; 2, Théry-Decauville, 4 mins. 40 secs.; 3, Brierre-Cottureau, 4 mins. 47 secs.; 4, Théodore-Perfecta, 5 mins. 23 secs.; 5, Ravenez-Decauville, 5 mins. 48½ secs.; 6, Filtz-Turgan, 5 mins. 55 secs.; 7, Bied-Charreton, 5 mins. 58 secs.; 8, Van Berendonck, 6 mins. 9 secs.; 9, Ader, 6 mins. 28 secs.; 10, Quérey, 6 mins. 58 secs.; 11, d'Arnaud, 7 mins. 32½ secs.; 12, Vinet, 8 mins. 26 secs.; 13, Itasse, 9 mins. 8 secs.

4. Four-seated voiturettes.—1, Darracq, 5 mins. 57½ secs.; 2, Darracq, 6 mins. 11 secs.; 3, Richard, 8 mins. 31½ secs.; 4, Robert, 10 mins. 53½ secs.

5. Small voiturettes.—1, Gladiator, 5 mins. 56½ secs.; 2, Marot-Gardon, 7 mins. 34 secs.; 3, Campagne, 13 mins. 3 secs.

And to-morrow we have another hill-climbing contest, that of Gaillon, which will bring this year's racing events to a close.

A Prosperous German Concern.

THE report of Messrs. Benz and Company, of Mannheim, for the financial year ending April 30th last, shows the strikingly prosperous position of the company. During the year named, no less than 650 motor-cars and 500 motors were manufactured and sold, the turnover aggregating £136,710. The net profit amounted to £33,377, out of which £13,670 has been placed to reserve, and a dividend of ten per cent. declared. During the current financial year, the company hopes to turn out 850 cars, or at the rate of about sixteen per week.

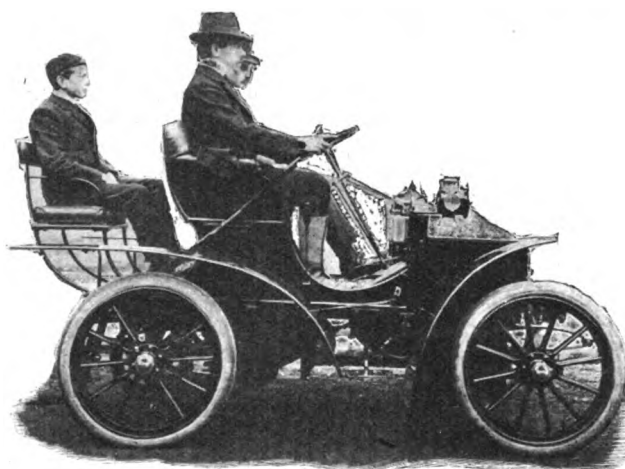
THE WOLSELEY VOITURETTE.

THE accompanying illustration shows the latest type of voiturette: turned out by the Wolseley S.S. Machine Company, of Sydney Works, Alma Street, Birmingham. The car has seating accommodation for three persons. The engine is of the single-cylinder horizontal type, giving 4½ b.h.p. at a speed of 750 revolutions per minute. The ignition is electrical, and by means of the advance sparking apparatus the speed of the engine can be increased to about 900 revolutions. The valves and breech end can be removed in position, and all joints are ground fits—no packing being used. The water-circulating pump is geared to the side shaft and only runs at 200 revolutions, the gland consequently not wearing out so quickly as in a high speed pump. The water-cooling apparatus is all fixed above the engine, so that no difficulty is experienced with the circulation. Only 1½ gallons of water are carried, and this is sufficient for any journey, the water never boiling. Furthermore, the condensing tubes being placed higher up than usual do not get full of mud. An extra large silencer is fitted, and all back pressure on the engine is obviated.

Coming now to the transmission mechanism, the variable-speed gear case is connected to the engine by a Renold silent chain, and the change speed is effected by sliding gears. Three speeds forward of 7, 13, and 25 miles an hour and a reverse motion of four miles per hour are provided as the standard gearing, but this can be varied by the change of sprockets. Roller chains connect the balance gear shaft to the road wheels. All bearings on engine, including the piston, are lubricated from a sight-feed lubricator on the dashboard.

Wheel steering is fitted and is locked on the axle so that the hand wheel cannot be deflected by meeting any obstruction on the road. In locking the steering on the axle the least number of parts of the gear are, it is stated, subjected to the strains from rough roads, and perfect steadiness of steering is assured. All the bearings are intermediate, and the balance gear shaft and the road wheels run on ball bearings of a special type. The clutch on the engine shaft is operated by a foot lever, and is adjusted from the outside. Another foot pedal operates two hand brakes fitted to the rear-road driving wheels, and a side lever operates two rim brakes for emergencies and descending long slopes.

The petrol tank holds three and a-half gallons and is fixed to the dashboard inside the bonnet. A gauge glass on the dash shows the height of petrol in the tank, and can be seen from the driver's seat. A jet vaporizer is used. The mudguards are of leather, mounted in iron frames. The front seat is covered with leather without buttons. The rear seat is detachable, and a



THE WOLSELEY VOITURETTE.

large basket can be fixed in its place in a few minutes. The road wheels are fitted with pneumatic tires, 2½ inches by 30 inches. Altogether the Wolseley voiturette has an attractive appearance, and its design and construction throughout is of such a high order that it ought to quickly meet with a large sale, especially among expert motorists.

The Wolseley Co. have under consideration the building of a 20 B.H.P. racing car weighing 21 cwt. for next year's French races, and hope to receive an order for a similar car from some motorist who wishes to take up racing.

MR. ERNEST OWERS, of West Hampstead, will hold another sale by auction of motor-cars on Friday, the 23rd inst.

MR. MARK MAYHEW has joined the English Motor Club. By the way, this organisation is supporting the Automobile Club's run to Southsea.

MR. THOMAS CLARKSON, who has been developing a delivery wagon for the Locomobile Company of America, at Bridgeport, Conn., has finished his labours and returned to England.

MR. FRANK JACKSON, of Ashley Road, Peel Causeway, Altrincham, Chester, is now stocking petrol, and also keeps a supply on hand of spare parts for De Dion and Century Motors.

MR. DEACON, of Llandudno, has run two public service motor-cars in the Conway Valley during the season. One vehicle alone has travelled 6,000 miles in the neighbourhood.

MESSRS. HARRIS AND HILL, of High Street, Barnstaple, are as ready to undertake repairs as to supply petroleum spirit to motorists going that way.

AN American contemporary states that the Riker Electric Vehicle Co., of Elizabethport, N.J., has in course of construction two electric emergency wagons to be used by a London tramway company.

MESSRS. MARSTON (Limited), of the Sunbeam Cycle Works, Wolverhampton, have purchased a large area of land in Upper Villiers Street for the erection of works for the manufacture of motor-cars.

THE Mid-European Motor-Car Club, of Berlin, has established an insurance department for its members in which they may insure themselves against damage claims and accidents in respect of their motor-cars.

A SILLY horse, belonging to a builder in the Isle of Thanet, saw a motor-car at Ramsgate the other day. Instead of proceeding on his way quietly he made for the Royal Hotel, smashed its windows, and hurt himself. When will horses become sensible?

HERE AND THERE.

IN connection with the Automobile Trial of 1901 three main ideas are to be worked out. One is that suggested by Mr. Edge, as to the division of the entries into classes for large and small cars; another, that proposed by Mr. Shrapnell Smith, to have an observer on each car; and the third, which Mr. Mann tenaciously urged, to hold a great demonstration, extending over a week, at the Glasgow Exhibition. Evidently the Trial will cover more ground than that of this year, and will be quickened by the omission of the daily exhibitions of the last event. Probably it will be found advisable, when at Glasgow, to make a further subdivision, so that the cars belonging to manufacturers may be kept on show in the exhibition, and those privately owned be sent on daily trips to places of interest, thus combining publicity for the automobile with pleasure for the owners. The attention of likely purchasers would thus be called to the motor-car, while the manufacturers would be ready in the exhibition to answer inquiries and explain the working of vehicles. Of course, such an arrangement would not prohibit makers going on the pleasure trips if so inclined.

PASSING through the following counties motorists should be careful—

Essex.	Norfolk.
Lincolnshire.	Middlesex.
Hampshire.	Surrey.

This week's additions to the list of counties where discussions have recently taken place with a view to limiting the speed of motor-vehicles are—

Oxfordshire.
Berkshire.

Among the towns deserving of publicity in this category, I have already mentioned—

Huntingdon.	Swansea.
Bournemouth.	Altrincham.

And now add—

Kingston.
Louth.

To the list of persons high in authority and influence who have declared for the restriction, numbering, or increased taxation of motor-cars, I now add—

Mr. W. Y. Cockburn
(Chairman of the Kingston County Bench).
Sir Warwick Morshead
(Member of the Berkshire County Council).
Sir George Gunning
(Member of the Northamptonshire County Council).

In previous issues the following names have appeared—

The Earl of Kimberley.	The Recorder of Bourne-
Lord Cranworth.	mouth (Mr. R. A. King-
Lord Walsingham.	lake).

Mr. J. Spear, M.P.

AUTOMOBILISM has made progress in the Fens since the people of some of the villages around Cambridge sat up all night to see the Hon. C. S. Rolls whiz by on his car in the days when the man with the red flag was a power in the land. And it is likely to go ahead with even greater speed now that Mr. Morriss, of King's Lynn, has commenced business at Cambridge.

MR. W. L. DUCK, an old Sussex cycling champion, who has recently been developing the popularity of the motor-car in Cambridge, has left that classic town for breezier and busier Brighton. There, with Mr. H. C. Harris, he is starting the Sussex Automobile Company, at 33, East Street. In addition to the sale and hire of motor-vehicles, repairs will also be undertaken—a fact that makes this announcement of more than county interest.

MOTORISTS travelling in the Malvern district will find Mr. A. Burgess, of the Lightning Cycle and Motor Works, Barnard's

Green, Malvern, a useful man. He has plenty of room for the storage of cars, and always keeps a good stock of petroleum spirit. Just now he is engaged in making a new steam car of large size, and is also experimenting with a new gear. Mr. Burgess is a practical motorist, and has given much study to the development of the automobile.

Two grumbles at the apparent indifference of manufacturers to answer questions when addressed to them by likely purchasers come this week. Some of the questions sent to motor-car firms may appear rather elementary, and others may touch weak spots. But all should be answered if the general welfare of the industry is to be considered. To merely send a printed circular in reply will often irritate instead of satisfy an interested querist. Profit from advertising motor-vehicles depends not so much upon the number of inquiries received as upon the way in which they are handled. A hundred inquiries about a vehicle properly followed up are often of more value than a thousand replies which receive no more attention than the perfunctory posting of a printed pamphlet.

THE automobilists' party in the House of Commons is growing, and to Messrs. Balfour, Montagu, Carlile, Dalziel, and the others must now be added Mr. Eric Hambro, the new M.P. for the Wimbledon division. These are practical people whose presence in the House may be needed to instruct legislators afflicted with the reiterated ravings of county councillors, rural councillors, and other people who would like motor-cars on country roads to rival the speed of the Metropolitan growler. Mr. G. B. S. Sackville, M.P., is another sympathetic legislator, and has been telling his colleagues on the Northamptonshire County Council how far we are behind the Continent in motor-vehicles.

SOME time ago a London gentleman advertised a diamond ring in exchange for an automobile. Now a correspondent sends me the following advertisement culled from a contemporary:—

ANCIENT ARMOUR.—Two Breastplates, worn by Pizarro's soldiers at conquest of Peru; over 500 years old; very valuable; will sell cheap or exchange for good automobile.—Address D. B.

If you can get anything more incongruous than Pizarro and pneumatics, ancient armour and automobiles, I don't know what it is. Apparently we never appreciate how closely the most distant past can be brought to the present. LOLLIVS.

LONDON TO SOUTHSEA.

Quality of Road.		Inter-Miles mediate from Mileage. London.	
London—			
Kingston	... Generally level; fair surface	12	12
Surbiton	... Generally level; fair surface	1	13
Thames Ditton	... Generally level; good surface	0½	13½
Esher	... Marked ascent; good surface	2½	16
Pain's Hill	... Marked ascent; good surface	3½	19½
Ripley	... Hilly road; excellent surface	4	23½
Guildford	... Generally level road; excellent surface	6	29½
Shalford	... Hilly road; excellent surface	1½	31½
Godalming	... Generally level road; excellent surface	3	34½
Milford	... Hilly road; good surface	1½	35½
Hindhead	... Hilly road; excellent surface	5½	41½
Cold Ash Hill	... A marked descent; fair surface	3	44½
Liphook	... Generally level road; good surface ...	2½	46½
Rake	... Hilly road; good surface	3½	50½
Sheet	... A marked descent; good surface	3½	53½
Petersfield	... Hilly road; good surface	1½	55
Horndean	... Hilly road; good surface	7½	62½
Waterloo	... Hilly road; good surface	3	65½
Portsdown Hill	... Hilly road; fair surface	2	67½
Cosham	... A marked descent; very rough surface	½	68½
Hilsea	... Generally level road; very rough surface	1½	69½
Landport	... Generally level road; very rough surface	2	71½
Portsmouth	... Generally level road; very rough surface	1½	73
Southsea	... Generally level road; very rough surface	1	74

A CRUISE ON LAND—OR THE LOG OF A MOTOR-CAR.

BY MISS DOROTHY EDMUNDS.

(Continued from page 584.)



WE left Preston at 3.10, and soon passed through Garstang, on to Lancaster. We were now carrying two extra passengers, (making six in all) on the new car, but that did not seem to interfere with the speed. A hat was blown off by the wind, but we did not stop to pick it up, providing another out of reserves. Our passengers left us at Carnforth at 5 o'clock. We proceeded directly to Kendal, greatly

enjoying the scenery, and had tea at 6.10. Leaving there at 6.35 we made for Windermere, and arrived at the charming Belsfield Hotel, Bowness, where we very much enjoyed our dinner at 7.30.

It has been truly said that happy is that nation which has no history, but if there were nothing to record on this journey that was uneventful I fear it would be uninteresting. Next morning we arranged to leave for Keswick, going over Dunmail Raise. A young boy who had taken considerable interest in the cleaning of the motor-cars in the stable yard was greatly delighted when my father asked him if he would like to pilot us to Ambleside and show us the best road. We started off about noon, taking the low road, which, however, proved to be very hilly and not in very good condition owing to recent repairs. On climbing a hill the engine did not appear to be pulling very well, and as the hill grew rapidly steeper it was deemed best we should all get out and walk, in order to lighten the car, except my younger brother, who thought he would take it up at its lowest speed with the sprag down. We had not gone far when it seemed as though the engine would stop, upon which he put on the hand-brake, which, releasing the clutch, allowed the engine to get up its speed again, but in consequence of too rapidly releasing the brake and the clutch engaging, the car suddenly jumped forward, but for some unaccountable reason suddenly halted, and then began to run back, leaping the sprag, and the car, quickly gaining momentum, began rapidly to descend the hill backwards. My father called out to turn the car into the wall; this was done, and striking a small tree it came to an abrupt stand, the engine, however, still running. On examination we found the concussion had bent one of the radial bolts and thrown off the near chain. It was at once apparent that the car could not proceed until the bolt and bent sprag had been straightened. Luckily we were near a blacksmith's, and the necessary repairs were soon effected, and the car, fortunately not much damaged, was enabled to proceed to Keswick. Dunmail Raise was successfully mounted, and the rest of the charming run being rapidly made without further incident. After stopping at a friend's for several days at Keswick, during which time we had various samples of the English lakes' weather, but with several opportunities for some lovely runs round Bassenthwaite and other rides in this beautiful district, we left Keswick on August 23rd for Carlisle *via* Bothel and Kirkland Green, where we encountered a terrific hailstorm accompanied by thunder and lightning, the road in many places being white with hail, and in some places flooded so that the cars literally had to forge their way through several inches of water, which made a very curious spectacle as they splashed like some amphibious creatures in a perfect shower of spray.

At Carlisle we were comfortably housed at the County Hotel, and as we were intending to take some very hilly country in Scotland the sprocket wheels of both cars were changed for smaller ones, so that they could better climb the steeper grades. After this we had no further trouble with regard to climbing any hills we came to. On August 25th we proceeded to Dumfries. The road *via* Gretna Green and Annan being of excellent quality we made very good running. We stayed at Dumfries over Sunday at the comfortable Station Hotel and took

the opportunity of seeing much that would have interested lovers of Burns. The cars were housed at the King's Arms stable yards, where the proprietor, Mr. Irving, took much interest in them, and asked many questions as to the relative merits of motor-cars versus horses for excursion purposes. In that district it would not be surprising to learn that a practical demonstration may soon be made in regard to this question. On Monday, 27th, we left at noon, and soon encountered a long, stiff rise of nearly seventeen miles, much of which had to be done on the first and second speed. This tested very practically the relative merits of the Estcourt cooler attached to the new car, with the pump and ordinary radiator of the old car for circulating and cooling the water of the two engines. It was interesting to note that though it was a hot day the Estcourt cooler appeared to do all that was requisite, and although some steam was produced yet the engine ran well and continuously without any signs of overheating or trouble from this cause in any way. We ran on to Dalry, where we had lunch. The country in this district was unsurpassed by anything we had yet seen in regard to beauty and variety. We overtook one of Her Majesty's postmen, who seemed greatly pleased at being given his first ride on a motor-car, and who thought this would be an excellent method of carrying the mail.

After leaving Dalry we had another long, tedious ascent *via* Carsphairn to Dalmellington. As there had been a little diffi-



LEAVING DERWENT BANK FOR A RUN ROUND BASSENTHWAITE.

culty with the electric ignition on the new car the burners were lighted and the platinum tubes brought into use. We had not gone far before we slowed down. Evidently something had happened, and we found that one of the platinum tubes had been perforated. It took some little time to replace this, but the time waiting was not lost, as it enabled us to take several photographs and to admire the grandeur of the scenery.

After proceeding we arrived at the summit, the road becoming very narrow and with a curious series of ups and downs which reminded one of the Earl's Court switchback railway, the short, stiff hills being negotiated by taking the down grades at top-speed and going for all we were worth. On the down road as far as Patna, owing to the absence of traffic or other interruption, we were enabled to make some of the best speed on the whole of the journey, averaging a good ten miles an hour, which I believe is the Scotch legal limit. Though we had several delays we were enabled to reach our destination at Cassillis, Ayr, in time for dinner. If I were writing other than a strict account of a motor-car run I should be tempted to digress from my narrative and try and describe one of the most interesting houses in Scotland, situate on the bank of the bonny Doon, built in the thirteenth century, with its old walls, many over twelve feet thick, its dungeons, secret passages, and many stories associated with its varied history. We stayed here for several days, and our host and hostess and their friends much enjoyed the opportunity of making local excursions on the two cars to Ayr,

Maybole, Girvan, and other places in this picturesque and romantic district.

On one of these runs we had the misfortune to slip a tire. It happened just after leaving Maybole, and this accident, though trivial in itself, became the source of considerable annoyance later on in the journey. It is difficult to say what caused it, probably the breaking of some of the bolts that held the flanges which secured the compound pneumatic tire in its place; however, the tire was replaced, and in lieu of an air tube a filling of solid rubber obtained from Glasgow was substituted and an apparently good job was made, but curiously enough the working of the wheel after some two hundred miles of running appeared to powder the solid rubber insertion and the tire again came off; but more of this anon.

On September 2nd we left Cassillis with the intention of proceeding to Peebles, but several delays prevented our getting off before the afternoon. We went *via* Ochiltree and Cumnock, where the country became very mountainous and the roads steep and rough, which necessitated a good deal of careful driving and very frequent changes of speed-gear. We then got on to Muirkirk, and the next ten miles to Douglas was one of the pleasantest we had experienced as yet on the entire run. The car made magnificent running, and we arrived at Douglas a little after six o'clock, where we had tea at the King's Arms Hotel; everything here, however, was so inviting and comfortable that we



STOPPING FOR LUNCH AT DALRY.

determined to stay the night. We took the opportunity of visiting the Douglas Mausoleum, where the Douglas family were buried.

(To be continued.)

ONE of the chief features of the recent carnival at Indianapolis was a race between two horses and two racing automobiles. The race was over a one mile course and the horses were given a fair start. They won in both races, but by little more than a neck.

LIEUTENANT ENGLER, of Frankfort, has just accomplished the feat of crossing the Alps by way of the Stillfser-Joch in a 5 h.p. motor-car, accompanied by his wife and an attendant. The route was by way of Frankfort, Munich, the Brenner, and Ulm, and the whole excursion extended over 1,250 miles.

THE case of the Société Panhard and Levassor v. the Panhard and Levassor Motor Company came before the Chancery Division of the High Court of Justice last week, and Mr. Justice Cozens-Hardy ordered the motion to stand over for a fortnight. The plaintiffs, a French company, ask for an interim injunction until the trial of the action, or further order to restrain the defendants, their servants and agents, from manufacturing or selling motor-cars under the names of Panhard and Levassor.

THE AUTOMOBILE CLUB'S TRIALS OF ELECTRICAL VEHICLES.

IN our last issue we called attention to the series of trials of electrical vehicles to be held, under the auspices of the Automobile Club, in the neighbourhood of Chislehurst, and we have now to chronicle such particulars of the trials as we have been able to glean up to the time of going to press. To reach Chislehurst by train would have meant risking the uncertainty of a journey on the South Eastern Railway, and rather than this we perforce had to fall back on our trusty M. M. Company's Panhard. The weather was not such as made us yearn for motoring, and remembering the miles of tram-lines along Blackfriars Road, Old Kent Road, and Lewisham, the prospect did not strike us as being particularly alluring. However, on Monday afternoon—the first of the trials having been postponed till Tuesday—we made a start from Shoe Lane, and progressed satisfactorily through seas of mud to Bromley. The mud was too thick to permit of side-slipping, but we were caught in a heavy storm which lasted nearly half an hour. About three miles beyond Bromley a steep hill was encountered, and the surface being thick and heavy, it was as much as the car could surmount. The top was safely reached and our journey continued, a sign-post pointing in the one direction to Chislehurst West, and in the other to Chislehurst. Now, from the railway, the place where Napoleon III. died looks a fair sized town, and therefore no difficulty was anticipated in locating it. We took the right-hand road and travelled some distance, until in the middle of a common—which we afterwards discovered was named Paul Cray—was a sign-post pointing in the direction from whence we had come. Not a soul was in sight, and there was nothing for it but to turn the car round again. A solitary wayfarer was shortly afterwards met, and he in response to our enquiry vouchsafed the information that we were in Chislehurst. Considering there was not a house in sight we were somewhat sceptical, and accosted another stranger. This time asking for the "Bull's Head," we were rightly directed, and recognised, in the headquarters of the Club for the electrical trials, an inn we had passed half an hour earlier. Mr. Johnson, on a 6-h.p. Daimler, arrived about seven o'clock, having assisted the Electric Motive Company's vehicles up the hills by towing. There were then seven electric vehicles in the charging station, including the "Powerful" (Krieger), "La Toujours Contentée," one of the Electrical Undertaking Company's cars, two cars of the Electric Motive Power Company's, the Canadian Company's (Still's), and a Joel carriage—the latter having been brought down by train.

Before proceeding with an account of the trials some particulars of the competing vehicles may be given. Thirteen were altogether entered, but only nine put in an appearance on Tuesday.

No. 1, a Krieger long-distance car named the "Powerful," entered by the British and Foreign Electrical Vehicle Company, is, as will be seen from the accompanying illustration (Fig. 1.), of an entirely new design. It is equipped with two electro-motors of 3 n.h.p. each, geared on the Krieger system to the front wheels. The necessary power is furnished by a battery of sixty Leecoll accumulators, type 30EE. The battery, which weighs 3,360 lbs., has a capacity of 250 ampère-hours, the vehicle being intended for travelling long distances on a single charge. The controller is adapted to give six forward speeds, three reverse motions, two electric brakes, and is also provided with a recuperation switch, by means of which the motor can, in descending hills, be made to act as a generator in the recuperation of the battery. The car, complete, weighs about 2½ tons.

No. 3, a Columbia Stanhope phaeton entered by the British and Foreign Electrical Vehicle Company, Ltd., is now a familiar vehicle. It is equipped with a 2 n.h.p. electro-motor, geared direct to the rear axle. The battery consists of forty-two Leecoll accumulators, type 10EE., the weight being 798 lbs., and the capacity 90 ampère-hours. The controller is adapted to give three speeds forward and two reverse. The car, which weighs complete about 1,400 lbs., is fitted with tiller-steering and cycle-type wheels shod with pneumatic tires.

No. 4, entered by the British and Foreign Electric Vehicle Company, Ltd., is a delivery van, capable of carrying a load of one ton. It is equipped with two 2 h.p. electro-motors geared direct to the rear wheels. The battery consists of forty-two accumulators of the Leecoll type; it has a capacity of 135 ampère-hours and weighs 1,176 lbs. The controller is adapted to give four speeds forward, two reverse motions, and three electrical brakes; a foot pedal operating brakes on the rear wheels is also provided. Steering is controlled by a horizontal hand-wheel. The complete weighs about 3,000 lbs.

No. 5 is an exceedingly novel racing vehicle quite new to this country. It is entered by Mr. E. W. Hart, of Luton, who has secured the agency for the type in this country. An illustration of the car, which is made by Messrs. Jacob Lohner



FIG. 1.—THE "POWERFUL" CAR.

Photo by]

[Curzon, Robey & Co.

and Co., of Vienna, is given in Fig. 2. The peculiarity of the vehicle resides in the motors, which are placed in the hubs of the road wheels, and are of an extraordinary slow speed. The armature of the motors is fastened to the hub of the wheel, and the stationary field is fastened to the axle. The speed of rotation of the wheels is, therefore, the same as the speed of the motor. In order to keep down the width of the motor, the commutator is placed inside the armature, so that the width of the armature winding constitutes the whole width of the motor. The motors, of which there are four, have each $2\frac{1}{2}$ h.p. normal capacity, but it is claimed that they will work up to 7 h.p. for short periods. The battery comprises no less than seventy cells of the Leecoll 30EE type, the weight being 3,920 lbs., and the capacity 270 ampère-hours. The controller is arranged to give four speeds ahead, three reverse, electrical brakes, and is also provided with a switch by means of which the motor can be made to act as a generator in running down hill, so recuperating the battery. The car, which has accommodation for four persons, is fitted with inclined-wheel steering, and weighs complete about three tons.

No. 8, a Joel voiturette entered by the National Motor-Carriage Syndicate, Limited, calls for no lengthy description at this time, as an illustration together with the leading features were given in our issue of August 11th last. The car is equipped with two 2 h.p. Joel electro-motors, fixed on a detachable spring frame, driving the two back wheels of the carriage separately by chain gear. The current is supplied by thirty-six Rosenthal storage batteries, with an output of 140 ampère-hours. The total weight of the carriage is about 12 cwt.; 8 cwt. of this being battery. The controller is very simple in construction and action, and is adapted to give seven speeds forward and one reverse. The system of electrical changes is such that when the voiturette is ascending hills the motors work at their highest efficiency and at normal speed; they are geared down to run the car up hill at six miles an hour, whilst on the level the speed ranges from eight to twelve miles, or faster if desired.

No. 9, an Oppermann car to carry two persons; with

Flambeau battery and Oppermann motor. At the last moment this car was withdrawn owing to a fatal accident on Saturday last to Mr. Oppermann's son. Those who know Mr. Oppermann well, we feel sure, join with us in expressing our sympathy for him and his family in the loss they have sustained.

Nos. 10 and 11, two four-seated cars entered by the Electric Motive Power Company, Ltd., of Balham, S.W. The first car is fitted with one two-pole series electro-motor of 3 h.p.; the second has a four-pole enclosed series type motor of 4 h.p. The latter is connected to the rear axle by single reduction spur gearing. The battery in each car consists of sixty cells of the company's own type, weighing 12 cwt. and having a capacity of 19-h.p. hours. The controller is adapted for four speeds forward, and the same reverse, and also for the recuperation of the battery.

No. 12, an Oxford phaeton, having seating capacity for four persons, and entered by the Canadian Electric Motor Company, of Long Acre, W.C. This is fitted with a 4 h.p. special differential electro motor driving each of the rear wheels separately by chain gear. The car is furnished with a battery of forty-two New Ideal cells weighing $18\frac{1}{2}$ lbs. each, and having a capacity of 100 ampère-hours. The controller, which is located at the right-hand side of the car, is adapted for four speeds forward and the same reverse. This car, which weighs about $16\frac{1}{2}$ cwt., has now been running over eighteen months, and in that time has, we are informed by Messrs. Shippey Bros., the agents, travelled about 4,000 miles in Canada and in this country.

No. 13, a four-seated car by the Electric Undertakings, Limited, of Camden Town, N.W. This vehicle is equipped with two Lundell motors of 2 kilowatt capacity each, and connected to the rear axle by internal spur gearing. The battery comprises forty cells of the Leitner type, having a capacity of 160 ampère-hours and weighing $9\frac{1}{2}$ cwt. The controller is arranged to give six speeds forward and two reverse. Complete, the car weighs about 1 ton 6 cwt.

Altogether a party of about twenty had assembled overnight, including Prof. C. A. Carus Wilson, Messrs. Kennaway, Llewellyn, Preece, Fergusson, Johnson, Doubleday, Cordingley, Hart, Chambers, Lohner, Joel, Northey, O'Gorman, etc. On Tuesday morning all were up and in the yard before eight o'clock, and a busy sight presented itself at the charging stations. Some of the vehicles, notably those provided with the Leecoll batteries, only took about an hour to charge, while others took as much as ten hours.

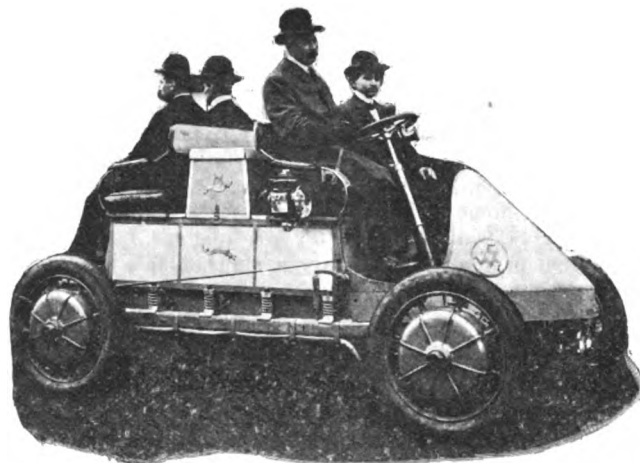


FIG. 2. "LA TOUJOURS CONTENTÉ" CAR.

Photo by]

[Curzon, Robey, & Co.

After breakfast preparations were made for a start of Trial No. 1—an unlimited distance on one charge, the driver to declare to the observer when the run is to be considered as finished. The first two cars away were the "Powerful," No. 1, and "La Toujours Contenté," No. 5. This latter had all its batteries exposed, the covering and rear seats of the carriage body having been removed. A protest being made at the car thus travelling over the public roads, the batteries were afterwards covered—the upper tier with a rug and the lower tier with boards. The two cars then started at 9.45; the Still, No. 12 (with four up), at

10.5; the Electrical Undertakings, No. 13, at 10.15; the two Electric Motive Power Company's vehicles, Nos. 10 and 11, at 10.20, and the Joel at 10.28. In the meantime Major Holden arrived, as also had Mr. Critchley, Professor Vernon Boys, and others. Mr. Campbell, on a Columbia car, with Mr. Harper as passenger, also reached the starting point to see the cars depart.

The "Bull's Head" at Chislehurst is supposed to be on a level with the top of St. Paul's; at all events, it lies very high. Rain had been pouring most of the night, and it was drizzling at the time the cars started. The route was known to be a hilly one, and the roads were heavy and soft, so it was anticipated that the test would be a severe one—too severe, many thought—for the vehicles which had started. After giving the last car a few minutes' start we went after the competitors on our M.M. Co.'s Panhard. The route was a circular one, making 35 miles in all, through pretty country and over very hilly roads. Within three miles we passed the Joel car going well over the sticky roads, while in front could be seen, on the top of a hill, the Electrical Undertakings' car. This was quickly passed, and two other cars were then seen in front; they were driven by Mr. New and by Mr. Northey. These were duly passed, the latter on a somewhat stiff rise, about seven miles from the start. The surface of the road had slightly improved, but there had been a gradual rise for some distance, with occasional short declines. Into Farningham, eight miles from the start, is down hill, but leaving the town the gradient is once more long and steep, then rising and falling, with roads of good surface, over Kingsdown. A chalky road is then "struck," sticky and greasy, and signs on a steep hill with a danger board at the top, were visible of one or two bad side slips. The tracks of the Lohner car, with its big tires, were plainly visible, while another vehicle had charged the bank, making a deep indentation. Near the foot of the hill the road was under repair, and only a narrow passage was left for the cars to go through. Another hill a mile long took us to Wrotham; then down hill and up again through Igtham, this latter being worse than anything encountered so far. The surface of the road varied a good deal, some parts hard and dry, and others, through the woods, being heavy; but the trend of the ground was always in an upward direction, and this continued more or less till Poll Hill summit was reached, 25 miles from the start. In Riverhead, 22½ miles, we came across the Still car with two of the passengers pushing the car uphill. Mr. Critchley, the observer, had some time since declared the "run" at an end, and joined us on our car. The road was a pleasant one, without any difficulties, until Orpington, 3 miles from the finish, was reached. A sharp turn brought us to the foot of a steep hill, greasy and thick with mud, on which could be seen the Lohner being pushed by pedestrians and towed by a butcher's cart. Our wheels slipped a good deal, but we reached the top safely and landed at the charging station at 1.30, immediately after the Krieger car. The Electrical Undertakings' car arrived back at 3.15 p.m., with just sufficient current left to bring it safely home; Mr. New arrived at 3.20; Mr. Still, with two passengers walking, at 3.40; Mr. Joel at 3.40, with sufficient current in his battery for about another five miles, and his motor scarcely warm; and Mr. Northey at 4.20, having only travelled 17½ miles. The Krieger car, after having done the long course, started on a shorter one, and ultimately did 59 miles, the last few miles of which had to be done at a crawl, the batteries having just sufficient strength left to reach home.

The following is the official report issued by the Automobile Club as the result of the day's trial:—

The Powerful, entered by the British and Foreign Electrical Vehicles Company, carrying two passengers, covered 59 miles; the same company's Columbia Stanhope traversed 7½ miles; their delivery van chose an easier route, going 7 miles, but failed to carry the three passengers all the way; Mr. Hart's Toujours Contente travelled 34 miles with two passengers, and the National Motor-Carriage Syndicate's Joel car carried two persons 37 miles; the Electric Motive Power Company's two cars ran 17½ and 35 miles respectively, each carrying two passengers; the Canadian Electric Motor Company's Still carriage carried four persons 18 miles and the Electrical Undertakings' car conveyed two persons 35 miles.

The second trial took place on Wednesday over thirty miles of hilly road between Chislehurst and Knockholt, the result being as follows:—The B. and F. Electrical Vehicle Co.'s "Powerful" completed 28 out of the 30 miles and then withdrew, owing to an accident caused by a shying horse. The National Motor Syndicate's "Joel" car covered 26½ miles, but was delayed by chain coming off. The Electric Motive Power Co.'s car, the Canadian Electric Motor Co.'s car, and the Electrical Undertakings' car each completed 22 miles—the Canadian car had four passengers and the other cars two passengers, including driver. The "Columbia Stanhope," No. 3, the Delivery car, No. 4, "La Toujours Contente," No. 5, have been withdrawn from the trials.

Thursday's trial consisted of a course of about 30 miles over average roads. Just as we go to press we learn that at 3.30 p.m. the "Powerful" car No. 1, the Electric Motive Power Company's No. 11 car, the Canadian car No. 12, and the Electrical Undertakings' car No. 13 had arrived back at Chislehurst after covering the route. The Joel car, which during the morning had been under repair, necessitated by the chain accident on Wednesday, was just about to start on its day's journey.

FURIOUS DRIVING CASES.

AT Long Melford Petty Sessions on Friday last week, Arthur R. Vickers, engineer, Brent Eleigh, was charged with driving a light locomotive so as to endanger the life of Erle William Roper, at Lavenham, on October 13th. Defendant did not appear. Walter Diaper, Lavenham, stated that he saw defendant driving a motor-car down the Market Lane, about six o'clock in the evening. Defendant drove past his office at from twelve to fourteen miles an hour. The street was very narrow, and at one point two carts could not pass. Defendant was fined £2 and costs about a month ago for a similar offence, and a penalty of £8 and £1 costs was now imposed.

BEFORE Sheriff Scott Moncreiff, at the Lanark Sheriff Court last week, John Stirling, managing director of Stirling's Motor Carriages, Limited, Fairholm House; Mr. James Andrew, engineer; and Mr. William Dodds, all of Hamilton, were charged with having, on September 3rd, on the public highway leading from Glasgow to Carlisle, and at the part thereof between the village of Blackwood and the house, Mansefield, Lesmahagow, occupied by the Rev. William Lyall, minister of the Gospel, while riding on or in charge of a light locomotive or motor, caused or allowed said light locomotive to travel along said public highway at a greater speed than ten miles an hour, contrary to sections 4 and 10 of the Locomotives on Highways Act, 1896, and of article iv. of the Light Locomotives on Highways (Scotland) Regulations, 1896, whereby each was liable to pay a penalty of £10 for such contravention. Mr. A. M. Mitchell, of Glasgow, appeared along with the accused, and took objections to the complaint as stated, the principal of which were that only one person—the one driving or in charge of the locomotive—could be guilty of this crime, whereas the complaint bore that the three accused were each liable to pay £10. The complaint also bore that the three accused were riding on the locomotive. This in itself was not a contravention of the regulations. The Act provided only for the prosecution of the person in charge of the locomotive, and the complaint should have stated only the party who was driving. Sheriff Scott Moncreiff repelled the objections, and proof was led. James Macrae, Knowenap, near Blackwood, said he was looking out of his kitchen window which faced the public road on the morning in question, about half-past five, when at a distance he saw nothing but "stoors fleeing." (Laughter.) He went to the other window and saw that it was a motor-car. It was a peculiar car, and he had never seen the like of it before. He couldn't say who were on the car, whether it was the men in the box or not. The car was going at a "fearfu" rate, and it would be more than twenty miles an hour. He never saw anything going as fast—not even a railway train. Mr. Mitchell, in addressing the Sheriff, said there was no evidence in this case for a conviction. Before going into the evidence, however, he wished to explain that this was a car specially made for military purposes, and as it was about to be submitted to the War Office experiments were being made upon it. Special privileges had been granted for the running of this machine through Richmond Park, in regard to speed, and considering the circumstances he would place his defence on technical grounds. This machine was of such mechanism that it could go over ploughed fields and all sorts of country, which would render it invaluable for war purposes. Such a machine would be a great benefit to the Empire, and these experiments were being made to bring it to the greatest perfection, but should a conviction follow in this case the experimenters might possibly be compelled to abandon the project. The trials had taken place at a very early hour in the morning. The car had come from Hamilton and had reached this place by half-past five, and must have necessitated it leaving Hamilton somewhere about four o'clock—an hour when there would be nobody about. Again, there was no evidence whatever that this was a light locomotive. The evidence did not state whether this car was three tons or twenty tons, and by this the case for the prosecution entirely fell, because, under the Act, it stated that these regulations only dealt with light locomotives. It had also been admitted by the witnesses that the bright shield in front of the car, which was there as a protection for the soldiers

inside the car, might have startled the horse. There was no evidence whatever that the horse had been startled by the car being previously driven. Sheriff Scott Moncrieff said he was prepared to find the charge proved against Messrs. Stirling and Dodds. He had not sufficient evidence to say that Andrews was there at all. The car had been taken out at a very early hour in the morning for the purpose of experimenting, and in respect that no damage had been charged as having resulted from the accident, and in the whole circumstances he was prepared to modify the fine to £2 on both parties—the charge against Andrews being found not proven. Mr. Mitchell appealed against the decision and a case was granted.

Mr. C. A. SMITH, of the "White Lion," Cobham, was summoned at Kingston last week before Mr. Cockburn and a full bench of magistrates, for that he "did drive a light locomotive at Cobham at a speed greater than was reasonable and proper, having regard to the traffic on the highway." Mr. Staplee Firth appeared for the defence. P.C. Pearce stated that he saw defendant driving his motor-tricycle at a great speed. Measuring off half a mile he found that Smith had only occupied a minute in covering the distance. Two other witnesses were called, and during their evidence some breezy remarks passed between Mr. Firth and the chairman on the matter of evidence. For the defence Mr. Firth argued that by the section under which the summons was issued no case had been made out, as there had been no obstruction. This point was overruled, and the next step was the attempt to prove an alibi. Mr. C. A. Smith, and six others, testified that he (Smith) was at the "White Lion" at noon, the time when the alleged furious driving took place, and that he did not turn out until three o'clock, when he drove slowly over to the station. But P.C. Kirk supported his fellow-constable and said that he had seen Smith at 12.10, on October 15th, driving at twenty to twenty-five miles an hour. The magistrates imposed a fine of £5.

LAST week Mr. William Prince, cycle manufacturer, of Stretford Road, Manchester, was summoned at Sale for driving a motor-tricycle on the highway so as to endanger the lives and limbs of passengers. Prince on oath said he was not exceeding the lawful twelve miles per hour, whilst the police swore he was progressing at forty miles. Considering he had ridden a motor-tricycle for several years and this was his first offence, the Bench thought a fine of ten shillings would meet the case.

At Barry, on Monday, Harry Stafford, the driver of a local motor-car, appeared to answer a summons charging him with furious driving. The evidence of Acting-sergeant Abrahams was to the effect that he saw Stafford driving his car at the rate of about ten miles an hour along Broad Street, Barry, on the 22nd ult., and there were several vehicles and persons about in danger of being run over. The officer also stated that the car passed them on the wrong side.—For the defence, John Thomas, clerk at the district council offices, stated that the car was not being driven furiously—not more than eight or nine miles an hour. At the conclusion of the hearing the Bench dismissed the case.

At the Norwich Shire Hall, on Saturday, before Mr. Stracey (chairman) and a bench of magistrates, John Reginald Hargreaves, of Great Witchingham, was summoned on the information of Inspector Flint for driving a motor-car at a greater speed than twelve miles an hour at Horsford on October 22nd. There was another summons for a similar offence at Felthorpe on the same day. Mr. Firth appeared for the defence. George Shibley, a groom, stated that on the afternoon in question between four and five o'clock he was sitting in a trap near the schools at Felthorpe. Witness heard a horn blown and as he had a spirited pony he gathered up the reins and should not have taken much notice had not the ladies who were sitting at the back laughed at him when his pony jumped about. That made him annoyed. The speed was twenty to twenty-five miles an hour. It might have been more as it went past like a train. If he said thirty miles he should not exaggerate. Cross-examined: He had not had the pony long enough to train it to motor-cars. He would swear the car was going more than twenty miles an hour. He did not know that Mr. Hargreaves had driven many thousands of miles and had never had an accident, and was considered one of the best drivers in Europe. Arthur Clark, of Felthorpe, said that about 4.30 he was near Felthorpe Lodge, and saw the motor-car coming at a fast rate, dangerous to the public. Cross-examined: Witness was not in danger, but a woman pulled two children out of the road. Witness did not make any complaint, and nobody was injured. Mary Ann Palmer said she heard the motor-car coming, and ran to fetch her children off the road. The vehicle passed like a train. Cross-examined: If a horse and cart had come along she should not have gone after the children, as they were used to carts. The leaves were flying up, and the ladies were hanging on the seat at the back. Mr. Firth said two summonses had been taken out, and he suggested the second one should be struck out, as it was a continuous offence. He objected to two summonses for one offence, as it was un-English. The Bench were of opinion that the case should be heard. Mr. Firth further said the Act said the information should state the name and occupation of the person charged and the offence, together with the time and place. No place was mentioned except a certain highway situate in a certain parish. There were a great many highways in the parish. The Bench considered the information was laid in the usual way. Mr. Firth contended the summons must fail through insufficient information. It was only right and fair that a man should know where the alleged offence was committed. The Bench decided to hear the defence in the Felthorpe case. Mr. H. L. Clark, of the Maid's Head Hotel, Norwich, said he had been used to travelling over the district in all kinds of vehicles. He thought there was no reliance to be placed on the estimates of persons as to speed. Mr. Firth said he should not put his

client into the witness box, as he was a magistrate, and it might be suggested that his brother magistrates leaned towards him. No gentleman on the Bench would venture to estimate the speed of a moving object, but when there was a motor-car in the case people went into the box and coolly estimated the speed at twenty to twenty-five miles an hour. The evidence of Mrs. Palmer was rather remarkable. She heard the horn blown, but she had to run one hundred yards to get to the children. At whatever speed the car was going she beat it, and pulled the children out of the road and the vehicle went by. The Bench fined the defendant £5 with costs, amounting to 14s. 6d.

Then the case against Mr. Hargreaves for driving at a greater speed than 12 miles an hour was taken. Police-constable Arthur Allen, of Horsford, said on Monday afternoon, October 22, at about twenty minutes to five, he was on duty on the Norwich Road, near the school, when his attention was called to the sounding of a horn. A second or two after he saw Mr. Hargreaves driving towards the village. The motor was running from 18 to 20 miles an hour. He had received orders from his inspector to report all cases of driving beyond fourteen miles an hour. If there had been anyone else driving he would have reported it. After other evidence Mr. Firth briefly addressed the Bench, and severely criticised the joint committee and the County Council in respect to dealing with the pace of motor-cars. He contended that Mr. Hargreaves ought to have received a warning, and he was positive that he would only have been too pleased to meet their views. The vindictive prosecution, instead of taking out one summons against the defendant, took out a second one; and yet the evidence showed that this offence took place twenty minutes after the first offence. The chairman said being chairman of that Bench he happened to be the only representative of the County Council present. They had done everything in their power to make the roads good for the benefit of horses, drivers of motor cars, and also cyclists, and they had received communications from all parts of the United Kingdom, from drivers of vehicles, motor cars, and bicycles, stating the good condition of the Norfolk roads. He was sure the County Council would be delighted to see as many motor cars as desired to come on their roads, so long as they kept to the rate as provided in the Locomotive Act and the bye-laws of the county. He hoped this would be the last case that would be brought before them. The magistrates were unanimous as to convicting, and the Chairman said he was sure the Joint Committee would be satisfied with the fine inflicted in the first case. They would inflict the nominal fine of 1s. and the costs, which amounted to 10s. 6d., making 11s. 6d. in all.

ON Tuesday Mr. E. Estcourt, of Lowestoft, answered to three summonses at the Rollesby Petty Sessions. The first was for driving at too great a speed, having regard to traffic on the highway, at 12 o'clock on the 19th ult.; the second was for a similar offence at 4.30 p.m. on the same day, and the third was for driving at a speed exceeding twelve miles an hour on the 25th ult. Mr. Staplee Firth defended. There was the usual array of witnesses to confirm the evidence of the policeman that the defendant was driving at the rate of eighteen miles an hour. All admitted, however, in cross-examination, that their estimate was but an estimate and not based on any tangible evidence. Mr. Firth pointed out to the Bench that no person could be charged with two offences arising out of one and the same occasion, and urged that the summonses were bad and ought to be amended or dismissed. But the Court declined to interfere, and after a lengthy hearing the second summons was dismissed. But for the first and third summonses Mr. Estcourt was fined £2 and costs in each case. In default of payment he was ordered to be imprisoned for one month in each case, the sentences to run concurrently.

REFUSING TO STOP.

At the Lichfield city police-court last week, Richard A. Hinckley, of Bird Street, Lichfield, was summoned for that he being the driver of a motor-tricycle on the 12th ult., failed to comply with the regulation of the bye-laws in that he did not cause it to stop and remain stationary when Robert Bullock, having charge of a restive horse, gave the signal for him to do so. Robert Bullock stated that on October 12th he was in charge of a horse and conveyance in Wade Street. He was by the police station and the horse's head was turned towards St. John Street. He knew Mr. Hinckley, but didn't see him until he was close to him. Mr. Hinckley was on a motor-tricycle and was going at about the rate of seven miles an hour. When Mr. Hinckley approached him he put up his hand as a signal to him to stop the motor-tricycle, as he had had two or three smashes. The animal in his conveyance did not like motor-cars. As Mr. Hinckley drew near his (witness's) horse took fright and bolted, and the defendant followed him up the street. His conveyance struck against the causeway and witness had great difficulty in managing the horse. The defendant, who was sworn, said that he was the proprietor of the motor-tricycle. On the 12th he saw the horse and trap standing outside the police station. He did not see the driver of the horse and trap put up his hand or make any sign. He thought it was the stupid way in which the horse was turned that caused it to run away. He did not see Bullock and he didn't think he gave him a fair chance of seeing him. He had no witness, but he should like to say that he went on and stopped at Mr. Lester's big gate. He stopped in full view of the driver and of the police station, and he did not think that was the act of a man conscious of having just broken the law. The Mayor said the Bench had carefully considered the case and they did not think it a serious one. The case would be dismissed on the payment of the costs, 9s. 6d.

THE ANNIVERSARY RUN TO SOUTH-SEA.

THE following is a list of entries for the Automobile Run to Southsea to-day (Saturday), so far as they have been received at the Automobile Club up to Wednesday night, the 7th inst. Automobilists are reminded that the run is open to all motor-car owners, whether they be members of the club or not.

VEHICLES ENTERED FOR THE RUN.

Official Number.	Name of Owner.	Name of Makers, &c.	Horse power of motor.	Motive Power.	Number of seats, including driver.
1	Messrs. Frank Butler ...	Messrs. Panhard & Levassor ...	6	Petroleum spirit.	4
2	W. M. Hodges ...	London Motor Co., Ltd.	6	ditto	—
3	W. T. Pretty ...	Mors Voiturette ...	4	ditto	3
4	G. St. M. Willoughby ...	New Orleans Voiturette ...	3	ditto	2
5	H. Austin ...	Wolseley Voiturette ...	3	ditto	2
6	T. B. Browne ...	Panhard & Levassor ...	6	ditto	4
7	Roger H. Fuller ...	De Dion Bouton Voiturette ...	3½	ditto	3
8	G. D. Barnes ...	Benz & Co. ...	9	ditto	4
9	S. R. Roget ...	Locomobile Co. of America	2	Steam ...	2
10	Earl Russell ...	The Haynes Apperson Co. ...	8	Petroleum spirit.	4
11	Noel B. Kenealy ...	Benz & Co. ...	5	ditto	4
12	H. R. Beckett ...	Benz & Co. ...	3	ditto	3
13	Motor Power Co., Ltd.	Gladiator Co. ...	3½	ditto	2
14	Motor Power Co., Ltd.	Clement-Panhard ...	4	ditto	2
15	Motor Power Co., Ltd.	Gladiator Co. ...	8	ditto	4
16	S. F. Edge ...	D. Napier & Sons ...	16	ditto	3
17	Chas. Jarrott ...	De Dion et Bouton ...	8	ditto	1
18	Robt. E. Phillips ...	Mors Voiturette ...	4	ditto	2
19	J. Ernest Hutton, J.P.	Ernest Hutton & Co., Ltd.	4½	ditto	2
20	J. Ernest Hutton, J.P.	Ernest Hutton & Co., Ltd.	4½	ditto	2
21	S. H. Pearce ...	D. Napier & Sons ...	8	ditto	4
22	Roger W. Wallace, Q.C.	Motor Mfg. Co., Ltd. ...	6	ditto	4
23	Mark Mayhew, L.C.C.	D. Napier & Sons ...	16	ditto	2
24	Alfred Harmsworth, J.P.	Daimler Co. ...	6	ditto	4
25	Sports Motor Car Co.	Sports Motor Car Co.	3½	ditto	2
26	Sports Motor Car Co.	Sports Motor Car Co.	3½	ditto	2
27	A. J. Wilson ...	Ariel Motor Co., Ltd. (Tricycle.)	2½	ditto	1
28	A. F. Halsey ...	Enfield Cycle Co. (Quadricycle.)	2½	ditto	2
29	Automobile Mfg. Co., Ltd.	De Dion (Quadricycle)	2½	ditto	2
30	Automobile Mfg. Co., Ltd.	Delahaye & Co. ...	10	ditto	4
31	Automobile Mfg. Co., Ltd.	Darracq & Co. ...	6	ditto	4
32	British Motor Traction Co., Ltd.	Panhard et Levassor ...	8	ditto	10
33	F. I. von Laer ...	Panhard et Levassor ...	6	ditto	5
34	Hon. C. S. Rolls ...	De Dion et Bouton (Tricycle)	2½	ditto	1
35	C. Friswell ...	Panhard et Levassor ...	12	ditto	4
36 to 47	Motor Car Co., Ltd.				
48	Arthur Mulliner ...	Daimler Motor Co., Ltd.	6	ditto	2
49	Claude A. P. Truman ...	Renault ...	2½	ditto	2
50	F. R. Simms ...	Motor Car Supply Co., Ltd.	3½	ditto	2
51	O. H. Bayldon ...	David J. Smith & Co.	4	Steam	2
52 to 58	Motor Mfg. Co., Ltd.	Motor Mfg. Co., Ltd.	6	Petroleum Spirit.	8
59	Motor Mfg. Co., Ltd.	Motor Mfg. Co.'s Voiturette	5	ditto	4
60	John H. Gretton ...	Motor Mfg. Co., Ltd. ...	6	ditto	4
61	M. H. Buckea ...	Motor Mfg. Co., Ltd. ...	6	ditto	4

Official Number.	Name of Owner.	Name of Owners, &c.	Horse power of motor.	Motive Power.	Number of seats including driver.
62	Messrs. Geo. Iden ...	Messrs. Motor Mfg. Co., Ltd. ...	6	ditto	4
63	Alfred Burgess ...	Motor Mfg. Co., Ltd. ...	6	ditto	4
64	H. du Cros, jun. ...	D. Napier & Sons, Ltd. ...	8	ditto	2
65	John D. Hill ...	Panhard & Levassor ...	6	ditto	4
66	A. H. Howard ...	Marshall & Co. ...	5	ditto	4
67	F. W. Rogers ...	Daimler Motor Co. ...	6	ditto	4
68	James Highfield ...	Burford, Van Toll & Co.	3	ditto	2
69	Burford, Van Toll & Co.	Burford, Van Toll & Co.	3	ditto	2
70	Burford, Van Toll & Co.	Burford, Van Toll & Co.	6	ditto	3
71	Burford, Van Toll & Co.	Burford, Van Toll & Co.	6	ditto	3
72	H. E. Zacharias ...	Roots & Venables ...	3	Oil	2
73	Daimler Motor Co., Ltd.	Daimler Motor Co., Ltd.	6	Petroleum Spirit	6
74	Daimler Motor Co., Ltd.	Daimler Motor Co., Ltd.	6	ditto	3
75	J. Paxton Pelly ...	The Locomobile Co. of America.	4	Steam	2
76	Oliver Stanton ...	Daimler Motor Co., Ltd.	12	Petroleum spirit.	4
77	Roland Browne ...	Peugeot ...	3½	ditto	2
78	Henry Edmunds ...	Daimler Motor Co., Ltd.	6	ditto	5
79	Fredk. W. Baily ...	De Dion et Bouton (Tricycle)	2½	ditto	1
80	Frank F. Wellington	Daimler Motor Co., Ltd.	6	ditto	6
81	Henry W. Short ...	Motor Mfg. Co., Ltd.	5½	ditto	9
82	C. K. Gregson ...	De Dion et Bouton ...	3½	ditto	3
83	E. de Wilton ...	Ariel Motor Co., Ltd.	2½	ditto	1
84	E. Manville ...	Daimler Motor Co., Ltd.	6	ditto	4
85	H. Bevan Swift ...	De Dion et Bouton (Tricycle)	2½	ditto	1
86	Edmund Dangerfield	Peugeot ...	3½	ditto	2
87	W. J. Peall ...	Daimler Motor Co., Ltd.	6	ditto	4
88	Fredk. S. Peall ...	Hewetson's, Ltd. ...	3	ditto	2
89	A. A. L. Hickman	Motor Mfg. Co., Ltd.	6	ditto	4

At the moment of going to press we received the following additional entries:—

90 N. E. Aldridge.	105 Locomobile Co.
91 J. Burns.	106 Lyon Sampson.
92 Roadway Autocar Co.	107 C. W. Brown.
93 J. W. Amps.	108 Daimler Co.
94 C. Cordingley.	109 T. E. Lawson.
95 W. O. Dewey.	110 T. B. Percy.
96 C. Whitehall Cooke, M.D.	111 J. W. Stocks.
97 C. G. Davis.	112 Alfred M. Grose.
98 T. Leslie Spencer.	113 H. S. A. Smith.
99 W. Bransdon.	114 Herbert Davy.
100 Mrs. H. G. Allen.	115 Harry Livesey.
101 F. H. Barker.	116 J. J. Mann.
102 W. M. Hodges.	117 H. Hicklin.
103	118 G. Standling.
104 Locomobile Co.	119 R. W. Mills.

THE Electric Vehicle Company of Great Britain, Ltd., has been registered, with a capital of £1,000, to manufacture, sell, let on hire, or otherwise deal with electric motors, cycles, and vehicles of all kinds.

THE directors of the Speedwell Motor-Car and Cycle Company, Ltd., of Aberdeen, and other gentlemen interested in the development of economical road haulage, met at Persley Quarries on Thursday last week to witness the practical working of the company's new motor lorry. The motive power is steam, the vehicle being equipped with a compound engine of 25 a.h.p. The engine is attached to a lorry of the ordinary kind, the gross weight of the vehicle being 2 tons 18 cwt. In the trials a second lorry was attached to the first, and both were loaded with granite setts, the first carrying a weight of 3 tons 16 cwt. and the second 2 tons 14 cwt., or 6 tons 10 cwt. in all. The car started at a good speed, and took the steep incline between the bridge and Woodside with great ease. The speed attained in the trial was between five and six miles an hour. Coke is employed as fuel.

THE Motor-Car Journal.

VOL. II.]

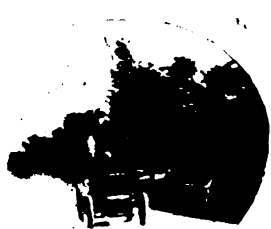
LONDON, SATURDAY, NOVEMBER 17, 1900.

[No. 89.

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COMMENTS.

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THE fourth anniversary trip in celebration of the passing of the Light Locomotive Act of 1896, was a really triumphal procession from London to Southsea. The inhabitants of Portsmouth and the popular seaside town certainly gave it a Royal welcome, and the official reception on the Town Hall steps will long be remembered by those who were early enough to participate therein. Contrasted with the entry into Brighton last year, the affair was magnificent. Instead of the newly-laid stones which were placed near the spot at which London-by-the-Sea was entered, we had a crowd of enthusiastic sightseers, and the efforts of the police to direct drivers and generally make the way pleasant deserve recognition. Altogether, the anniversary run of 1900 must be regarded as the best of the series that has hitherto taken place.]

The Annual Dinner.

ON Wednesday, the annual dinner of the Automobile Club was held at the Hotel Métropole, London. Mr. Roger Wallace presided, and after the loyal toasts had been honoured, proposed the toast of "The Navy, the Army, and the Reserve Forces," to which Sir Richard Harrison, Inspector-General of Fortifications, responded. Professor Boverton Redwood gave the toast of "The Houses of Parliament," and Mr. J. Cumming Macdonald, M.P. responded. The Rt. Hon. C. Stuart-Wortley, M.P., proposed "Success to Automobilm," and in replying Mr. J. Scott Montagu, M.P., gave some interesting figures with regard to the export of automobiles from France. In 1898 this was valued at £36,600; in 1899 at £99,720, and in the first nine months of 1900 at £249,000. Colonel R. E. Crompton had a good reception on rising to propose the health of "The Visitors," and gave some interesting particulars of his work in South Africa. A response by General Sir Thomas Gordon, and the toast of "The Chairman," proposed by the Hon. Cecil Duncombe, brought the proceedings to a close.

Heavy Motor Traffic in France.

As already mentioned in these columns, M. G. Forestier is to deliver an address on "Heavy Motor Traffic in France," before the members and friends of the Liverpool Self-Propelled Traffic Association on the 3rd prox. M. Forestier, in addition to his office as Engineer-in-Chief to the Department of Roads and Bridges under the French Government, is president of the Technical Commission which conducted the heavy motor trials at the recent International Exhibition, and of the Commission of Organisation for various trials arranged by the Automobile Club of France. He was also president of the International Congress on Automobilm held in Paris last July. The visit to Liverpool of one of the scientific heads of the French Automobile Club, the name of which has become famous

throughout the world, is a distinct compliment to and recognition of the position which Liverpool occupies in regard to heavy motor traffic in this country. M. Forestier has been at great pains to secure interesting lantern slides and special cinematograph films, in order to convey a true impression of what has been accomplished in France, and his address should prove particularly interesting.

The Electrical Trials.

WE understand that the driver of Mr. Hart's La Toujour Contente in the electrical trials caught such a chill on the first day that he was unable to be on the car at the appointed time on the second day of the trial. By dint of much doctoring he subsequently recovered and would have driven the vehicle, but the judges adhered rigidly to the rules, and could not allow the two trips on the same day which Mr. Hart suggested at a later hour. This unfortunate circumstance must have been very disappointing to Mr. Hart, whose enthusiasm for electrical vehicles is well known. Anyhow, he had the satisfaction of knowing that the "Powerful" distinguished itself on Saturday.

A Motor-Vehicle Racing Track.

THE question of a motor-vehicle racing track, brought forward in this journal some months ago, is still attracting attention. Mr. Roger H. Fuller remarks that the necessary capital would no doubt be forthcoming if the necessary park or enclosure could be found within twenty miles of London, on a dry soil where road-making would not be too costly. If any body of men would care to take up this sporting venture, become the founders of the Automobile Derby, and support the enterprise with about £10,000, he feels sure they would soon recoup the money necessary for the outlay. There is such a park for sale or lease within a few miles of Leatherhead, with an area of about 300 acres; but Mr. Fuller doubts if that is large enough, as the track or road should not be less than two miles round. This park is on dry soil, undulating, and free from any restrictions.

The Nottingham and District Automobile Club.

THE first general meeting of this club took place on Tuesday last week, at the Black Boy Hotel, Nottingham. Mr. E. W. Wells was in the chair. The hon. secretary, Mr. A. R. Atkey, read a letter from Mr. R. M. Knowles, J.P., of Colston Bassett Hall, accepting office as first president of the club. The suggested code of rules drafted by a sub-committee were considered, amended, and adopted. A committee of management was then elected by ballot, the following gentlemen being selected:—Messrs. W. D. Wells, H. Rimington, G. Rimington, S. Harvey, M. Ross Browne, R. Cripps, R. Harbidge, and P. Huskinson. The hon. secretary reported that eleven additional names had been added to the list of members since the preliminary meeting in October, bringing the total membership up to twenty-seven, all actual owners and users of private motor-vehicles. It was resolved to commemorate the formation of the

club by a run to the Red Lodge, on Thursday, the 15th inst. It was also decided to take steps in order to obtain a reduction of the excessive toll levied on motor-cars crossing Gunthorpe Bridge. A vote of thanks to the chairman concluded the meeting.

Automobile Fete in Paris.

A GREAT fete, organised by the Automobile Club of France, took place in the exhibition grounds on the afternoon and evening of Thursday, last week. Over three hundred carriages, profusely decorated with flowers and banners, participated in the parade, and the scene quite resembled the battles of flowers in the Bois de Boulogne, since the occupants, consisting mostly of well-known sportsmen and their families, pelted each other enthusiastically. In the evening the fete was resumed, all the palaces being illuminated. A procession of electric carriages, decorated with chrysanthemums, produced a splendid effect on the Champ de Mars, while torchlight processions circulated in other parts of the grounds. Over 300 vehicles took part, and all the leading automobilists of Paris were present.

A Strange Case in West London.

At the West London Police-court, on Tuesday, Mr. G. Sparks, of Strone Villa, Bedford, was summoned for travelling from Gunnersbury to Hammersmith Broadway at a greater speed than was reasonable and proper, having regard to the traffic on the highway, on Sunday, October 28th. In giving evidence Police-constable Holker said he followed the defendant on a bicycle, and that he was going at sixteen miles an hour. In cross-examination the constable admitted there was no interference with the traffic, and no complaint had been made. The magistrate, Mr. Lane, Q.C., referred to the Act, and stated that under the summons the case had broken down, but that he proposed to inflict a fine under another clause of the rules, which said that the car should not travel more than twelve miles an hour. The magistrate said that he had power to do this, although defendant was not summoned under that clause. A long argument took place between Mr. Staplee Firth, who was defending, and the magistrate, and the latter was ultimately convinced he could not convict. He then asked Mr. Firth to consent to amend the summons by adding a fresh charge. Mr. Firth pointed out that this was contrary to English justice and law, and that he should not consent. The magistrate thereupon said he should be bound to dismiss the present case, but he should tell the police to take out another summons. Mr. Firth observed that he considered that was a question for the prosecution and not for the Court. The magistrate seemed to appreciate the position, and calling up the Inspector of the Police asked him whether he desired to proceed as suggested. The Inspector said he certainly should so proceed. And thus the game goes on.

Held Over.

IN consequence of the very full reports we are giving of the Automobile Club's run to Southsea, several of the usual features of the *Journal* have had to be held over. These include our Continental Notes, some special correspondence and articles on new cars. In addition, we have been compelled to leave till next week a report of the Automobile Club's dinner on Wednesday. This we particularly regret, owing to the excellent advice tendered to motorists by the Rt. Hon. C. Stuart-Wortley, M.P., and the most important speech of Colonel Crompton. Still this week's issue will be found full of interest to all who follow the doings of the automobile world.

It is reported on good authority, states the *Horseless Age*, that Mr. F. W. Tousey, an American, who has been living abroad for some time, and who was one of the founder members of the Automobile Club of Great Britain, is to take up his residence in New York again, and become the active secretary of the Automobile Club of America.

CORRESPONDENCE.

TARE LIMIT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With respect to the arguments advanced by The Mann Steam Cart and Wagon Company, Limited, Leeds, in opposition to an increase in tare over and above that sanctioned by the Locomotive on Highways Act, 1896, it would be interesting if Messrs. Mann would state whether they have yet built a vehicle weighing less than three tons.

Yours truly,

E. SHRAPNEL SMITH,

Liverpool, Nov. 14th, 1900.

Hon. Sec., L.S.P.T.A.

A 1,000-MILE NON-STOP ABSOLUTE TRIAL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have pleasure in informing you that the Société Décauville, of Paris, has accepted a challenge I issued to them to run a Décauville car for 1,000 miles without stopping for any purpose whatever. Early this year I advocated the inauguration of a series of records of "runs of non-stop absolute," but deprecated the fact that owing to my business affairs keeping me so much in town, I was unable to record any initial non-stop run of any importance. At that period the non-stop record was about twenty miles, since when, of course, this distance has been very largely exceeded in a good many cases.

Now, however, although I shall be unable to drive a car myself for such a long distance as 1,000 miles, I think there is every prospect of an important non-stop record being made. In a letter to me, dated the 5th inst., accepting my challenge, the Société Décauville engage to run one of their 5-h.p. voituresses and also one of their larger 8-h.p. cars for 1,000 miles without the cars stopping for any purpose whatever, pneumatic tire punctures and bursts excepted; and in the improbable event of tire accidents, even if a car be forced to stop for a minute or two, the motor will be continually at work, which is sufficient proof that were it not for the pneumatic tires the car need never have stopped at all. The Société Décauville, however, stipulate that the cars are to run at any speed at the option of the *mécaniciens* who are driving them, and they agree that any stoppage for any other reason than that of tire accidents will constitute their defeat. They inform me that M. Michelin has agreed to furnish them with two very special sets of tires, so that even tire troubles are highly improbable, and that they hope, therefore, to complete the 1,000 miles on both cars without any stoppage at all. They reserve the right to change drivers at any time whilst the cars are running, also to fill up with petrol or water as they think fit under the same conditions.

It is with pleasure, therefore, that I am able to inform you and your readers that everything has now been arranged, and that the cars will commence their 1,000-mile journey at 6 o'clock in the morning on Wednesday next, the 21st inst., on the Crystal Palace track, and will run day and night until 1,000 miles have been covered.

Yours truly,

R. MOFFAT FORD.

London, W.C., November 14th, 1900.

WHY NOT AUGUST 14TH?

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Why should we choose the middle of the worst month of the year to celebrate the emancipation of the motor-car? True, last Saturday was a glorious day for the time of year, but darkness comes on early in November, and the weather is certain to be cold.

The "Light Locomotives Act," which gave us our freedom, passed its final stages on August 14th, 1896, but came into active operation on November 14th. Surely it would be a far more acceptable date—August 14th—for celebration, the best month of summer, long days, warm weather, etc. Whatever club organises the next parade, let it be on August 14th, 1901.

Yours truly,

H. HEWITT GRIFFIN.

Southsea, November 10th, 1900.

P.S.—This will give Southsea caterers nine months to study cookery for the next "banquet."

Anniversary Run to Southsea.



TAKING time by the forelock, the Automobile Club arranged that the annual tour, to celebrate the coming into operation of the Light Locomotives Act on November 14th, 1896, should commence on the 10th, and accordingly, on Saturday last, the now-familiar "meet" took place. Fortunately, the dulness and the dampness of the earlier part of the week had passed away, and the morning opened brightly, giving friendly promise of a pleasant day.

Big Ben was striking nine as we arrived on the scene, and already close upon fifty vehicles were *en evidence*. The first business was that of searching out the car on which we were to make the trip. This done we had a few moments in which to take a general survey of the gathering. Cars and cycles were arriving in rapid succession, and ere the start was made, the long line of vehicles extended far down the Embankment. It is impossible for us to mention all the many

No. 24. Two or three cars turned stupid at the very beginning, but after a brief delay they were coaxed into good behaviour, and in less than a quarter of an hour Horse Guards Avenue had resumed its normal quietude. Out of the 149 vehicles entered, 103 bearing official numbers started. Seven others without numbers also joined in the procession, and many fell in *en route*.

WITH THE PRESS GANG.

BY PHANOMEN.

HOW quickly plans can be frustrated was clearly indicated to me on Saturday last. I have had many pleasant trips on petrol cars, but never have I yet had a long excursion on a steam vehicle. Some months ago a colleague was induced to try his chances with a car of this kind,



THE START FROM WHITEHALL.

Photo by]

[Argent Archer.

types of cars which lined up at the start. It may be stated, however, that for the first time on record all three systems of automobiles were represented—petrol, steam, and electricity. While the bulk of the cars present were familiar enough to those in close touch with the automobile movement, there were several which were seen by the public for the first time. Among these were the Darracq voiturette with its attractive *tonneau* body, and the Daimler voiturette, brief descriptions of both of which were given last week. The new 5 h.p. Motor Manufacturing Company's voiturette also attracted much attention. Cars of English, French, Belgian, German, and American construction were all represented, and it may be pointed out that just, as in the first run in 1896, an American-built petrol vehicle was present. This was No. 10, an 8 h.p. car entered and driven by Earl Russell. The builders of the vehicle are the Haynes-Apperson Company, Kokomo, Ind., the feature being the employment of a balance double-cylinder engine.

In our last issue we gave the names of 119 entries. When the list closed the total had swelled to no less than 149. Punctually at 9.30 a.m. the starting signal was given. Mr. C. Johnson, the secretary of the Club, leading the way through a double line of spectators on Mr. Alfred Harmsworth's Panhard

and although he was much commiserated with as to the risks he was running in thus accepting, as he put it, "a seat on a boiler," both he and the car returned home safe and sound from a sixty mile spin. In view of his success and a desire for an experience of my own on a steam car, it was a seat on one of the vehicles entered by the Locomobile Company of America that I selected out of the many offered me for the run to Southsea. Whatever my choice was, the fates, on this occasion at least, willed otherwise. To begin with, our car, a two-seater bearing the No. 104, was located towards the tail-end of the procession, but as we turned into Whitehall the driver assured me that once we got a chance we should be in the first flight. Having made myself comfortable, I began to consider the position generally. Here I was on a steam vehicle for the first time. It certainly was not a petrol car, for we glided along so silently and without vibration—altogether a new experience. Looking round I noticed that we had increased our speed. "How has he managed that?" thought I. "I did not see him touch any levers, nor did I feel any change in the gear." As we approached the end of Whitehall and turned into Great George Street, Westminster, the driver endeavoured to enlighten me on the subject, and by the time I reached Portsmouth my knowledge of the methods of the

working of such vehicles would no doubt have been increased. But, no; it was not to be. We had not gone far along Birdcage Walk when—crash! "Whatever in the name of fortune is that?" I cried, as terrible fears of bursting boilers and other dreadful things flashed through my mind. As quickly as he could the driver shut off steam and brought the car to a stand in the middle of the road. If there be anyone who thinks "Phänomen" is slow he should have seen him dismount from that car! Of course the driver quickly followed suit, and the cause of our stoppage was soon revealed and my fears allayed. The trouble lay in the driving chain, which had mounted the sprockets, the strain causing the fracture of a stay. Not being prepared for such an unusual eventuality, I looked at the driver and the driver looked at me, and in addition said "things." It was clear the car could not proceed, so what to do next was the point to be decided. While we had been engaged in getting the car to the side of the road the other vehicles had been speeding along, so that when my stranded position came to be considered there was not another car in sight. Deciding that the only thing to do was to get down to Guildford by train as quickly as possible, in the hopes of picking up the motor-cars, I was about to call a hay-motor cab, when, lo! a cluster of straggling cars bearing numbers hove in sight. Two ran by with a full load, but on the third, No. 54, a Motor Manufacturing Company's wagonette, driven by Mr. Sharp, a vacant seat was found, and thus once

Jarrott flashed by on some new and startling contrivance which led us to wonder if he had obtained a rival to Pennington's wonderful machine. Pitying Griffin on his lofty position on the Panhard omnibus, No. 32, as we passed it by we in turn were passed by the huge Krieger electrical car named the Powerful, which took part in the trials of electrical vehicles in the Chislehurst district last week. Its quiet running, despite its cumbersome appearance, met with commendation on the part of my companions, and all wondered whether we should see the car later on in the day in Southsea.

A call from the driver caused us all to look forward, where to our surprise we saw a huge cluster of cars. Not knowing of the contemplated stop this side of Kingston to enable the vehicles to proceed together through the ancient borough, we wondered what was the matter. Fears once more allayed—I fancy my steam car incident must have made me nervous—we all dismounted to inspect Jarrott's latest, which proved to be a single-seated skeleton car fitted with two 5 h.p. De Dion motors. It had the regulation inclined wheel steering, a two-speed gear, and a huge petrol tank, able to hold about twelve gallons. "Speed," says Jarrott, solemnly, in answer to our question, "oh anything from zero up to —." No, I will not repeat what he said, but will let it go as up to the legal limit of the year 2000!

Once again we were on the move, but ere we entered



SNAPSHOTS ON PUTNEY BRIDGE.

more the vista of a pleasurable day's outing opened itself out before me.

When comfortably ensconced in my new abode, I found myself in congenial company, for out of the other four passengers three were pressmen. Naturally, the cause of the breakdown was the subject of conversation for the next mile or so. Large crowds greeted our passage through Chelsea, and, leaving behind us that part of the metropolis known as the World's End, we reached Eelbrook Common, where Mr. F. W. Baily was seen standing by Mr. Barnes' 9 h.p. Benz car (No. 8). Further on we found Mr. Edmunds, who was accompanied by Mr. Staplee Firth, enjoying (?) the first of several little tussles with his car, No. 78. Over Putney Bridge, we were soon at the foot of Putney Hill, the first ascent of the trip. The bulk of the powerful and heavy cars were, of course, some miles in front, so, perhaps, it does not stand for much when I state that no car passed us on the way up the hill. On the other hand, we gave several little cars the go-by, including No. 137, a Humber voiturette, which required assistance at the hands of the driver. Wimbledon Common reached we felt that we were at last in the open country, and although beautifully fine there was a cold nip in the air that made those who were well protected feel content, others to regret that they had not made better provision against the cold. Reaching Kingston Vale, and passing on the way, three cars stopped for some reason or another at the roadside, we looked out for Pennington's war torpedo car which has lately been careering at a wonderful speed in Richmond Park. It was, however, not to be seen, but instead

Kingston Messrs. Brown and Banks ran up to our rear on the Brown-Whitney steam car. A loud noise indicated that "something had gone wrong with the works," necessitating a pull up at the side of the road, and we did not see the car again. Through Kingston and Surbiton we ran, and then we were at the famous Angel at Ditton Corner. No time to linger there as we had often done on Sundays during the past summer; we pushed on and felt sorry for the driver of No. 29, a Delahaye car, the internals of which he, on his back, was busy studying.

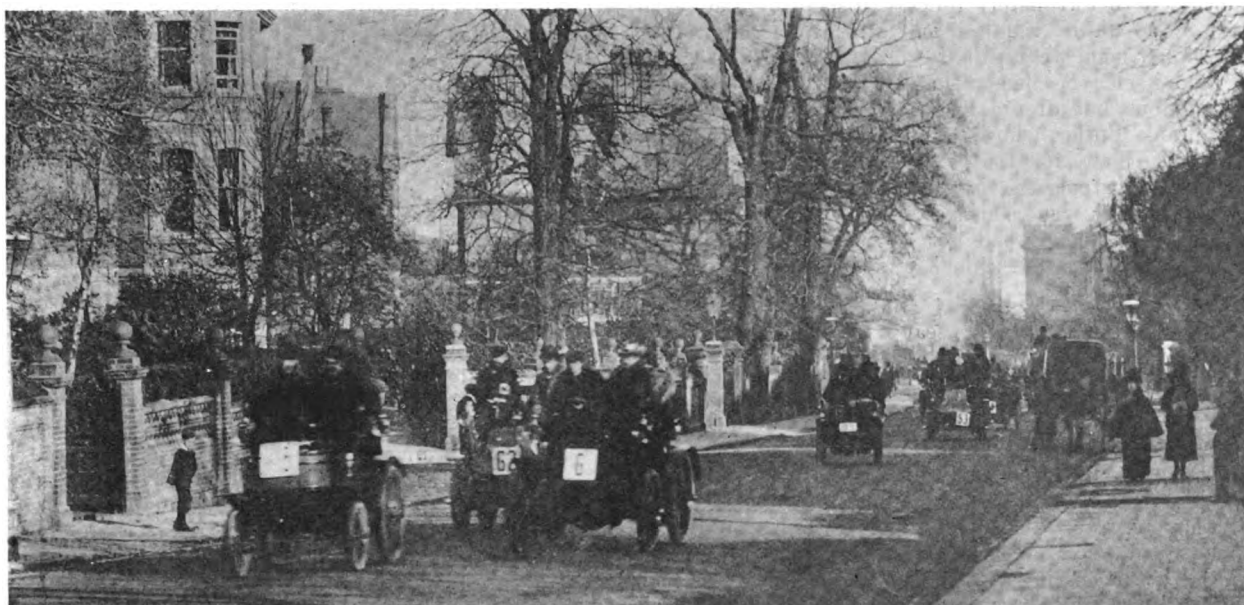
So far our car had been travelling, if not fast, at least steadily, but our contented state of mind was quickly dispelled, as the driver of a car at the rear drew our attention to the fact that we were losing our cooling water as fast as was possible. A stop was naturally necessary, and to the driver's dismay, as well as our own, we found that a screw plug had disappeared from the water-circulating pipe. Although it is to be hoped that the freemasonry of the motor-car will never cease to exist, it is always pleasant to record an instance of good fellowship among motorists,

"For a friend in need
Is a friend indeed."

Had it not been for the kindness of Mr. C. W. Brown, who most obligingly took out the plug of the petrol tank of his Benz car, a long stoppage stared us in the face. Mr. Brown was only going as far as Godalming, and substituted a cork for the plug he had lent us, and which, by a strange coincidence, was almost the very

counterpart of the one we had lost. The leakage stopped, our delay was not at an end, for it was, of course, necessary to replenish the water tank. However, we pushed along and turned into the yard of the White Lion Hotel at Cobham, where the necessary liquid was taken aboard. By this time twelve o'clock had come and gone, and as we had yet a good many miles to travel ere Godalming and lunch was reached, some of our party began to wonder at the chances of replenishing their own fuel stores. The motor was once more ron-roning merrily as we began the ascent of Pain's Hill, where Mr. Edmund's car, No. 78,

spreads its wide, watery expanse as of old, up to the very margin of the road, opposite the Hut. The sight of Wisley Pond, which on Ordnance maps is called "Boldermere," led one of our party to re-tell an oft-told story of a trick played on a German band, who were rowed to an island on the lake and induced to play to an imaginary German resident of great wealth, the rowers meanwhile stealthily and quietly rowing away, leaving the hapless members of the band stranded on the island. The ball thus set rolling, quips and jokes flew quickly, the journey through Ripley, the Mecca of the cyclist, on to Guildford,



TWO SNAPSHOTS OF THE CARS MOUNTING PUTNEY HILL.

Photos by

(Curzon, Robey & Co.)

passed us, Mr. Firth enlivening the proceedings by blowing a horn.

From the hill-top it is a succession of ups and downs across Wisley Common to Wisley Hut, as the roadside inn is named, although its hut-like character of old has been altered in recent years to something more modern and pretentious. The great poplar, too, that used to stand beside the house was blown down in a winter's storm some two years ago, and Wisley scarce looks its old self now it is gone. But Wisley Pond is inalienable, and

seemingly occupying but a very few minutes. On the way down we had passed several cars undergoing inspection at the road side, but shortly before reaching the ancient town two were seen stranded—Mr. Roger Fuller's De Dion voiturette and a Daimler voiturette, No. 108, a punctured tire being the cause of the latter's stoppage. Guildford itself is full of interest, but while its long, steep High Street is probably the most picturesque in England, the roadway of it is most uncomfortable, it being paved with granite setts of the roughest description.

It was almost on the point of one o'clock as a police-constable directed us into Quarry Street, which, skirting the Norman Castle, built in 1150, leads to the village of Shalford, where we had a passing glance at the ancient stocks. Coming up with No. 55, a sister car to our own, we found it minus one of the tires and with a damaged spoke, owing to another car having collided with it; the Panhard omnibus, No. 32, and a Benz car, No. 117, were also seen at the roadside ere Godalming, formerly known as Godliman, was reached, the time marked on one card at the inward control being 1.21 p.m. A rush for the King's Arms Hotel was next made, and our dismal anticipations of "no lunch" were fortunately quickly dispelled. Late as it was we were by no means the last, and after attending to the wants of the inner man we repaired to the yard, where a busy scene presented itself. A Clement-Panhard voiturette was being a little obstreperous, but after a little coaxing was persuaded to start. Mr. Frank Butler, whose car bore the legend No. 1, was by no means the first, for the clock was striking two as it arrived. Mr. Butler took the bad behaviour of his car in good part, and found at least some consolation therein in being able to assure the policeman that he had not exceeded the legal limit. He did not stop for lunch, but after having the wheels of his car washed down—had he an eye on Mr. Harmsworth's cup?—he set out on the second and more tedious half of the journey.

It was not till 2.30 p.m. that the signal "all aboard" was given on our car, No. 54, and we passed slowly out of Godalming for Milford. Lunch appeared to have put us all in a more contented state of mind, and even the motor seemed to be pulling strongly as we had an advance intimation, by rising ground, of the coming steep Hindhead. No. 135, a Locomobile steam car, was seen at the roadside, and a little further on we saw No. 103, one of the London Motor Company's cars, similarly placed. As we began the ascent of what may be termed the introduction to the Hindhead, a car bearing a number was seen coming down the hill with its nose pointed towards London. As it passed us we just managed to discern that it was No. 29, the Rev. Arundel Whatton's 8 h.p. Canello Durkopp.

While wondering what meant this change of direction, we overhauled No. 113, a Locomobile, the driver of which was wrestling with the tires. The country now began to open out, and the fact that we were getting higher and higher was intimated to us by the increasing keenness of the air. At last we were at the foot of the long climb of the Hindhead, which is 895ft. above the sea-level. Bidlake was there to time us, and as we passed him we heard him call 2h. 55min. 35sec. to his assistant. And now we were climbing. Fortunately the road was in good condition, so for the bulk of the way we travelled on second speed. The higher we got the more the view opened out. Around us on either side we could see miles and miles of wooded level country, behind us was a part of the hill, but in front there was still further climbing to be done. Only one car accompanied us in the climb, and that was Mr. Standley's two-seated International, which appeared to be doing well. On, on we went until we reached the romantic spot known as the Devil's Punch Bowl. Here we had an example of nature's handiwork. On the left rises abruptly Gibbet Hill, and on the right there is the great Bowl—a huge yawning gulf in the mountain range, which made us shiver at the thought of what would happen were some careless driver to fail to safely negotiate the route at night. The road at this point took us round at least one half of the circumference of the Bowl. As we skimmed along we came across Mr. Butler and Mr. Simms busy—either in admiring the scenery or arguing with the troublesome Panhard. It must have been the latter, for as we ran by Mr. Simms took off his overcoat and generally put on an air of meaning business. In front of us we saw the little flag which indicated the timekeeper at the top of the hill, the time recorded for our car being 3h. 22min. 50sec. Thus we had taken 27min. 15sec. for the climb; it should be remembered, however, that No. 54 is a waggonette, capable of seating eight or ten passengers, so that after all we did not do so badly.

After such a climb we surely deserved some recompense, and we got it in the shape of a glorious run down towards Liphook. At the Royal Huts, at the top of the Hindhead, we were in what may be termed a literary country. On our left we ran by Dr.

Conan Doyle's house, while other residences of novelists were pointed out to us. Hitherto we had nothing to complain of as regards the state of the roads; true, here and there they had been wet and heavy, but this had generally been under shaded parts. However, soon after entering the county of Hampshire, "Breakers ahead!" was the cry, and looking forward we saw the full width of the road for twenty or thirty yards covered with a thick layer of loose stones. Fortunately, these proved not to be of the sharp-cornered order, so we got through safely, only to tackle another stretch of a similar kind. Mentally hoping that we were not going to have a repetition of these stony patches, we pushed on through Liphook, where the inhabitants had all turned out to greet us. In the climb up the Hindhead one of our passengers had preferred forty winks to an appreciation of his surroundings, while now another one was in the land of nod. We wakened him up, however, with a start as we saw three policemen with arms uplifted in the road in front of us. "What is the matter now?" we exclaimed. We were going at eleven miles an hour at the time, and wondered what the men wanted. On our pulling up, one of the constables kindly explained that the "gentleman in the carriage in front" was going to turn at the next corner! He was at least 200 yards ahead, and going faster than we were; but the sanctity of the local bigwig is so great in the eyes of the man in blue, that even a motor-car has to be pulled up. It was 4.30 as we made the sharp descent into the old town of Petersfield. The sun was going down, and the temperature was falling, so that there was every likelihood of the final portion of the run having to be made in the dark. At Petersfield, an old agricultural town, with the usual style of Hampshire brewery as a prominent landmark, a number of small boys pointed out the turning. A quick run brought us to the foot of Butser Hill, quite as steep, if not as long, as the Hindhead. Not for the purpose of easing the car, but with a view of getting a little warmth-giving exercise, we all, including the driver, dismounted. As we slowly mounted the hill, some of us tried our hands at steering the car, and wondered how long it would be ere we would be driving our own voiturettes. Darkness had now come over us, so we lit up the side lamps and began to estimate the time of our arrival at Southsea. At Horndean, a pretty little village, we were told to bear to the right, and soon we were travelling at a good speed through the extensive Forest of Bere. Two bright lights at the rear, and the toot-toot of a horn, indicated the approach of a car, and as it passed us in the gloom we saw that it was the "Powerful" electrical car still going strong. Subsequent inquiries elicited the fact that, except for an hour's recharging at Guildford, the car made the 74-mile trip on a single charge of the battery—a commendable performance.

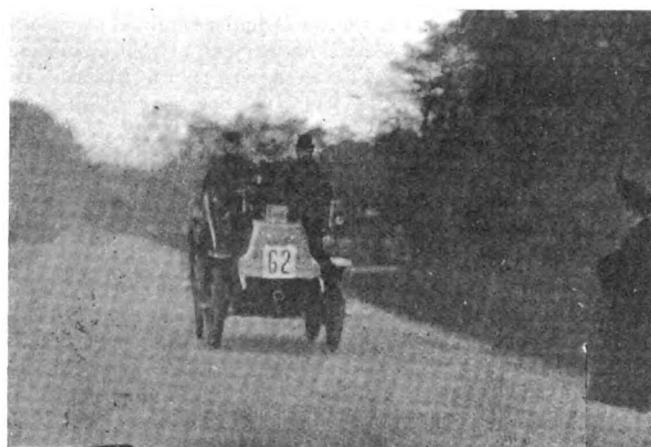
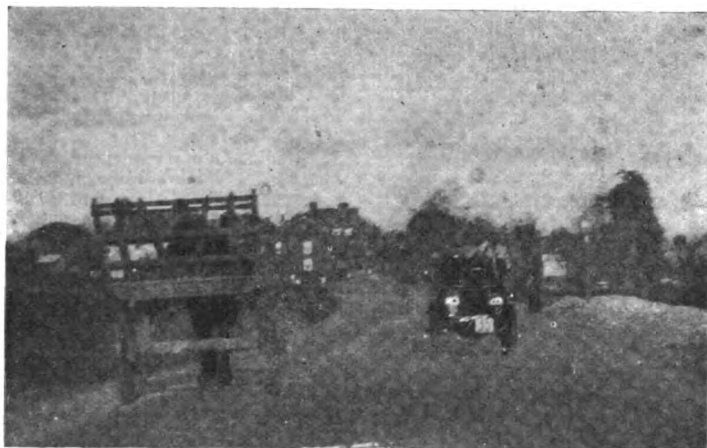
On through Waterloo and Purbrook we went, but it was too dark for us to note the surroundings. In a few minutes thousands of lights were spread out before us. "There is Portsmouth," said one of the party who had made the trip before. Beyond the lights nothing was visible, and we were for a moment inclined to envy those who had reached Portsdown Hill by daylight, and were thus able to enjoy the splendid view. However, it was no use regretting, so we contented ourselves with the expectation of a speedy termination of our long ride. At Portsdown someone ran out with a lamp to inquire our number, and with a useful warning, "Go carefully," he left us to ourselves once more. Down the hill we went, safely negotiating the sharp turn in the road, and soon found ourselves at Cosham. The appearance of tramway lines intimated that we were nearing our journey's end, a fact which the engine seemed to appreciate, for its behaviour was most exemplary. As we entered Portsmouth the crowded state of the streets indicated that the cars had met with a hearty reception. Here and there one or two urged us to "hurry up," but we were going at the full legal limit, and did not wish to fall into the clutches of the police so near our destination. It was 6.20 p.m. as we reached the Town Hall, and as we had missed the Mayor's reception, and the dispersal of the cars on Southsea Common, we made our halt at this point. Except for the incidents in the first twenty miles our trip was an uneventful one, and if we had not made a fast run we had at least the experience of a

steady-going car—one that could be relied upon to do a long journey with a minimum of trouble.

THE CARS AT GODALMING.

SATURDAY morning dawned fine and bright, giving prospect of a good muster of cars for the run, the first arrivals of which were timed by a wire from the indefatigable secretary for 11.45. So the stroke of the half-hour found us in Godalming *en route* for the inward control at the Old Station, where the sound of a rapidly nearing horn led us to believe we were late. The early arrivals, however, proved to be a De Dion tricycle and a Benz car, devoid of numbers, that had preceded the officially numbered cars. A few minutes before a quarter to twelve, the

in the direction of the outward control, where Messrs. King and Ponsford were to officiate. At 1.5 all was ready there, but as we started off along the Portsmouth road to distribute a few direction flags we overtook No. 13 beyond the bridge, having passed before the control was ready. No. 30 had been left repairing a puncture at the railway bridge, in preparation for its excellent performance on Hindhead. Before our flagging duties were quite completed Mr. Mayhew's 16 h.p. Napier passed us at a good pace, and we were not surprised to subsequently hear outstripped the Hindhead timekeepers. Ignition troubles allowed us a leisurely view of the passing of several more of the faster cars, and brought us to the top of the hill just in time for the dying struggles of the cinematograph that had already immortalised the efforts of the first dozen cars.



SOME OF THE CARS ARRIVING AT PORTSDOWN HILL.

timekeepers, Messrs. Montgomery and Marriott, arrived, and a wait of a quarter of an hour ensued, broken by the sound of Mr. Edge's horn as his 16 h.p. Napier dashed up, the first in, at twelve o'clock. Two tricycles were close behind, and after a minute or two's interval, Mr. Friswell's 12 h.p. Panhard appeared, followed by a pair of tricycles that could not be persuaded to stop for their cards. This would not do, so the arm of the law was invoked in the shape of a stalwart policeman, whose assistance was much appreciated by the timekeepers. A Decauville car and another tricycle followed, with a 6 h.p. New Orleans at 12.10. Then came an Ariel tricycle, and in rapid succession No. 119, No. 5, a Wolseley voiturette, and No. 145. Mr. Gregson followed, pursued by Mr. Barnes's 9 h.p. Benz, and at 12.20 Mr. Johnson hailed us from the seat of the 6 h.p. Panhard, on which he had come down. Next arrived Mr. Estcourt and a De Dion voiturette, when the time warned us to turn our wheels

THE ARRIVAL AT PORTSDOWN, PORTSMOUTH, AND SOUTHSEA.

THE foregoing descriptions of the run down to Southsea will no doubt be read with interest. It remains to be recorded how the cars arrived at Portsdown Hill and subsequently made their triumphant entry into Portsmouth and Southsea. Mr. Mayhew was the first to put in an appearance, he turning up on his 16 h.p. Napier (No. 23) at 2.35. Two or three minutes later Mr. S. F. Edge (No. 16) arrived, closely followed by Mr. C. Jarrott on his 10 h.p. "Wonder," and Mr. Friswell on his 12 h.p. Panhard. Then came Mr. Cecil Edge on a 5 h.p. tricycle, and at 3 p.m. Stocks and Crowdy, on Ariel tricycles, appeared. The cars now began to come in rapidly one after another; the Darracq voiturette, with Mr. Farman driving, at

3.5; a Decauville car, Moffatt Ford, next; A. J. Wilson, on a tricycle; Mr. Dennis on a tricycle, with trailer attached; Mr. Demey and Mr. Grose, both pedalling their tricycles hard up the hill, and the latter with his near side tire down. Mr. Barnes, on a double-cylinder Benz, arrived at 3.18; two minutes afterwards and then came Mr. Askell on one of the new two-cylinder New Orleans cars. At half-past three Mr. Hargreaves, with the Hon. C. S. Rolls as passenger, arrived, followed by a Locomobile steam car. Five minutes later the second Decauville arrived, and Mr. Iden on one of the Motor Manufacturing cars turned up at 3.40. Mr. Estcourt arrived just afterwards, followed by Mr. Mills on a De Dion voiturette, Mr. R. Brown on a Peugeot, Mr. Hodges on one of the London Motor Company's cars, Mr. Bickford, and Mr. Lewis on one of the new Daimler voiturettes, Mr. Lawson on a Pieper voiturette; a Motor Manufacturing Company's phaeton, Ide driving; Mr. W. Crooke, Mr. Van Toll, each on New Orleans cars; Mr. Edgerton on a steam car, Mr. Rogerson a Daimler, Mr. Barker on a Peugeot, Mr. Mannille on a Daimler, Earl Russell on an American—the Haynes-Apperson—car, steaming badly; all following each other at short intervals. A few minutes after four came Dr. Lehwess, on an Orient Express, then a tricycle; Mr. Swift, on a tricycle; Mr. Howard, on a Marshall car, travelling strong up the hill, and another Decauville. After a short interval Mr. Austin appeared on his Wolseley voiturette, having been delayed by tire troubles; Mr. Percy, on a De Dion voiturette; Mr. Livesey, on a Marshall; Mr. Roger Wallace, on a Motor Manufacturing Company's phaeton; another of the Motor-Car Company's cars; then Mr. A. Burgess, on one of his company's cars; Mr. Du Cros, jun., on an 8 h.p. Napier, followed by Mr. Mann, on a 12 h.p. Daimler, etc., etc., all before 4.30.

A punctual start was made for Portsmouth, where a committee had been appointed to receive the vehicles on their entry into the town. The chief constable (Mr. Rickett) piloted the cars through the streets, and the route was through some of the principal thoroughfares to Southsea Common, the speed being limited to eight miles an hour. Crowds had assembled to witness the passage of the procession and its arrival at its destination. Mr. A. C. Harnsworth had offered a silver cup for the car accomplishing the journey in the cleanest condition; the vehicles were judged as they approached the Town Hall by a committee, among whom were the Mayor (Mr. Alderman A. L. Emanuel) and the ex-Mayor (Mr. Harold Pink).

Of the 103 numbered vehicles which started all but seventeen are known to have arrived at Southsea on Saturday night. As to the missing cars, it must not be supposed that they all broke down. To our knowledge the owners of two or three bearing numbers only started out with the intention of going part of the way, while a few, arriving late, made their way as modestly and quietly as they could to the garage. As a collective run, the anniversary run to Southsea must therefore be written down a great success.

THE HINDHEAD CLIMB.

THE appended table shows the times occupied by the various cars in making the three-mile ascent of the Hindhead on Saturday last:—

Official No. No.	Name.	Time. m. s.	Official No. No.	Name.	Time. m. s.
1... 23	Mark Mayhew...	7 16	14... 112	A. M. Grose	13 1
2... 127	C. Edge	7 17	15... 105	Locomobile Co. of America	13 48
3... 17	C. Jarrott...	8 20	16... 8	G. D. Barnes	14 7
4... 16	S. F. Edge	8 44	17... 143	Mr. Estcourt	15 7
5... 27	A. J. Wilson	9 1	18... 37	Motor-Car Co., Ltd.	15 10
6... 111	J. W. Stocks	9 3	19... 147	Locomobile Co. of America	15 30
7... —	Mr. Hargreave's 12 h.p. Daimler	9 29	20... 36	Motor-Car Co., Ltd.	15 46
8... 122	A. E. Crowdy	9 30	21... 22	Roger W. Wallace	15 55
9... 138	O. L. Bickford	9 57	21a. 21	S. H. Pearce	16 24
10... 31	Automobile Mfg. Co., Ltd.	10 19	22... 5	H. Austin	16 24
10a. 98	T. L. Spencer	10 20	23... 146	Dr. Lehwess	16 31
11... 35	C. Friswell	11 34			
12... 95	W. D. Dewey	11 39			
13... 20	J. E. Hutton	11 46			

Official No. No.	Name.	Time. m. s.	Official No. No.	Name.	Time. m. s.
24... 119	R. W. Mills	16 39	51... 93	J. W. Amps	22 43
25... 70	Burford, Van Toll, and Co.	16 40	52... 74	Daimler Motor Co., Ltd.	23 1
26... 62	George Iden	16 43	53... 67	F. W. Rogers	23 12
27... 41	Motor-Car Co., Ltd.	17 25	54... 118	G. Standley	23 12
28... 56	Motor Mfg. Co., Ltd.	17 55	55... 91	J. Burns	23 17
29... 85	H. Bevan Swift	17 57	56... 18	R. E. Phillips	24 7
30... 77	Rowland Brown	18 7	57... 108	Daimler Motor Co., Ltd.	24 11
31... 10	Earl Russell	18 23	58... 24	A. Harnsworth	24 15
32... 39	Motor-Car Co., Ltd.	18 25	59... 53	Motor Mfg. Co., Ltd.	24 15
33... 110	J. B. Percy	18 29	60... 103	W. M. Hodges	24 46
34... 139	Daimler Motor Co.	18 44	61... 42	Motor Car Co., Ltd.	24 55
35... 120	H. J. Lawson	18 51	62... 48	A. Mulliner	25 4
36... 40	Motor-Car Co., Ltd.	19 25	63... 33	F. I. von Loer	25 12
37... 2	W. M. Hodges	19 27	64... 65	J. D. Hill	25 30
38... 87	W. J. Peall	19 37	65... 100	Mrs. H. G. Allen	25 42
39... 13	Motor Power Co., Ltd.	19 45	66... 14	Motor Power Co.	25 45
40... 84	E. Manville	19 50	67... 106	Lyons Sampson	26 43
41... 89	A. A. L. Hickman	19 55	68... 54	Motor Mfg. Co., Ltd.	27 15
42... 145	Brit. & Col. Co.	19 55	69... 99	W. Branstons	27 22
43... 113	Mr. H. S. Smith	20 33	70... 11	Noel B. Kenealy	27 27
44... 96	C. Whitehall	20 42	71... 88	F. S. Peall	28 9
45... 66	A. H. Howard	20 47	72... 130	Geo. Henderson	28 41
45a. 132	Krieger Car	21 1	73... 80	F. F. Wellington	28 59
46... 55	Motor Mfg. Co., Ltd.	21 7	73a. 29	Auto Mfg. Co.	29 56
47... 101	F. H. Barker	21 17	74... 61	M. H. Buckea	30 34
48... 69	Burford, Van Toll and Co.	21 18	75... 115	H. Livesey	30 44
49... 78	H. Edmunds	21 23	76... 102	W. M. Hodges	31 0
50... 59	Motor Mfg. Co., Ltd.	21 33	77... 9	S. R. Roget	31 1
			78... 60	J. H. Gretton	32 1
			79... 32	British Motor Trac. Co. Ltd.	34 42
			80... 68	J. Highfield	36 9
			81... 28	A. F. Ilsley	38 29
			82... 73	Daimler Motor Co.	40 11
			83... 137	R. Lucy Scott	42 45

AVERAGE SHEET.

3 miles in 7 minutes equals 25.5 miles per hour.

" 8	" 22.5	" "
" 9	" 20	" "
" 10	" 18	" "
" 11	" 16.3	" "
" 12	" 15	" "
" 13	" 13.8	" "
" 15	" 12	" "
" 17	" 10.5	" "
" 19	" 9.4	" "
" 21	" 8.5	" "
" 23	" 7.8	" "
" 25	" 7.2	" "
" 26	" 6.9	" "
" 27	" 6.6	" "
" 29	" 6.2	" "
" 31	" 5.8	" "
" 34	" 5.2	" "
" 37	" 4.8	" "
" 38	" 4.7	" "

ON FAIR DAY AND FOUL.

BY LOLLIVS.

WHITEHALL was a busy place on Saturday morning, and it seemed as though engineering operations were being conducted at several score of peripatetic establishments which had been set up along the roadway of the Horse Guards' Avenue. Determined looking men were making the last adjustments, giving the final overhaul, and generally preparing for some long event as I made my way to the centre of the long line of automobiles, where a trusted vehicle had a seat reserved for the writer. Punctuality is a rule of the Automobile Club when the public eye is upon the motor world, and there was only time for a casual glance at the vehicles as they stood ready for the start. It was a less motley collection than has previously been assembled for the annual run to the seaside. The first impressions of "the man in the street," who lingered to gaze upon the motor-

cars, were distinctly favourable and expressed with something less irritating to the motorist than the doubtful compliments that were hurled at the vehicles on the first anniversary run. Most of the cars were attractive in general appearance, and several were decidedly distinctive—Mr. C. Jarrott's 10-h.p. De Dion quad. and Earl Russell's American car to wit. British makers were represented by many stylish vehicles, in which comfort and luxuriousness combined to demonstrate how great has been the advance of these latter days. The thin long line of cars stretched right away from where the Horse Guards Avenue debouches into Parliament Street to far along the Embankment, and the crowd was as interesting and varied as the cars. At one corner a butcher boy conferred with the shoeblack—each doubtless thinking of the effect of motoring on his particular industry, and two or three noble lords were eagerly scanning the splendid Panhards, Daimlers, Napiers, Motor Manufacturing Co.'s., vehicles and other monarchs of the motor world, while the new voiturettes secured the attention of connoisseurs.

Such reflections must stop, for, as I was remarking,

coming of a Lord Mayor's show. At the top of the street there was a block in the traffic—not, be it known, an unusual thing in London, thanks to the frequency with which the streets are "up." So we waited awhile. The moment was not without interest, for in the gutter to the left, a motorist had lain his cloak in the roadway under his car, and had thrown himself between the two. Such devotion to the cause is heroic. His feet were within a few inches of the passing horse-drawn vehicles, and a swerve on their part would have prevented him ever pedalling again. But I would point out that these are not the days for such displays of self-sacrifice, and that such a performance was more suited to a secluded by-path and not a fit argument to place in the mouths of ribald busmen and unsympathetic cabbies. Whether the act was intended to bring fame unto the man who thus showed his dexterity, or whether it was merely a trial of skill, I know not. But if the idea was to have his name emblazoned on the Automobile Roll of Honour, I will give him disappointment by declining to print it, and pass by the incident—as I did by the man



SNAPSHOTS AT PORTSDOWN HILL.

punctuality is an attribute of the Automobile Club. I mounted the rear seat of No. 74, a Parisian Daimler, driven by Mr. Percy Richardson, by whose side sat Mrs. Richardson, about to make her *debut* in connection with such runs. In the 1,000-mile Trial I was on the last car that came to town; on this occasion I varied the position, being on the last car to start in the procession from London. There were others that left later, but we were at the rear of the procession. Such a place gives the journalist his opportunity. Had I been with Mr. Mayhew or Mr. Edge ne'er a car would I have seen on the way. They were the pioneers who never lagged. But from the rearward one has a delightful vista of the vehicles that sulk by the roadside, and even turn up narrow lanes to hide the blushes of their drivers.

And so we waited until the cavalcade had turned into Parliament Street and then went along in splendid isolation, securing the concentrated applause of the crowd. The last man in an automobile procession is always as sure of a good reception as the mail cart driver who proudly goes his way prior to the

himself. What I didn't like about it was the bold effrontery of the deed—in Parliament Street and with Big Ben ready to strike ten.

At last the block was relieved, and we were free to continue our journey, following Mr. Henry Edmunds (on whose car was a profusion of chrysanthemums that formed a bright inducement for us to keep it within view) briskly into Birdcage Walk, along Eaton Square, and into the King's Road. There we saw a Locomobile with a silk hat appearing above the hood and evidently not on holiday bent. Leaving that behind we got into Putney and saw Mr. Edmunds again. He was investigating matters, and from the front seat of the car Mr. Staplee Firth was an interested spectator. Often has Mr. Firth explained to magisterial minds the ease and absence of excessive speed in connection with automobilism. There he sat, a witness to what he has so often proclaimed. He seemed quite resigned to his fate as we drew up. Finding Mr. Richardson was of the party his optimism returned, and he asked Mr. Edmunds to state his case for appeal to my

driver with a clearness and precision that was authoritative. The arguments *pro* and *con* for non-stop runs against occasional stoppages having been briefly stated, there was a short flow of petrol talk, and after a few moments a waving of the chrysanthemums testified to the movement of the car. All this time we were on the move; and then we drew away accompanied by Dr. Lehweß, who soon swept on ahead, and the Krieger car that went on swiftly, silently, and strongly. On Putney Hill the Motor Manufacturing Company's wagonette was making its way, and then, we, too, went along and soon got into the wake of the electric car that was mounting the long ascent as though it were a familiar path.

Now we began to overhaul the cars that had got away so promptly in the morning. An Orient Express was resting, then the Dechamps car was taking things easy, and we said farewell to Mr. J. H. Gretton on his Motor Manufacturing Company's 6-h.p. phaeton, which was going across Wimbledon common very comfortably. A Decauville was the next to be left behind, and then for awhile we were alone. Women were interested spectators of our progress. They stood in their doorways and in groups chatting pleasantly enough, their conversation being diverted from their neighbours to the passing cars—a change for which all should be grateful. Several motor-cars, many of the Benz variety, came in an opposite direction, and all along the route they were to be seen, evidence that ours was not merely a transient cavalcade, but could be accepted as positive proof of the existence of an industry which is steadily growing to great things. Our little party on board the trusty Parisian Daimler was settling down to conversation when the noise as of a rushing wind swept by, and we saw a figure crouching on a peculiar-looking aluminium case whiz past in a style that defied asking questions. It was Mr. C. Jarrott travelling up to the legal limit on his new 10 h.p. De Dion quadricycle. Now, Mr. Jarrott has been on a similar machine before, and the fact that the rider was none other than he was sufficient for Mr. Richardson. We had heard of his prowess as a motorist, and although at first sight he appeared to be going considerably quicker than our own car, it was clear to all of us that he was merely endeavouring to sustain the reputation of automobilists for keeping within their legal rights. Evidently we were falling below what we could legitimately do, and so getting along to top speed we made the leaves fly and the children shout as we scurried after the aluminium body whose glistening sheen fast disappeared in the distance. On we went, past houses and policemen, round corners and up the inclines with equal celerity until we came alongside of Mr. Lyons Sampson on his well-known hooded Benz car. And then we were content.

So far, incidents of automobile interest had been few, and the roads had been remarkably good. Nothing had thwarted the universal progress until just before the ancient Borough of Kingston Mr. T. B. Browne was discerned mournfully contemplating the discomfiture of a tire. In difficulties of this sort a philosophical spirit is absolutely necessary, and, judging from the alacrity with which the owner of the Panhard prepared to return to town, I should say Mr. Browne has acquired that calm quietude under perplexities without which no motorist should venture out on a long expedition. Another Panhard that was seen somewhere in this locality was a great 'bus, with five passengers in an exalted position. They towered above the common and ordinary vehicles of the road, and were the commanding objects along the route as they passed. The motor 'bus, which has a capacity for ten passengers, did splendidly on the way down to Southsea, and was able to form into line for the start on Monday—about which more in proper sequence. Two of the Thames Valley Company's public service vehicles next attracted attention, and just before the next steep hill—and it was a hill—a Locomobile was seen backing into the kerb, probably to allow us to pass without deviating from our position in the central portion of the roadway. I take this opportunity of thanking the driver of No. 109 for his consideration. It was a curious sight to see about a score of cars climbing, crawling, and crouching up that hill. Some seemed as though it were a trial that has to be endured, but not enjoyed. Still they mounted the hill motorfully. Of course, we went along bravely, passing, first, Mr. N. B.

Kenealy's Benz car, and then, after a little contest, Mr. Harry Livesey's Marshall car, which was making very good running. Then going ahead of a Gladiator voiturette we drew in front of a Motor Manufacturing Company's wagonette with a heavy load of press men. Included in the number was a colleague whom I had last seen seated on a boiler. I was glad he was there, but I wondered what had become of his earlier seat. That worried me to such an extent that I rejoiced at a stoppage which was called a few minutes later. There was a great concourse of motor-cars of every sort and size, and it was evident that our car had made good leeway. But although the sudden halt had promised excitement, it turned out to be a very mild official affair, only calculated to bring us closer together so as to make an imposing and befitting show in passing through the busy streets of Kingston. Being nearly in the centre of the group, our car had a splendid chance of showing off its effectiveness on the circle; and it did. For as soon as command was given to restart, we caught a crab and slewed round to the right—about—the rear wheels coming to position about two inches from the kerb. Fortunately, there was a lamp-post to which I was prepared to spring on the event of further gyrations. But we didn't move. With our faces turned Londonwards, we encoun-



MR. MARK MAYHEW'S 16 H.P. NAPIER AT PORTSDOWN.

tered the gaze of about three score riders on the cars, Mr. Richardson's playful allusion to our early return being regarded in hardly a serious vein. Again we fell to the rear of the procession, and prepared to overtake those whose smiles of sympathy had seemed to be akin to grins of satisfaction. I hope I am not misjudging anyone.

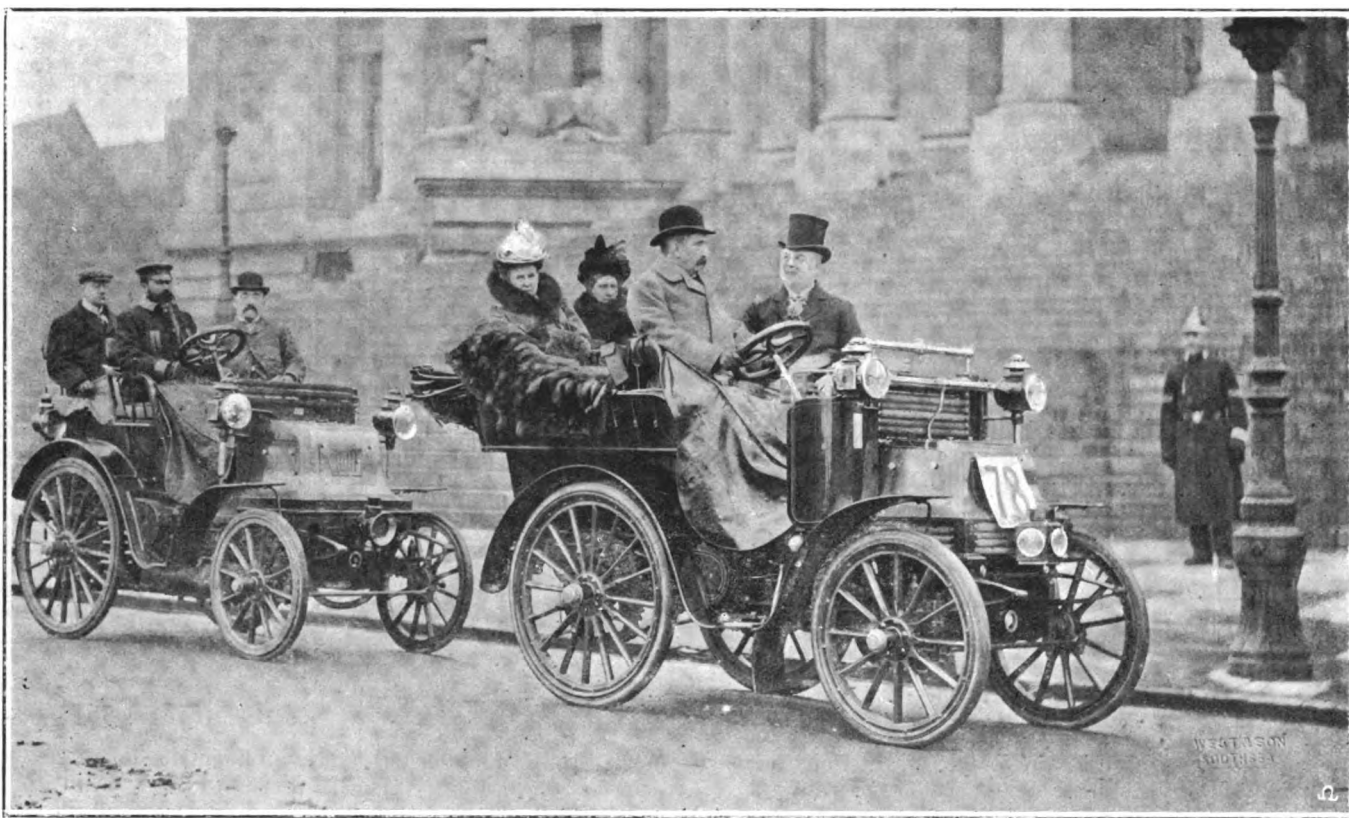
In the closing up of the ranks which took place at the halt, the driver of Locomobile 109 had made good his position, and must have got ahead during our reverse, for he was next seen standing at ease beside his car. Going up behind Mr. F. H. Butler's white steed, upon which Mr. F. R. Simms was a passenger, a Decauville was heard a little way ahead, and then a flag was discerned bearing the device by which that vehicle was made known to the public all along the route. In Kingston's main street a goodly crowd awaited the procession, and although there was nothing like enthusiasm there was plenty of interest evinced, a streamer across the street giving welcome on behalf of the Kingston Motor Company. Thanks to the position of the town, its pleasant location, and its good roads, motorists have always favoured this locality and automobiles are not unfamiliar sights, but never before has such a varied collection of vehicles passed before the royal stone in the space of a couple of hours as filed by on Saturday.

The view from the town as the Thames comes in sight has been often described, and is familiar indeed to motorists. There was hardly time to appreciate its beauties, for traffic was fairly heavy, and the cars were buzzing along with splendid persistency. We saw Mr. Firth again just after leaving Kingston, and from his coign of vantage he was still observing the lackadaisical way of some cars—and also, but this is not to be heralded abroad, the energetic bustling spirit of others. Distance between vehicles increased as we gained on Sandown racecourse, and entering into the feeling of the place quick running was indulged in—with strict observance of the regulations of Captain Sant—to Esher. At the latter place a De Dion quadricycle was resting awhile. There was plenty to keep us busy on the road. We went beyond the Daimler Motor Company's wagonette with Mr. MacLeod driving, and remarked on the fineness of the day to a gentleman who appeared to be in charge of a steamer that was waiting for its driver on the roadside. Then a tinkling of bells a little way ahead caused us to look neither to the right nor to the left; for it proceeded from the rather ungainly American car on which Earl

to Guildford were a Pieper car, No. 120, Mr. J. E. Hutton's voiturette, a Locomobile, and one or two others that being unnumbered must remain unknown. On the way we saw a postman mounted on an antiquated tricycle, evidence of the old-time ideas that still animate our public services.

About noon we got into Guildford, turning off at Quarry Street on the left to go to Godalming, *via* Shalford. Here the company was joined by Mr. R. Dennis on his Speed-King motor tricycle with a trailing car attached. Passing out into the open a lovely view was unfolded, and from one side of the green we could see cars running on their way. Four miles of delightful road having been traversed, we reached Godalming, at the entrance to which a group of three private cars and a knot of sturdy youngsters gave us greeting. The police were assiduous in directing us to hostelryes, and nothing of their alleged antagonism was seen. In fact, only one policeman had I discerned on the journey from Putney to Godalming.

The town is an ancient one and originally an industrial centre. Little of its old records and few of its early glories



THE CLEANEST CAR, NO. 78, INTO PORTSMOUTH. MR. EDMUNDS TAKES THE MAYOR ABOARD.

Photo by

[West & Son, Southsea.]

Russell was mounted, and which must have been going along very well. Mr. Manville on his 6 h.p. Daimler was too busy to keep up a running conversation, and dropped the dialogue to look at his engine. Then leaving a Clement-Panhard voiturette, Mr. W. M. Hodge's, a Motor Manufacturing Company's voiturette, and a couple of Benz cars, we steadily forged across Esher Common to Cobham. A few cars passed us, and Mr. Harvey du Cros went along in capital style. Before entering Cobham's wide street, and glancing at the White Lion, where resides a motorist famous in Surrey, the dark green Daimler car belonging to Mr. Alfred Harmsworth was seen, the steering wheel being in charge of Mr. C. Johnson, the secretary of the club. Between Cobham and Ripley two new voiturettes were going gamely—viz., that of the Motor Manufacturing Company, with Mr. Burgess driving, and that of the Daimler Company, Mr. E. W. Lewis at the helm. Between Ripley and Guildford—a road familiar to motorists and cyclists alike—several vehicles were seen, and among those that went ahead to be earlier down the decline

were seen by the motorists. Some went to the Angel, not for the excellent copying of an old style of architecture which can be seen, but for luncheon. Others adjourned, as did Peter the Great about two hundred years ago, to the King's Arms, where the earlier arrivals made an excellent meal. In the yard of the King's Arms a fine crowd soon gathered, and cheery were the accounts that succeeding arrivals brought of their doings. Some took the opportunity of overhauling their motors, and Mr. Hutton put in a few minutes of useful work. Mr. C. S. Rolls left his motor-tricycle and took refuge on the car which Mr. Hargreaves had driven, little heeding the fact that only after midnight on the previous day had that gentleman been summoned for alleged furious driving. Upstairs, Mr. Mark Mayhew and Mr. Friswell were replenishing before going on the second stage of their journey, Mr. Roger Wallace was ignoring electrical development and automobile advance for creature comforts, and three score automobilists were likewise indulging. As we emerged from the luncheon room, Mr. Edmunds was coming

along with Mr. Firth, and Mr. J. J. Mann also turned up, having had a good passage. There were no tales of woe, and the trials and tribulations had been comparatively few. As for the vehicles that we had seen strewn along the roadside, it was evident many were coming along, and would be there in fair time.

Luncheon over, a re-start was made, and past the old market-place we soon got into the centre of one of Surrey's most lovely districts. Nestling behind the hedgerows were pleasant-looking cottages, around whose doorways were grouped interested spectators. Here and there were small gipsy encampments, whose strange-looking occupants recalled us from the modernities upon which we were travelling to old-time travel of antique aspect. The first car to overtake No. 74 was the Motor Manufacturing Company's vehicle, upon which rode Mr. Roger Wallace, the president of the Club, freed, for the nonce, from speech-making, and evidently enjoying a practical experience of the sport he so warmly espouses. The wind was blowing keenly in our faces, reminding us, despite the warmth of the morning, that it was not always summer in November. Beyond Mr. Hargreaves, no other driver went away to the front, and judging from his prowess in his own county it would have been remarkable had he not, with his 12-h.p. Daimler, gone

reverend gentleman who appears in Mr. Sydney Grundy's "Debt of Honour." How the broom-makers who, a century ago, settled near here to carry on their trade amid these luxurious heathlands would have been surprised and alarmed at the modern invasion! But times change and ways differ, and so their descendants living in the old cottages here about welcomed us with smiles and looked not in the least disturbed. In fact, some appeared to commiserate with the puffing and the blowing of some of the cars that struggled on the long ascent. Midway the prospect to the right was worth all the trouble, and some of the cars stopped there that their riders might have an uninterrupted view of the country around. Away to the left was Haslemere, the land of artists, and singers, and writers—Bohemians who are recognising that the motor-car is no enemy to their social instincts, but rather a helpmate and a friend. With a British motor-car geared to take hills, what a time one could have on these heathlands of Surrey. All these reflections and many more occurred as we wound our way up Hindhead. Earl Russell, Mr. R. E. Phillips, and one or two others seemed to be going well, and Mr. Lacy Scott was doing his best, but whether he would make a record run only the timekeepers can tell. Right on the top of the elevation was another gipsy encampment, from which



A GROUP OF DAIMLER CARS ON SOUTHSEA COMMON.

Photo by]

[Ar. ent Archer.

ahead of his smaller-powered brother in metal. Mr. Rolls had abandoned his tricycle—possibly led to such a conclusion by the cheerless aspect of some of the motor-tricyclists who came along—and, comfortably seated by Mr. Hargreaves, seemed content to trust himself with the hero of about three summonses within a month. Fortunately, Mr. Firth was a participant in the tour, and was making a very useful study in the vagaries of compression, which should stand him in good stead should the police require the attendance of any who drove on Monday—which, judging from the times up Hindhead, is hardly likely. And so we went on to the Devil's Punch Bowl to feast our eyes on Nature in her most lovely aspect. There was little of the break-neck order of running here visible, and I should have liked to have stayed to render a helpful arm to those that were inclined to linger by the way. We managed to do the journey by the spot where the "barbarous murder" was committed in twenty-two or twenty-three minutes; but others must have taken double that time, judging by the leisurely ascents that were being made. Somewhere along the line I fancied I discerned a cruel man taking an animated photograph of the scene, and remembering the police warning, vainly imagined that the authorities were becoming up-to-date in their methods. After all the operation was merely with a view to a public exhibition "in a place where they sing"—to quote from the

came a crowd of youngsters, almost like little Boers, to look askance at our coming. A few yards ahead was a car in trouble, but without a number. Possibly it had fallen off in the ascent, and would be restored later during the day.

So far the roads had been splendid, and no thoughtless surveyors had laid obstructions, nor had they placed menaces to tires. But before reaching the river Wey we went over about a hundred and twenty yards of nicely raised stones of medium size. Fortunately they had no sharpened edges, but just beyond we saw Mr. Phillips looking for things by the roadside. And then another length of road gave us further cause for congratulations at a second escape. Just before entering Liphook—forty-six miles from town—a third piece of bad road had to be negotiated, and personal congratulations turned to severe denunciations of local authorities and other heedless and careless bodies. Why cannot such patches be rolled when it is known that great processions of motorists are passing. Such conduct reminds one of the antics of the turnpike people of Scotland in the latter days of William IV. They piled great boulders on the roadway to stop the progress of the steam vehicles then plying for hire; now we have become more refined, and content ourselves with picking up long stretches, over which cars can bump along, and only the good quality of the tires saves them from unpleasant consequences. A good road enabled us to get to

Rake very quickly, and there we saw a demure-looking official in blue uniform—the first we had seen since Godalming. I thought I would like to get his impressions of the forward cars as we passed, and opened up conversation by remarking "Good-day." He evidently misunderstood me, for he was out of sight before he had time to reply—and we were, of course, only going at eight miles an hour, seeing we were so near a large village. Should his eye see this I hope he will be more civil on the next occasion he is addressed by a steady-going and law-respecting motorist.

On the hilly road between Petersfield and Portsdown our car began to jib a bit. It had gone well along but in the next few miles the burners went out more than once. Still they did not necessitate stoppages for more than a second or two, so we can claim the non-stop diploma with a clear conscience. On by Oxenbourn Down and Horndean there was little of note save the increasing coolness of the air and the gathering twilight. Near Waterlooville Mr. W. J. Peall was looking for his cue—on this occasion a little petrol sufficing to give him opportunity for a good break into Portsmouth. From Portsdown Hill the grand procession had just gone to be reviewed by the Mayor as we neared our destination. Again the advantage of position revealed itself, for the crowd that had turned out to greet the great cavalcade was returning to the naval town, and we were able to secure the united plaudits of the public.

Mr. Mark Mayhew with Mr. Rolls on the former's 16-h.p. Napier, Mr. S. F. Edge on the car that requires no name to make it clear, Mr. Cecil Edge, Mr. F. F. Wellington, Mr. G. Iden, Mr. G. H. Smith, Mr. Ilsley, and others. They caught the sunshine; we had the showers that follow bright days.

Deserted thus by the Sabbatarians, we sojourners till the Monday and travellers by the correct route were further weakened in numbers by the fact that many decided to return *via* Godalming in preference to the longer route through Winchester and Basingstoke. Consequently when the cars lined up on Southsea Common about half past-ten in the morning they were occupied by no mere fair weather travellers. We were the devoted ones, prepared—mainly because there was no way out—to follow the secretarial pennant if we soaked our skins in the effort. And it was an effort. Mr. Argent Archer brought forth his camera—a camera that had been able to contrast both automobile and railway travel on the previous day—and buoyed up with patience, at length succeeded in getting a full view of the vehicles that were starting. Behind the overgrown 'bus were a dozen other cars, but our picture fairly adequately represents the happy party that responded to Mr. Johnson's call and dared the rain to drop its heaviest, which it did after awhile.

For nearly half an hour the rain ceased, and we waited a few minutes to take a farewell glimpse at the Esplanade



Photo by]

THE START FROM SOUTHSEA COMMON FOR THE RETURN JOURNEY.

Argent Archer.

Down into the town we went in the darkness, and wending our way into the traffic arrived in front of the Town Hall in good style. Mr. Richardson's respect for the club regulations had favourably impressed me all the way; his cautious manoeuvring through the busy thoroughfares demonstrated his marked ability in that direction, and now I felt proud of my host when the whisper went around the councillors, with the Mayor (Alderman Emmanuel) that our car was the cleanest that had appeared. We went to the Drill Hall almost hugging the cup that Mr. Alfred Harmsworth had promised to the car that arrived in Portsmouth with the best appearance. But alas! at the subsequent dinner we learned that a cup actually in the hand is worth two anywhere else, for it went to Mr. Edmunds, the honour of second place being assigned to No. 74. Mr. Manville on No. 84 was accorded third mention.

Looking out of my window at 6 a.m. on Monday, I saw some rain descending, and returned to slumber awhile. Two hours later there was more rain, and the gutters ran mud—a damp prospect for those who were endeavouring to be obedient to Club regulations, and who had decided to take the prescribed route to London. Several had returned on the Sunday, taking advantage of the sunshine to make pleasant a renewed acquaintance with the Surrey lanes and the magnificent glories of Hindhead. Among those wise but rather wayward followers of the Club were Mr. C. Jarrott, on his "little beauty," Mr. Roger Fuller, on his De Dion,

and reflect on the faded glories of Saturday's dinner at a certain hotel along the front. The little dog in the car ahead, No. 38, began to look cheerful, and then with a loud toot-toot from the first car the journey was begun. I had changed from the Daimler Parisian to the new Daimler voiturette which was driven by Mr. E. W. Lewis, who had come up from Coventry with the vehicle on the preceding Friday. It had done splendidly so far, had been among the early arrivals at Portsdown, and promised to get along as rapidly as possible between the raindrops. Turning from the Common into Portsmouth we saw a crowd round the first corner, and from the centre a playful little flame revealed a sign of warmth that would have been welcome were we not so anxious to get on the journey. "Throw it into the sea," shouted one observer as we came up alongside, scattering the small boys who were bringing chestnuts to bake. Fearing trouble, Mr. Lewis dismounted, to discover Mr. Richardson battling with the flames, and his passengers encouraging him to renewed efforts. Apparently while waiting on the Common one of the burners had gone out—a fact only discovered just after starting. The petrol had flooded the wick, and the application of a match secured the fiery effect that had proved so attractive to the natives. That little incident over, we bade farewell to the Town Hall at eleven o'clock, and proceeded to our work of looking after the laggards, keeping closely in front of the 6 h.p. Daimler

Going under the railway arch we fancied we heard a little cry of surprise, and looking round, saw a car standing without occupants in the roadway. Rapidly reversing, we again drew alongside. Standing in a line by the railings was a merry party of four hugely enjoying themselves, the ground in front being strewn with wraps, leather jackets, and other miscellanea. Explanations were necessary, and after the universal laughter had subsided, we got a connected account of the incident. Seated in the front, Mr. and Mrs. Richardson had gradually become assured of the presence of a foot-warmer. The former knew that nothing of the kind had been there at the start, and wondered. Meanwhile the heat increased, and at last both occupants jumped. The rear passengers jumped too. Evidently the fire had been smouldering, causing a warmth that was strongly apparent. Fortunately it commenced to rain a few minutes later, and, as it never ceased the whole of the journey to London, one worry was off our minds. We should have no roasted carcasses to tow into the dépôt. But we kept closely in sight nevertheless. A few hundred yards further a stop was occasioned by the railway gates being closed, and Mr. R. W. Buttemer had dismounted his Benz car to take snapshots. But he was too late for the unexpected; that had happened by the railway arch.

Leaving Cosham, we ignored the main road and took the by-road to Fareham and Bishop's Waltham for Winchester. The roads were distinctly different to the hard surface we had encountered on Saturday. They resembled a custard of a khaki hue, through which we splashed and sploshed, sending out streamlets of mud to accumulate in little heaps on either side. No cyclist could have ploughed his way successfully through some of the lanes, and once, when No. 74 drew ahead twenty yards, we hardly recognised the spick-and-span car that had been placed second by the judges for neatness and cleanliness. On and on we went until Fareham was reached. Evidently we were gaining on the cars in front, and up the steep hill that leads from the town Nos. 74 and 139 went in company and at a good pace. The way our little voiturette was taking the hills and spraying the mud was glorious, and its 4-h.p. motor was tugging with an earnestness that made optimists of us all. For the heavy roads would assuredly retard some of the bigger cars in front. Strange it was that we had found none by the roadside so far—if we can except a small voiturette, by the side of which a brother journalist was standing as one who would not be comforted, between Cosham and Fareham.

But ere Bishop's Waltham was reached we discovered Mr. A. Burgess on a 6 h.p. Motor Manufacturing Company's vehicle, and shortly after Mr. J. J. Mann, on his 12 h.p. Daimler, was making his way through the storm. For it was nothing like an ordinary shower, and as we got from the shelter of the thickly overhanging trees the wind blew as though it had been inspired by a multitude of cabbies anxious to settle motoring for ever. What with the wind and the rain hitting our faces with the incisive sharpness of a whizzing bullet the experience was rather chilling. And in the tree-sheltered lanes we had little compensation, for instead of the sharpest wind we had the heaviest raindrops of the year pelting down with force upon our soaked garments, and making full points at every fall. The ladies on Mr. Richardson's car bore the ordeal well. They managed to handle umbrellas with a dexterity that deserves public recognition, and as our car travelled after their vehicle the rearward appearance with the umbrellas shining in the rain and the mud playing a duet with the drops from above was one of variety and ever-changing pleasantries. And this was all in the course of an anniversary tour. Would that we had been running round the fish-ponds in the nave of the Crystal Palace.

Coming along we had another capital run after No. 74, which was going splendidly. Evidently the little friskiness of the early morning had fired the car with an enthusiasm for the road, and it was going well indeed. A little further we came across a herd of bullocks whose meek eyes were turned towards the two cars. As is customary with their kind, they placed themselves at various angles to the oncoming objects, and after an almost unobtrusive approach, we were in their midst with quite a score of beasts running ahead. They were evidently inclined to race, and it required a little gentle music to get them out of the

way. Later we saw Mr. Hargreaves on his car with its head meeting our view. But the rain pelted too incessantly and too vigorously to permit of any stoppage, and so we went ahead, passing Mr. J. H. Gretton on his 6-h.p. Motor Manufacturing Company's car. He was going along with the tenacity of the Briton who has put his hand to the wheel and will not turn back. At various points on the way comfortable inns were passed and clean-looking villages were being washed; but we ignored their charms and heeded not their attractions. The honour and credit of the Automobile Club were at stake; more than 130 cars had left town on the Saturday, and only a few were returning on the official road. Hence the necessity for those who were returning to scorn delights and spend laborious hours in ploughing through the mud and slush.

Bishop's Waltham was one of the most lovely places *en route*. Just outside the town, in which there seemed to be a fair amount of building going on, is the fine ruin of a palace belonging to the Bishops of Winchester. In olden days the town was the scene of much Royal festivity and hunting; its quietness is now rarely disturbed. At the top of the next hill out of the town the Daimler wagonette was seen, the driver serious at the wheel and a subdued party behind. Even the most cheery passengers seemed inclined to quietness, and a saddened spirit of hopeful determination was aboard. They intended to lunch at Winchester. The next to be overhauled by our safe little voiturette was Mr. C. Johnson, carrying a full complement on Mr. Harmsworth's car. He was very intent on the journey, and although it was not likely he would appear first at Whitehall Court we wished him a good run, and ran off ourselves. Mr. Austin was next discovered paternally regarding his Wolseley voiturette, which was suffering from an attack of short circuits—a subject of dry interest on such a day.

Nearing Winchester we found a bit of road that contrasted strongly with the mud through which we had progressed. For a distance of about two hundred yards on the brow of a pretty stiff hill the road had been laid with fine large stones about four times the size of those usually employed. We saw them from the bottom of the hill, and we also saw the backs of several people who were applying pressure to the rear of a motor-vehicle. No. 74 was lost to sight. We went up on to those stones and got safely beyond just as Mr. Mulliner had been assisted to a similar height. In Winchester we passed Mr. T. B. Browne's Panhard with the hood up. Behind that hood were two passengers whose view was of the most monotonous character imaginable. But their faces were comparatively dry, and they were saved from the biting of the wind—which was a real tangible thing that could be felt.

After Winchester not a single car passed our little voiturette. At the Red Lion, Basingstoke, we found No. 74 had arrived five minutes before, and that Mr. Moffatt Ford, on his Decauville, had preceded it. The first arrival had been Mr. C. Cordingley and party on his Motor Manufacturing Company's Marlborough phaeton, which had started rather earlier from Southsea. He had had a good passage through to Basingstoke, and the car had been going splendidly right through the trip. By arrangement with some other motorists, who were returning that way, Mr. Cordingley had ordered luncheon for fifteen at the White Hart Hotel. He was there within two minutes of the appointed time; but the others were still toiling in the wet. So the first arrivals set to work on the luncheons, and on their behalf I now apologise to those of the fifteen who may have had to be content with the cold shoulder. They can accept this assurance that the hot joints were satisfactory.

Under cover in the yard a few more cars were seen as we emerged to follow the Decauville, the Marlborough phaeton, and the Parisian Daimler. Mr. J. H. Gretton had come in very wet and disconsolate; Mr. A. Burgess assumed a cheerfulness quite out of keeping with the climatic conditions; Mr. J. J. Mann went straight to the dining room, and Mr. T. B. Browne settled down to half-an-hour's work on his tire, the cover of which had burst. Evidently his party were prepared for a long stay. Setting forth on the next stage we found the rain still as attentive as ever. Our route lay through Nately Scures, Hook, and Hartley Wintney, up to Hart-

ford Bridge. It was a bleak run across Hartley Flats, and we pitied the pedestrians as much as we thought of ourselves. Mr. Lewis had never been on that road before and would probably have grown enthusiastic over the scenery; but who could wax warm under such conditions? Why do not the makers of motor-cars couple a foot-warmer with the circulating water and so make the pedal extremities bearable. That, however, is another story, as Rudyard Kipling would say.

Running into Blackwater we discerned a large car with the hood well opened in the distance. The yellow band indicated the ownership, and with a merry toot-toot (almost the only cheerful note we had sounded that day) we made after it. But the driver heard us coming and put on top speed. Leaving the Royal Military College on the left, we scurried up a hilly road and up Penny Hill into Bagshot, gradually gaining on the car in front. The roads were heavy and wet, and, bless the belt, it was slipping. Twilight was coming on, and we thought it better to dress the belt than run the risk of being stranded in a military district at that hour of the night; and so hastily dismounting, the operation was performed, the lamps were lit, and we were soon ploughing again. Over the hill into Bagshot, and then we got into the darkness of the heath beyond. Up the hills we went, our own momentum helping us considerably, and on through Sunningdale, where we hurried across the train lines just in time to avoid a lengthened stoppage, and then at Virginia Water we stood outside the Wheatsheaf five minutes after Mr. Cordingley had reached that hospitable place. Here we came across a De Dion voiturette that had started from Southsea early, but the driver had mistaken his road, and had had a longer run, with less pleasure, than the rest of the party. But the day was drawing to a close, and we entered upon the last stages for town, whither Mr. Richardson and Mr. Ford were the only motorists who had preceded us. Into Egham we went without adventure, and then into the long, wide main street of Staines, where we saw a Benz car with the hood up—just as though the passengers had settled down for the night. Leaving Staines we got on that long, solitary road leading to Hounslow, meeting few vehicles, and the only trouble being with the great railway carriers' wagons that would persist in keeping to the centre of the roadway. But we made the pace—the legal pace—for all that, and through Brentford and Hammersmith we made our way into London. It was striking 7 p.m. as we passed the Trocadero, into which a couple of automobilists were just going for dinner, and then along Shaftesbury Avenue. Mr. Moffatt Ford had arrived well and wet, and Mr. Richardson's party were comfortably before the fire as we strode into the dépôt of the Daimler Company. And thus ended a memorable trip, in which the British climate had exceeded itself. Saturday had been a pleasant day, Sunday was charming as a warm day in June, Monday was about as refractory and as unconvincing of British geniality as any I have ever endured. But the distress was over, and it was not a difficult matter to quickly forget our own discomforts in contemplating the worse troubles of those still on the road—as far distant as Basingstoke, and even, it might be, Winchester.

THE DINNER AT SOUTHSEA.

At the Esplanade Hotel, Southsea, a large company assembled on Saturday evening to indulge in petrol talk and dinner. The preliminary proceedings in connection with finding seats were interesting, and, in some cases, not without a glow of excitement.

The Hon. J. Scott Montagu, M.P. for the New Forest Division of Hampshire, presided, being supported by the Committee of the Automobile Club, and practically all who had taken part in the trip. The toast of "The Queen" having been loyally honoured that of "The Prince of Wales and Members of the Royal Family" was drunk with heartiness, the chairman remarking that the Prince was now in the ranks of automobilists.

The chairman then gave "The Mayor and the Reception Committee." He referred to the splendid way in which Portsmouth had welcomed the motorists, and said it was particularly kind of the Mayor to attend their gathering—an event occurring so recently after the Mayoral banquet. The toast was accorded musical honours, and the Mayor, on rising to reply, was received with three cheers and the singing of "He's a jolly good fellow."

His worship expressed the pleasure it gave him to welcome the automobilists to Portsmouth. He hoped they had enjoyed their ride from

London to Southsea, to the pleasure of which the fine day had contributed. He believed it was the first time that they had visited Southsea in such a procession, and he had pleasure, on behalf of the town, in hoping they would visit the borough again in the summer when it was daylight and the people could see the vehicles. If such an event were arranged, he would be pleased to give a ten-guinea cup and a second prize of five guineas, for whatever the committee of the Club should decide. They had had a good reception in the town, and the Chief Constable and the police had done their duty well in leading the automobilists into Portsmouth. He was sorry that the inhabitants had not had the opportunity of looking at the cars. Therefore, he hoped that as many as possible would accept the invitation for the summer. They certainly could be assured of a most hearty welcome. He congratulated the Club on the possession of such an enterprising secretary as Mr. Johnson. With regard to the competition for the cleanest car entering the town, his worship said they gave a maximum of 200 marks, and 192 had been awarded to car No. 78, owned and driven by Mr. Edmunds. No. 74 was second, and No. 84, belonging to a gentleman well known in Portsmouth, Mr. Manville, was third.

The chairman submitted "The Act of 1896"—the charter of the road to all automobilists. As most of the audience were aware, attempts were being made by public bodies to drive them off the roads. He did not believe that the efforts would succeed. It was notable that the same arguments which were used sixty years ago on the introduction of the railways were being applied to motor-cars. They were told they poisoned the air, that they frightened horses, women, and children; that they meant ruin to the tradesmen of the country, and all kinds of dreadful things were prophesied. Motorists were still on their trial before the public, and if they would take his advice as a humble member of Parliament they would not agitate for any alteration in the present Act. When they had more chance of making their voices heard, and had made more converts among the general public, then they might get some alterations in their favour. But at the present moment there was undoubtedly all over the country a very critical movement going on. Since history began man had been endeavouring to tame horses, but he did not know that anyone had succeeded in training the horse as a domestic animal. But they must be tolerant of the prejudices of others. They must recognise that there were people in this country who were slow to move, and who preferred the antiquated form of conveyance to mechanical traction on the roads. He (the chairman) asked all members of the Automobile Club to show every consideration to all users of the road, and to take every opportunity to convert people to automobilism. He had never heard of anyone having had a ride on a good car remaining unconverted. They always imagined that the thing was going to run away or blow up, or something else as bad. Progress had been made in the conversion of the House of Commons in the past year. Peers and M.P.'s were taking more and more to the sport, and he had himself started Mr. Arthur Balfour on his career as an automobilist. Now it remained for automobilists to appease other users of the road, and then in a few years' time their future would be assured. He coupled with the toast the name of Mr. Roger Wallace, the president of the Automobile Club.

Mr. Roger Wallace, in responding to the toast, said the chairman had given very good advice. In this country the Legislature generally managed to impose regulations which, in the first instance, tended to throttle the industry. This had happened in the case of the electric light. For twenty years the industry made no headway in the country because of the restrictive legislation imposed. But now to a certain extent all that had changed, and they saw in Portsmouth a very remarkable example of how the electric industry had developed. The Act under which automobilists existed at the present moment was an Act which removed to a certain extent the difficulties in the way of driving motor-cars and light vehicles. He was sorry to say it had not done so much for the heavy traffic as they hoped it would. They must not forget that there were others in the north of England, and in Liverpool especially, who had given a great deal of attention to this question, and thus be able to successfully represent the whole of the industry. They must not merely consider one part of the industry. They could not expect to have the Act altered for some time to come, and they must be content to go at the slow speed to which they were restricted. They must not be aggressive; they must not, because anybody held up his hands, address him in an antagonistic manner. If they did that kind of thing they would never get any alteration. He hoped automobilists in their various districts would endeavour to convert county councillors and others to look favourably on their movement.

Alderman Ellis proposed the health of the chairman. He (the speaker) was the first in Portsmouth to own a motor-tricycle.

In reply, Mr. Montagu said he regretted he had been absent from the run to Southsea. He certainly was not a novice in automobilism, having begun by practice on the footplate of a locomotive. But motor-car driving had given him far more pleasure than engine driving ever did. He intended to do what he could in the House of Commons to help their movement. He always tried to show consideration for people on the road, and if all would adopt that attitude they would go far to create a favourable public opinion in the country. He was glad Portsmouth had given such a cordial and representative welcome to the club. With regard to the resolutions now being passed by County Councils, a great many would be on the table for some time. In the south of England a great many more motor-cars were seen than in any other part of the country. In the north, where they had more commercial industries, attention was being directed to

heavy traffic. He hoped to see the steam car industry which had existed at Cowes revived in some form or other in some other part of the country. Several steam cars had come through the run from London in very good form, and that was a source of gratification. An electric car had also gone through the whole way, and he felt sure there was a future for electric cars—especially in towns. They were noiseless and could be easily worked in traffic. In conclusion Mr. Montagu hoped the club would visit Hampshire during the summer, and the local people would be delighted to make their paths easy and pleasant.

The reading of an anonymous telegram received from Oxford concluded the proceedings. It was as follows:—"May your oil cans blow you to Patagonia"—a sentiment which caused much merriment among the fleeing company.

LONDON TO SOUTHSEA NON-STOP DIPLOMAS.

It will be recollected that in connection with last Saturday's anniversary run to Southsea the committee of the Automobile Club made the announcement that non-stop diplomas would be given by the club in respect of vehicles which completed the journey from London to Godalming and from Godalming to Portsmouth without a stop, and at a speed not greater than twelve miles an hour. Stoppages of vehicles which might be caused by traffic, restive horses, etc., were not to be recorded as stoppages in connection with the non-stop diplomas. Claimants for non-stop diplomas were required to lodge their claims in writing, together with four time-cards, at the Automobile Club not later than noon on Tuesday, the 13th inst. We are requested by the club to publish the following particulars of the claims that have been received for these diplomas:—

No.

2. Mr. W. M. Hodges, London Motor Co., Ltd., 6 h.p. car.
8. Mr. G. D. Barnes, 9 h.p. Benz.
27. Mr. A. J. Wilson, Ariel tricycle.
30. Mr. D. Farman, 6 h.p. Darracq voiturette (this should have been numbered 31).
32. Mr. A. O. Bradley, 8-h.p. Panhard 'bus (stopped between Godalming and Portsmouth to assist Mr. Pearce).
35. Mr. C. Friswell, 12-h.p. Panhard.
36. Mr. R. Moffatt Ford, 8-h.p. Decauville.
40. Mr. John French, 6-h.p. Motor Manufacturing Company's car, entered by the Motor-Car Co., Limited.
48. Mr. A. Mulliner, 6-h.p. Daimler Company's car (admits stopping to speak to Messrs. Simms and Butler and to light carriage lamps).
53. Motor Manufacturing Company's 6-h.p. car (admits stopping owing to another vehicle colliding with No. 53).
55. Motor Manufacturing Company's 6-h.p. car.
56. Mr. George Iden, Motor Manufacturing Company's car.
62. Mr. George Iden, Motor Manufacturing Company's car.
66. Mr. A. H. Howard, 5-h.p. Marshall (admits stopping twice: (1) to give Lord Russell petrol; (2) because he was told he had dropped something).
69. Burford, Van Toll, 3 h.p. car.
70. Burford, Van Toll, 6 h.p. car.
84. Mr. E. Manville, 6 h.p. Daimler car.
85. Mr. H. Bevan Swift, De Dion tricycle.
89. Mr. A. A. L. Hickman, 6 h.p. Motor Manufacturing Company's car.
95. Mr. W. O. Dewey, Eadie tricycle.
96. Dr. C. Whitehall Cooke, 3 h.p. New Orleans.
99. Mr. W. Bransom, 3½ h.p. Humber.
101. Mr. F. H. Barker, 7 h.p. Peugeot.
102. Mr. W. M. Hodges, 6 h.p. car.
103. Mr. W. M. Hodges, 6 h.p. car.
122. Mr. A. E. Crowdy, Ariel tricycle.
139. 4 h.p. Daimler.
146. Dr. Lehwess, Orient Express (Horse shying caused belt to break through sudden stop, and this caused five minutes' delay).
60. Mr. J. H. Gretton, 6 h.p., Motor Manufacturing Co.'s car.
5. Mr. H. Austin, Wolseley Voiturette (admits stop for puncture, but claims that punctures should not prevent grant of certificate).

Objections to these claims should be addressed to the Secretary, Automobile Club, 4, Whitehall Court, London, S.W., not later than Tuesday noon of the 20th inst.

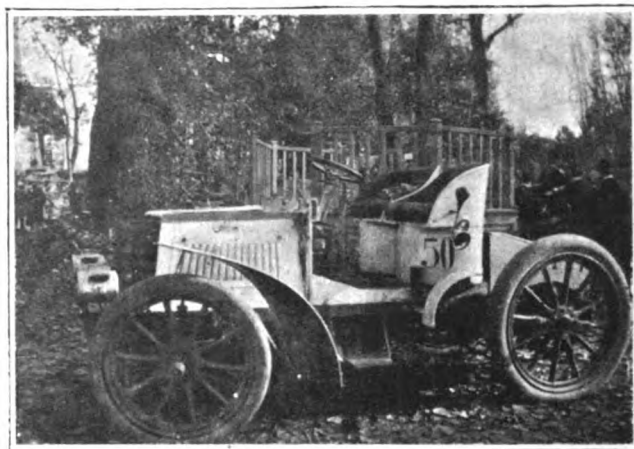
On the 6th inst. the action between the British Motor Company, Limited, and Messrs. Taylor, of Nottingham, was heard in the Court of Appeal. The judges upheld the decision of Mr. Justice Stirling and awarded the company damages to the extent of £135.

At the last meeting of the Shropshire County Council the chairman said a communication had been received from the Bucks County Council, asking them to join in drawing the attention of the Home Secretary to the way in which motor-cars now travelled the roads; they suggested that every such car should carry a number in a conspicuous part, that they should be registered, and that the driver of any such car should stop when requested to do so. On the motion of the chairman, the communication was referred to the Roads and Bridges Committee.

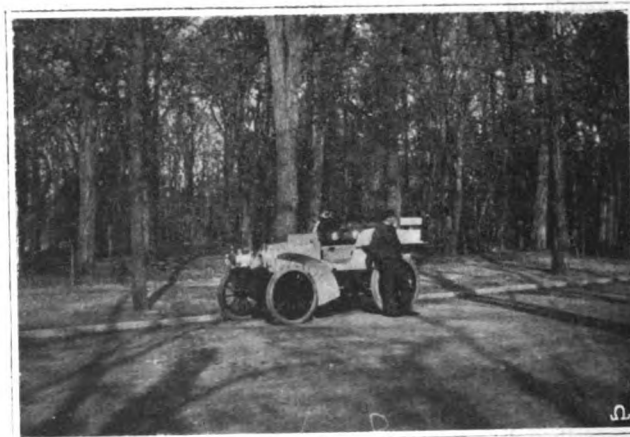
A FUEL CONSUMPTION COMPETITION.

(From Our Paris Correspondent.)

ON Wednesday, the 7th instant, I had the pleasure of assisting at one of the most interesting competitions which it has ever been my lot to witness. This was the "Concours de Consommation," an event promoted and organised by the *Auto-Vélo*, and which by reason of its real utility appealed strongly to all interested in the automobile movement. The original idea was to give to each competitor a quantity of petrol according to the classification of his car, and then despatch him with sealed tanks over a certain route. The exact distance



covered would have then been measured, and the official returns would have stated that such and such a car covered such and such a distance on so much petrol. Unfortunately this initial scheme could not be carried out, for the police took exception to the cars running round Longchamp at the finish of the course until they should be *en panne* for lack of fuel. Only notified of this at the last moment, a less resourceful man than Georges Prade would have given the event up, but the representative



of the *Auto-Vélo* quickly hit upon another scheme which if less interesting, was quite as practical. The competitors were required to cover the original route from Paris to Meulan and back, viz., seventy kilometres, but instead of starting with a limited quantity of fuel they set out with tanks quite full. Upon returning to Paris they were required to enter directly into the *contrôle* when the tanks were unsealed and sufficient petrol poured in to refill them completely. By this means the exact quantity of fuel used in covering the seventy kilometres of route was ascertained, data of the greatest interest to manufacturers and public alike. The popularity of the scheme may be appreciated when I say that no fewer than

114 entries were received by the promoters. Of these, ninety-five vehicles actually competed and ninety finished, a veritable record for an automobile competition. Starting at 7.30 a.m., the first cars had nearly completed their journey before the last of the competitors had got under way, and the difficulty of managing this great number of vehicles can only be appreciated by those actually engaged upon the work. M. Prade was fairly in his element, and after seven hours of labour he was able to satisfy himself that an exact record of every car's performance had been secured. But what a work it was, to be sure. Imagine the refilling of the tanks of ninety cars with petrol by means of a chemist's graduated glass, and one begins to get an inkling as to the labour involved. To give all the results would but weary the reader, so I will but quote the best performances in each category.

A.—Cars exceeding 1,000 kilogrammes in weight: 1, Delahaye, 7 litres, weight 1,015 kilos, time 3h. 10½sec.; 2, Delahaye, 7 litres 850, weight 1,030 kilos, time 2h. 58min. 45½sec.; 3, Panhard, 8 litres 400, weight 1,120 kilos, time 2h. 20min. 27½sec.

B.—Cars weighing from 750 to 1,000 kilogrammes: 1, Georges Richard, 6 litres 400, weight 810 kilos, time 3h. 17min. 15sec.; 2, Mors, 6 litres 750, weight 891 kilos, time 2h. 26min. 34sec.; 3, Vigneaux, 7 litres 200, weight 805 kilos, time 2h. 37min. 5sec.

C.—Cars weighing from 400 to 700 kilogrammes: 1, Delahaye, 5 litres, weight 525 kilos, time 3h. 26min. 27sec.; 2, Clément, 5 litres 250, weight 430 kilos, time 2h. 48min.; 3, Noé Boyer, 5 litres 250, weight 420 kilos, time 3h. 6min. 6sec.

D.—Voiturettes weighing from 250 to 400 kilogrammes: 1, Richard, 3 litres 600, weight 300 kilos, time 3h. 6min. 41sec.; 2, Denesle (Corre), 4 litres 200, weight 290 kilos, time 2h. 37min. 11½sec.; 3, De Dion-Bouton, 5 litres 200, weight 375 kilos, time 2h. 49min. 0½sec.

E.—Voiturettes weighing less than 250 kilogrammes: 1, De Boisse, 2 litres 240, weight 215 kilos, time 3h. 33min. 51½sec.; 2, Campagne, 3 litres 700, weight 215 kilos, time 3h. 22min. 53½sec.; 3, Gladiator, 3 litres 900, weight 245 kilos, time 2h. 54min. 26sec.

F.—Quadricycles, two occupied seats: 1, Cormier (De Dion), 1 litre 650, weight 165 kilos, time 3h. 16min. 57½sec.; 2, De Dion, 2 litres 240, weight 240 kilos, time 3h. 20½sec.; 3, Marot, 2 litres 950, weight 195 kilos, time 3h. 30min. 42sec.

The event was largely attended, and a wonderful representative crowd of French automobilism partook of the lunch at the Châtelets du Cycle. Among those present I noticed Baron de Zuylen, Comte de Dion, Comte de Chasseloup-Laubat, MM. Pinson, Fenton, Huillier, Mors, Darracq, Girardot, etc., etc. Other competitions of a similar nature are likely to be forthcoming at an early date, and the *Auto-Vélo* is to be congratulated on the good work it is doing in thus promoting such really useful events.

On Saturday, the Sirene voiturette driven by Mr. W. E. Hart, did not start from London till noon, and then made its way to Southsea in good style and in good time, fully maintaining the reputation gained in the recent 100-mile Trial.

THE Gaekwar of Baroda, who has been staying in Paris for a few days, has become an enthusiastic automobilist. He is to be seen daily in the outskirts of Paris on a motor-car, and it is reported that he intends taking one or two cars with him on his return to Baroda.

MR. E. SHRAPNELL SMITH, the hon. Secretary of the Liverpool Self-Propelled Traffic Association, is a busy man, as everybody knows, yet notwithstanding this he is to give three lectures upon motor topics before Christmas. On the 27th inst. he will read a paper at the Liverpool University College Students' Engineering Society on "The Application of Light and Heavy Mineral Oils for Motive Power"; on December 7th, a lecture entitled "Motor-Cars; Past, Present, and Future," with 100 lantern illustrations, in aid of the funds of the East Suffolk Hospital, at the Public Hall, Ipswich; while December 13th will find him at Glasgow delivering a paper to the Glasgow University Students' Engineering Society, on "Automobilism up-to-date."

AN 8 H.P. DECAUVILLE CAR.

TO the well-known two-seated voiturette La Société Decauville, of Paris, have lately added an 8 h.p. car, of which illustrations are given herewith. The new car differs from the small one in that the motor is placed in the fore part of the frame under a bonnet instead of at the rear. The engine is a two-cylinder vertical one of 8 h.p., with electrical ignition and water jackets. The engine runs at 850 revolutions per minute, and can, therefore, hardly be called a high-speed engine. Four speeds forward and one reverse are provided, the power of the



FIG. 1.—THE NEW 8-H.P. DECAUVILLE CAR.

motor being transmitted as usual through bevel gearing direct to the rear axle, no chains or belts being employed. Steering is controlled by an inclined hand wheel, while ample brake power is provided. The motor and mechanism are entirely supported on a tubular frame, to which any desired type of carriage body can be fitted. The car, which weighs only about 8 cwt., can, it is claimed, attain a speed of from 35 to 40 kilometres per hour. We may add that the Motor-Car Company, of Shaftesbury

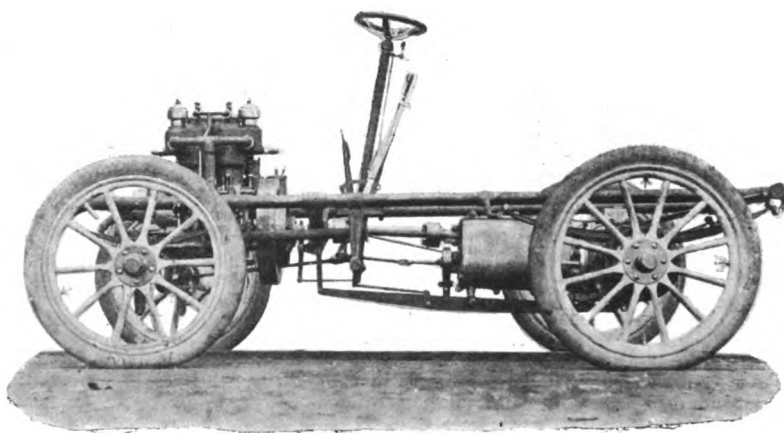


FIG. 2. VIEW OF FRAME OF 8-H.P. DECAUVILLE CAR.

Avenue, London, W.C., are the agents for the Société Decauville's vehicles in this country, and that one of the 8 h.p. cars successfully took part in the run to Southsea and back last week end.

In view of increasing trade the Century Engineering and Motor Company, Ltd., have found it necessary to remove their works to Cumberland Park, Willesden Junction, where they are now busily engaged equipping a large new factory. In addition to Century tandems the company will shortly be placing on the market a Century voiturette on distinctly novel lines.

FURIOUS DRIVING CASES.

—88—

At Grimston Petty Sessions last week, George Gascoine, motor-car driver, King's Lynn, was charged by Superintendent Baldwin with having driven a motor-car at greater speed than twelve miles an hour at Dersingham, on October 10th. Lewis Mitchell deposed that he was on the road to Dersingham railway station with a tumbrel and two horses going for a load of coal when the motor-car approached him. When it was about sixty yards off his horses turned round and the tumbrel was overturned. Witness lay with the shaft on his ankle. The car was coming at between nine and ten miles an hour. The men in the car came and helped him up. They asked witness if he had any bones broken, and he said he thought not. Witness had been at home a month in consequence of the accident. Witness heard the horn blown. James Bunn, Dersingham, coal dealer, said he saw the motor-car on the road. It passed him, he should think, at thirty miles an hour. Police-sergeant Thompson deposed that the distance from where the accident happened to the place where the motor-car stopped was fifty-three yards. Defendant, in defence, said he was in the employ of Mr. Morris, who told him to drive with great care. He was driving the Conservative agent. Everything went satisfactorily till they were returning, when in consequence of a defect in the cylinder he was fifteen minutes starting the machine. He started at five miles an hour and went up to nine. He had had five years' experience in driving. He noticed Mitchell's horses were rather frisky and stopped the machine. They went to the man's assistance and stopped till he was right. The magistrates dismissed the case. Defendant applied for costs, but no order was made.

At East Dereham Petty Sessions on Friday last week, Mr. Reginald Lawrence, of Hilborough Hall, Stokesby, was summoned on the information of Superintendent Chambers for driving a motor-car at a greater speed than twelve miles an hour at Scarning, on October 9th. Mr. E. Reeve appeared for the defence. William Taylor, team-man, of Castleacre, stated that on October 9th he was in Scarning with a wagon and three horses. When he got near the railway bridge at Scarning he saw a motor-car coming towards him at a fast pace. It seemed to be going close to twenty miles an hour; he was sure it was going more than twelve miles an hour. His horses took fright, and the leading horse jumped at the fence, and put its fore feet over. He saw no more of the motor-car, and he could not swear to the man who was driving the car. He heard and saw the car approaching him. It went past him like a train or a gust of wind. Mr. Reeve, in defence, said Mr. Lawrence was a motor driver of great experience, and had driven much in England and France. That morning he had ridden from Norwich with Mr. Lawrence, and they met a horse which turned completely round when they were proceeding at not more than six miles an hour, and Mr. Lawrence at once sent his man to assist. It was not the speed which frightened horses, but the noise of the car. The witness Taylor in his evidence said the car passed him like an engine. Of course it did. It was an engine, and by slackening the speed it would make more noise than it would if it was running at a higher rate of speed, because when going at a higher speed it would be running more smoothly. The chairman said the Bench had decided not to convict in this case, and they were prepared to accept Mrs. Lawrence's version of the matter. In the opinion of the Bench the defendant was an experienced driver, but at the same time the horses were, no doubt, frightened, and some little upset took place. There was no proof that defendant was going at twelve miles an hour, and the case would be dismissed. He, however, advised defendant to continue to exercise caution when driving his car. There might possibly be some regulations made so that motor-cars would be compelled to stop on the approach of every vehicle. The defendant thanked the Bench for their careful consideration of the case, but he thought it was a vexatious prosecution. No doubt in many cases the drivers of motor-cars were to blame. No objection could be taken in prosecutions where the cars were recklessly driven, but there was a general tendency to prosecute where a horse was frightened. It was only right that proper consideration would be shown to other users of the highway, but he hoped that the same consideration would be shown drivers of motor-cars, and not endeavour by such vexatious prosecutions to scotch the very useful means of getting about the country. With reference to the remarks of the chairman as to some new regulations being made, he thought it much wiser to leave it to men who had had experience in driving motor-cars. There were similar troubles when bicycles first came out. Horses shied at them, but they were now used to them. He had had considerable experience in driving motors in France, and there the horses were quite used to them and took no notice of them.

A MOTORIST SUED FOR DAMAGES.

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HIS HONOUR JUDGE EMDEN was engaged until a late hour on Friday last week, at Bromley County Court, in hearing, with a jury, a case of very considerable importance to owners and drivers of motor-vehicles. The plaintiffs, Messrs. H. and W. Carr, coal merchants, of Beckenham, sought to recover £29 14s. 6d. from Mr. Ruffer, a banker of Lombard Street, whose private residence is at Sydenham, for damages alleged to have been caused to their horse and cart by the negligent driving of Mr. Ruffer's motor-car by his servant, on March 20th last. Mr. Hohler was counsel for the plaintiffs; and Mr. Neville, counsel, represented Mr. Ruffer. The principal witness for the plaintiffs was Louis Penn, a labourer, who gave evidence to the effect that he was in charge of one of plaintiffs' horses and carts on March 20th in Crystal Palace Park Road. He saw the motor-car come down the hill at a furious rate, and it turned round right in front of his horse, not more than two or three yards away. It frightened the horse, which bolted on to the footway and fell down,

breaking the shafts. The driver gave no notice of his approach. In cross-examination, the witness admitted that he was a little hard of hearing, but thought he would have heard the tooting of a motor-car horn. The motor-car was not going at a very fast pace when it turned round. Witness had not the horse under perfect control, but it was untrue that he went to look at the motor-car and was too late to get back to the horse when it bolted. Mr. Henry Carr, who owned the horse at the time, said he gave equal to £40 for it in February, but after the affair in question he had to sell it for £21. The repairs to the car amounted to £5 19s. 6d.

For the defence four witnesses were called. The driver of Mr. Ruffer's motor-car, named Bryant, stated that it was a 6-h.p. car, and on March 20th he travelled down the Crystal Palace Park Road at a rate of nine miles per hour. He slowed down to 3½ miles per hour before he turned the car round and had tooted the horn. He also called to Penn, inquiring if he should stop or go on, as he wanted to turn. Penn made no reply, but caught hold of the horse's head, and witness turned round, stopped the car, and went to Mr. Ruffer's front door. The cart came on when the car was quite at rest, but the horse, after it had passed, turned and looked at the motor-car, and then bolted. The driver let the horse go, and it ran into Mr. Ruffer's fence. —Mr. Ruffer said he was never given an opportunity of seeing the damage alleged to have been done to the horse, which was sold before witness received a letter on the matter from the plaintiffs. An expert motor-car driver, named Bell, said it was impossible with any safety to turn the motor-car round at the spot in question at a speed of more than four miles per hour. —In addressing the jury, Mr. Neville submitted that no blame whatever was attached to his client's driver. The motor was lawfully using the road, and the damage to the horse was either due to a mere accident or to the nervousness and unskillfulness of the man in charge. The damages claimed were most exorbitant, even if any blame attached to defendant's driver, which he denied. —For plaintiffs, Mr. Hohler remarked that the motor was a beastly thing and a nuisance unless kept under proper control. —His Honour: You must not tell the jury that a motor-car is a nuisance *ipso facto*. —Mr. Hohler asked the jury to find that there was negligence, and that it was, in fact, a nuisance.

Judge Emden, in summing up, said a motor-car was not a nuisance *ipso facto*, and there was nothing in the case showing that it made itself a nuisance. A motor-car had a right to use a road the same as any other vehicle when properly driven and with due care, and the only point the jury had to decide was whether there was any act of negligence on the part of the driver. If there was not, they could not find a verdict for the plaintiffs. There was no collision: in fact, it was an unusual case altogether. He failed to see any negligence, but it was for the jury to decide. In order to succeed it was necessary that there should be no want of care on the part of other people, and was there any want of care on the part of the plaintiffs' driver? Everyone knew what a motor-car was nowadays, and must take proper precautions. If it came to a question of damages, he did not think he had ever heard any more unsatisfactory evidence since he had sat as a county-court judge. There had been no attempt to give the other side an opportunity of seeing the horse or the damage caused it. After a few minutes' consideration the jury found a verdict for the defendant. Defendant's counsel asked for costs, including costs of counsel, to be allowed his client, and Judge Emden allowed these.

MR. JAMES FRYER, of High Street, Kington, Herefordshire, is stocking petroleum-spirit.

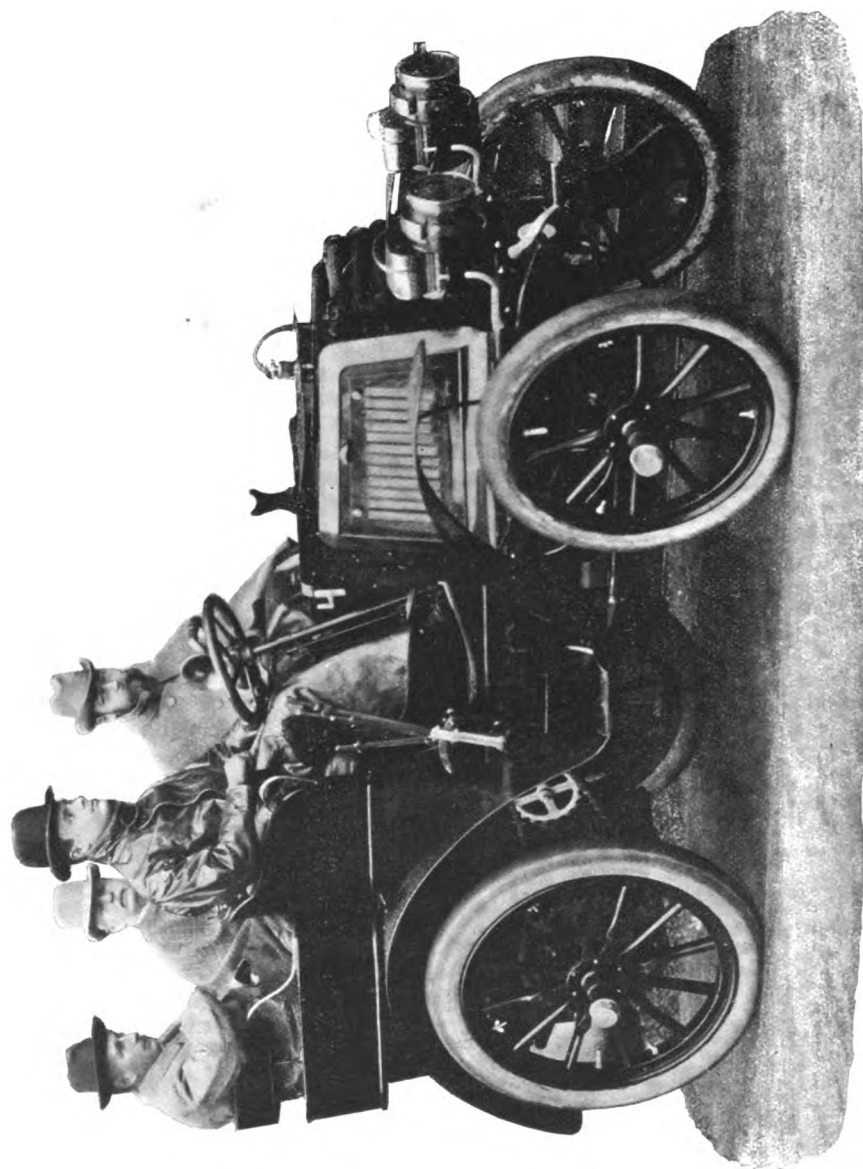
WE hear that the Hon. A. J. Balfour has this week ordered two additional motor-cars.

AMONG the new songs which have been introduced into "The Casino Girl," now being played at the Shaftesbury Theatre, is a spirited piece with full chorus, "The Automobile Girl." On its first performance it was encored.

WE have received a copy of the first number of a new American weekly paper entitled *Automobile Topics*. The new paper is edited and published by Mr. E. E. Schwartzkopf, late editor of the *Automobile Magazine*, and judging from the copy lying before us gives evidence of a long and useful life.

MR. S. F. EDGE was summoned at St. Albans on Thursday to answer a charge of travelling at a speed greater than 14 miles per hour. Mr. Staplee Firth appeared for defendant and Mr. Mark Mayhew and Mr. C. Jarrott appeared as witnesses, but up to the time of going to press we have not heard the result.

A NEW company has just been formed with the title of the Roadway Autocar Company, Limited. The new concern has, we understand, acquired the stock and premises of the motor-car business which has been carried on by Mr. J. Burns, at 44, Berners Street, London, W. We further learn that the company have been appointed sole agents for the "Mors" and "Renault" cars for England and all the countries in the British Empire, and that shortly a large stock of the latest types of cars by these well-known manufacturers will be on view in London. The company will also deal in many other kinds of cars, and will keep a large stock of parts and accessories.



H. R. H. The Duke of York going for a spin on the Hon. C. S. Rolls' 12-h.p. Panhard Car.

Photo by

J. H. Preston, Monmouth.

THE Motor-Car Journal.

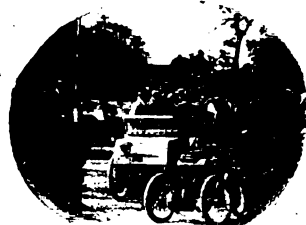
Vol. II.]

LONDON, SATURDAY, NOVEMBER 24, 1900.

[No. 90.]

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COMMENTS.



seats are Lord Llangattock and the Duke's equerry, Sir Charles Cust. It will be seen that all four riders are well muffled up, a circumstance due to the pouring rain in which the party was then setting out for shooting.

The Manchester Motor Club.

THE annual general meeting of the Manchester Motor Club was held on Wednesday of last week, at the Crown Hotel, Manchester. The statement of accounts, read by the honorary treasurer, Mr. R. H. Carlisle, showed assets £14 16s. 0½d., including £5 10s. 6½d. cash in hand. The subscription was reduced to half-a-guinea per annum; this, with the entrance fee of half-a-guinea, makes a charge of one guinea for the first year of membership. Various projects for the coming season were discussed, and, judging from the interest shown, the Manchester Motor Club appears likely to be heard of during 1901. Next season special week-end runs will be a prominent feature. Many of the members meet every Wednesday afternoon at the Imperial Café, Manchester, and have a sort of informal meeting. Mr. W. Cawood, 2 Parsonage, Manchester, is the honorary secretary.

Racing in Germany.

RACING has been the main factor in the prosperity of the French automobile industry, and now at Berlin a new club has been formed under the name of the Automobil-Renn-Verein, with the special object of fostering the sport in Germany. The initial events organised by this society will be decided on a trotting racecourse, but it is intended to construct a veritable automobile track, and a suitable site is now being searched for. As the new club already rejoices in a number of influential members, the difficulties in carrying out this programme will doubtless be overcome, and, in course of time, regular race meetings on a proper track will inspire constructors with that competitive spirit which is so conducive to the advancement of the industry. Moreover, regular excursions and tours will be organised; indeed, the first of these has already taken place, and, judging by its success, these runs will be very popular with the motor men of Berlin. The club's officials are:—President, Dr. Wachsmann; vice-president, Herr Gaertner, director of the Kurfürstendamm cycle track; secretary, Herr Riechen; treasurer, Herr Krüger. Good luck to the society in all its ventures will be the wish of automobilists.

The Catalogue Competition in France.

AUTOMOBILE events are usually announced in ample time, and *La France Automobile* adheres to the custom in making known its intention to again organise its annual Catalogue Competition, the selected date being Sunday, January 20th, 1901. It will be remembered that this event is one in which the various competing cars are classified according to the catalogue price of their frames and motors, and the awards made upon the following basis: 1. Load carried; 2. Time of journey; 3. Price of vehicle; 4. Consumption of fuel; 5. Regularity of running. As may be imagined, the work of the judges is difficult in the extreme; indeed, one cannot very well see by what formula they can arrive at any decision. It must largely be a question of personal opinion, never a satisfactory method of making awards. The selected route is by way of Melun, Nangis, Montereau, Fontainebleau, and Valence, a total distance of 148 kilometres.

Mr. W. K. Vanderbilt, jun., again.

MR. WILLIAM K. VANDERBILT, JUN., is probably one of the most active of the *chauffeurs* in America. He is always doing some startling feature with his great German racing car, and his latest exploit a few days ago was, states *Automobile Topics*, to race with a train on the Long Island Railroad. Mr. Vanderbilt was the winner. The race, which was wholly impromptu, took place between Garden City and Jamaica, and where the highway runs parallel with the railway track. The train was going lazily along, somewhat after the manner of local trains, when the big machine hove in sight, going at a terrific pace. As the automobile passed the engine, Mr. Vanderbilt waved him a sarcastic good-bye. This was more than the engineer could stand, and he pulled viciously at the throttle, and a race was commenced. When Jamaica was reached, the automobile had disappeared in the distance, winning by about three minutes.

The Nottingham Club's Run.

THE Nottingham and District Automobile Club has had its inaugural run, in which about twenty vehicles and fifty passengers took part. The procession from Long Row, East, was headed by the president, Mr. R. M. Knowles, J.P. Next in order came the three vice-presidents, Mr. J. H. Kirk (who acted as marshal, and drove a Peugeot), and Mr. E. W. Wells and Mr. G. Cowen, who were mounted on Daimler cars. Messrs. G. Rimington and H. Rimington and Mr. A. Watts drove vehicles of similar construction, Mr. S. Harvey an Orient Express, Mr. R. Harbidge and Mr. Ross Browne (De Dion voitures), Mr. P. Huskinson (a Gladiator voiturette), Mr. R. Cripps (a Progress voiturette, which had made the journey from Coventry to Nottingham during the morning), Mr. Collins (a Mayfair), Mr. R. R. Latham and Mr. C. L. Stevens (a Benz), Mr. H. Stevens (a De Dion tricycle), Mr. A. R. Atkey, the hon. secretary of the club (an Ariel quad), and Mr. A. Marwood and Mr. J. G. Hamerton (an Enfield quad). Another member was mounted upon a Werner motor-bicycle, while Mr. Huskinson, of the Nottingham Autocar Co., Limited, placed a public service car

at the disposal of the club for the use of friends who could not otherwise be accommodated. The party journeyed to Newark, where the Mayor of the town received the leading cars. After tea Mr. A. R. Atkey said there were already thirty-one fully paid members of the club, including one at Leicester, and they were hoping that Mr. R. M. Wright would induce some of his Lincoln colleagues to join also. The club expected to have lectures and demonstrations on automobilism by Mr. S. F. Edge, Mr. J. W. Stocks, and other leading men in the motor world.

Another Competition in France.

THE delivery of parcels by means of motor-cycles has assumed considerable proportions in Paris, and to-day these speedy little machines are seen darting about in all directions. The shopkeepers in the French capital have been quick to discover that the employment of this class of motor-vehicle economises both time and money, for not only can it transport a considerable load, but its easiness of manipulation permits of rapid progress through crowded thoroughfares. To follow the course of one of these machines through the seething traffic of the Boulevards is a revelation, and frequently have we heard passers-by express their astonishment at seeing a motor-carrier dodge in and out of that bewildering confusion of vehicles which is to be invariably found in the Place de l'Opera. With the object of further advancing this branch of the automobile movement the *Auto-Vélo* proposes to hold next month a race restricted to motor-cycle carriers, and has selected as the course Paris-Versailles-Paris, a distance of 35 kilometres, or 22 miles. No conditions have yet been decided upon, but one can depend upon their being practical, for the promoters are all men of experience and know exactly what data will be of use to the public and constructors alike. The route selected in itself will afford a capital test, for none of the great roads running out from Paris present a more varied surface than does that leading to Versailles. The detailed programme of this event will be awaited with interest, and a capital entry may be safely anticipated.

Hindhead.

ON another page we give, by the kindness of Mr. R. W. Buttemer, the contour of the famous Hindhead. This will be of value to all tourists in Surrey, and of particular interest to those who recently journeyed that way on the road to South-sea. The long and steady ascent is its characteristic feature, and that so many cars were able to go up at good speeds is tribute to the development of the industry.

Automobile Racing in America.

MR. S. T. DAVIS, JUN., of New York, calls our attention to a paragraph with this heading which appeared in our issue of September 15th. In the report of the automobile race meeting at Newport, U.S.A., he was referred to as a "professional racer"—a characterisation which appears to be entirely unwarranted, as Mr. Davis is in no sense a professional racing man. He drove his own machine and entered the contest on the same terms as the other gentlemen owners, including Messrs. Vanderbilt and Astor. We are glad Mr. Davis has enabled us thus to correct an inadvertent error.

Motor-Cars v. Trams.

OFTEN has the suggestion been made that a service of motor-cars would be valuable in enabling communication being opened up in districts where the ordinary tramway is unsuitable. Now the proposal has been given definite shape at Burton-on-Trent, where, at the last meeting of the Town Council, Councillor Thornley proposed that the Town Clerk be instructed to embody in the Bill about to be presented to Parliament a request for powers to run a service of motor-cars in the town and suburbs. He pointed out that there were many streets that could not be served by electric trams, and contended that the

immense expenditure the latter scheme would involve should not be undertaken until they had ascertained the paying capacity of the population. Councillor Tresise seconded the motion, emphasising the remarks he made at the last meeting that, in view of the strong feeling that had been expressed in favour of motors, they ought certainly to be given a trial. Upon being put to the vote, the motion was agreed to. It is to be hoped that no technicalities will involve the failure of the object desired by the proposer and seconder of the resolution.

The 1,000-Mile Non-Stop Run.

IN last week's *Journal* Mr. Moffat Ford gave particulars of the 1,000-mile motor-car trip, proposed to be run on the Crystal Palace track. It commenced at half-past nine on Wednesday morning. The 8-h.p. car covered 140 miles in 5 hrs. 48 mins. 33 secs., 150 miles in 6 hrs. 18 mins. 19 secs., and 300 miles up to eleven o'clock on Wednesday night. The 5-h.p. car travelled 268 miles between 9.30 a.m. and 11 p.m., the first 120 miles being accomplished in 5 hrs. 39 mins. 13 secs. The press is apparently taking considerable interest in the event, which will do something to further establish the reliability of motor-cars, and also the determination of their drivers, for driving through a November night is not wholly a fair-weather experience. As we go to press we learn that the 5 h.p. car had completed 621 miles in 29 hours 26 minutes.

An Italian Automobile Tour.

ON the 30th ult. a meeting took place at the offices of *Il Corriere della Sera* of a number of gentlemen prominently connected with automobilism in Italy, to consider a project suggested by that journal. The idea of an Italian automobile tour to take place in 1901, under the patronage of the journal named, with the support of the Italian Touring Club, was unanimously agreed to. The automobile clubs of Venice, Bologna, Padua, Florence, and Ferrara have also given their approval to the scheme. This event will not have the character of a race but of a tour in fixed stages, the object of which will be to record speed and the condition of the roads, as well as to see what are the systems of motor, etc. (in relation to the type of car), best adapted to Italian roads, and as it is certain that there will be many strangers among those who take part in this tour, the course has been fixed so that they may have an opportunity at the same time of admiring the natural beauties of the country, and of visiting the principal towns of Northern and Central Italy. The tour, which will occupy about a fortnight, will be through Milan, Turin, Novara, Brescia, Verona, Padua, Venice, Ferrara, Bologna, Florence, Rome, Civita Vecchia, Leghorn, Pisa, Spezzia, Genoa, Voghera, Pavia, Milan. On this occasion the Milan Automobile Club will organise an automobile exhibition, at which will be shown all the cars which shall have covered the 1,650 kilometres (1,025 miles) through Northern and Central Italy. The exhibition at Milan is to be concluded by fetes, floral races, paper hunts, etc., organised by *La Gazzetta della Sport*. Everything is arranged that foreigners shall receive every attention, and it is therefore hoped that English motor-car builders will take advantage of the occasion to show to Italian motorists the great progress that has been made by them. According to present arrangements, the tour will commence on April 21st next and conclude on May 2nd, the Exhibition opening the following day.

The Locomobile Catalogue.

RECORDING our chat with Mr. Have-mayer a few weeks ago, we incidentally mentioned the fine catalogue to be issued by the Locomobile Company. This is now ready for circulation in England and will, doubtless, arouse considerable interest by reason of the variety and novelty of the illustrations. Some photographs are given, showing the vehicle progressing through a deep fall of snow, and also in the delightful Yosemite

district, where it encountered some very awkward gradients. Another illustration shows the Locomobile being driven along the trunk of a fallen monarch of the forest. Views of different types of vehicles, and of the company's extensive factory, complete the catalogue, which is particularly well printed and arranged. We have also received a capital booklet, "How to operate the Locomobile," which, with its lucid letterpress and excellent illustrations, will be found indispensable to all owners of this type of steam vehicle. Among the latest to come into this category is Mr. S. F. Edge, whose experience with a steam-car should be interesting.

Motor-Cars in New Zealand.

WHILE progress is being made by automobilism in this country, and is being duly acknowledged in the press, little is heard of colonial developments. And yet the subject is attracting considerable attention both in Australasia and Canada. Mr. N. Oates, of Christchurch, New Zealand, has recently returned to that colony with a motor-car built at Coventry, and its performances will doubtless be keenly watched by the colonists. For in some of those newer countries there are many places and circumstances in which the automobile can be even more serviceable than at home.

Military Motor-Cars in America.

MR. JOHN BRISBEN WALKER, the president of the Mobile Company of America, has written to the U.S. Secretary of War offering to send to Washington, without expense to the War Department, the new military "Mobile," a model of which is on exhibition in New York. He guarantees the machine to carry 1,000 rounds of ammunition, four riflemen, four rifles, two intrenching shovels, food for the four men for three days, four pairs of blankets, two rubber shelters reaching down from the sides of the machine, and enough oil to cover 200 miles. The machine to cover 100 miles from sun-up to sunset, over the average country roads or unbroken prairies of Colorado and Nebraska. This "unit of fours," states an American contemporary, embraces all the requisites of the Quartermaster's Department, the Commissary Department, the Ordnance Bureau, and Cavalry Bureau. It has a movement more than five times as great as that of the average infantry corps, and more than twice as great as the average of cavalry.

Fair-Weather Vehicles.

CRITICS of motoring dub automobiles fair-weather instruments which have great limitations of usefulness to business or professional men who would try to employ them instead of horse traction. The critics, though not quite correct, have still some grounds for their objections, and it remains for designers to go more carefully into the matter of producing vehicles which will give constant satisfaction in such a variable climate as ours. Cars provided with electric ignition always run a certain amount of risk in wet weather owing to the chances of short circuiting or some other electric trouble, which is very elusive to locate in a downpour of rain when stranded by the roadside. Users of pneumatic tires have ever the bogey of side-slip before them, and many drivers after a few thrilling skids have not nerve to face the roads on a greasy day. Solid tires, though much less prone to skidding, are still far from being free from it; and slimy mud makes most drivers feel uncomfortable.

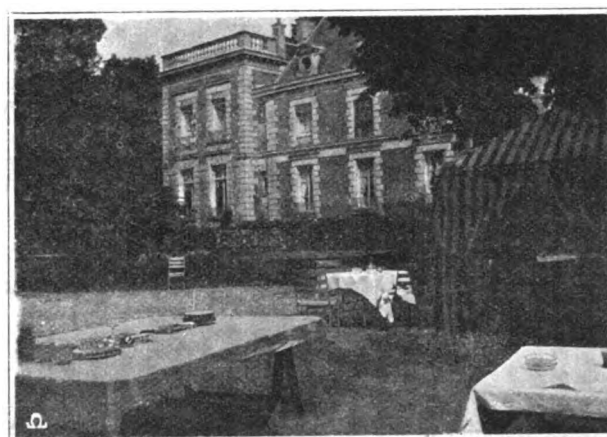
Faults and Remedies.

UNDOUBTEDLY men have painful feelings on this matter which the actual dangers really do not warrant. A properly built car can be driven slowly over the greasiest surface without extreme risk if the driver knows his business and understands the dangers of improper use of the brakes. Still the fear exists, and it is quite enough to dissuade a nervous man from motoring on a wet day. Furthermore, a motor-car driven in bad weather picks up an immensity of dirt, and, if

the owner has no servant to help him in cleaning up, he finds that the job involves a great amount of time, and becomes most tedious if it has to be performed frequently. We have heard of a man who at first started out with the intention of motoring every day, but after a few rainy weeks the task of cleaning became such a constant and tedious one that he relinquished the idea of keeping up the game daily. He was rather irrational in his objections, of course; for if he had a pony and trap he would most likely have got a boy to do most of the cleaning up work. He also forgot that in motoring one is tempted even in wet weather to pursue a higher average of speed than in horse driving; and on a muddy day every increase of pace adds to the amount of mud flung up. The mudguard position on motor-quadracycles, and indeed most cars, is not sufficient to protect the working parts as well as they might be. Makers should study this matter more carefully, and by a better system of protecting the working parts from mud and wet render the operation of cleaning as simple as possible. No doubt in time we shall come to such improvements in tires as will make the motor-car quite reliable in grease; and then—if it is not too near the millennium to have critics about—there will be no one dissatisfied about the rough weather capabilities of the automobile.

The A.C.F. Villa.

IN view of the recent announcement that the Automobile Club of France has decided not to again renew the lease of its summer quarters in the Bois de Boulogne, the accompanying photograph of that charming villa is of special interest. But very few town clubs can offer its members such a delightful retreat; but in spite of its attractions the A.C.F. villa has been but little patronised this season, and certainly has not warranted the heavy expenditure which it entailed. In 1899 the cost to the club of its summer residence was some £1,140, and this year the expenditure would scarcely be less—a considerable item in any club's balance-sheet, and one which should be certainly



eliminated where members show so little inclination to avail themselves of the privileges secured. It is somewhat difficult to explain the disinclination of A.C.F. men to make more use of the villa. Charming situated in the Route du Champ d'Entraînement, and in close proximity to the Jardin d'Acclimation, it was within easy reach of Paris. Yet so rural were its surroundings that within the grounds one would never have dreamed of the existence of a great city hardly a mile away. Yes, it was very delightful, and its loss will be a blow to the regular frequenters. Tennis courts were provided for the energetic, and lunch and dinner were served in the grounds. At regular weekly intervals, too, the orchestra of M. Bose performed, so adding greatly to the enjoyment of the *convives*. Of the many visits which I made to it, writes our Paris correspondent, none is more noteworthy than the occasion upon which some thirty members of the English Club lunched there, and, curiously enough, a number of members of the German Club were also

en file that particular Sunday, so the grounds presented a particularly animated scene. It is a pity that it passes from the club's possession, but members have only themselves to blame.

Medical Men and Motors.

THE letter from Dr. Hirsch to the *Lancet* which we reproduced a few weeks ago has brought some very effective replies, including one from Mr. C. A. P. Truman, the hon. sec. of the Reading Automobile Club, as follows:—"Mr. Hirsch takes a gloomy view of cars in general, apparently because he has had rather a rough time with his own in particular. Does not another correspondent give himself away when he confesses that he judges the capabilities of autocars by the number he sees in dock? Would it be equally fair to say that humanity is diseased because a hospital was full? Admittedly cars break down, just as horses fall, kick, shy, bolt, and smash up traps. Perfection is not yet attained in anything, not even in our profession, but we do not therefore withhold our help because we cannot guarantee a cure. I began, an absolute novice, to use a motor-trike last January in miserable weather and very unfavourable conditions. It gave me no trouble, costs next to nothing to run, and so far from making me late made my work seem very light and easy. This is the other side of the question."

Another View.

ANOTHER doctor writes to our contemporary:—"My experience is quite different to that of Dr. Hirst. I have had a small car two years. In this time I have had no trouble whatever with the engine; my only worries have been tires, chains, and wheels, etc. The car has carried me about 11,000 miles over all roads and in all weathers, including two tours, and is still going splendidly. This week I have travelled over 200 miles easily in my work. The car does the work of more than two horses. It costs me altogether between £30 and £40 a year, which is certainly much cheaper than two horses and infinitely less trouble and worry. Another advantage is the speed. I can keep up a good ten miles an hour up hill and down dale, or twelve or more miles an hour on the level, which is an immense saving of time and consequently of money. In my experience of country work a motor is a brilliant success. The only point is that one must understand the engine and take care of it, and the chains, etc., and it will repay one." Another correspondent, signing himself "Motist," says that a motor-car will shortly be placed on the market which is "moderate in price, comfortable, reliable, simple in construction, without belts, chains, or chain wheels, and capable of being understood at once, thus doing away with the necessity of having a skilled driver."

Record-Breaking Attempts in America.

WE referred in a recent issue to the late attempt of Mr. Wm. K. Vanderbilt, jun., to make a record run from Newport to New York. A similar attempt has recently been made by Mr. J. Dunbar Wright, a prominent member of the American Automobile Club, on his Winton car. Mr. Wright left Newport on Monday, October 8th, and did not arrive in New York until the following Friday, having been four days on the journey. Much of this time was taken up in waiting for good weather. Nothing happened to his vehicle, all that delayed him being mud, rain, and bad roads. Mr. Wright's actual running time for the 258 miles was 21 hours 15 minutes. When asked about the ride Mr. Wright said: "I was not attempting to beat Mr. Vanderbilt's record. I was merely trying to make a quick run. I had very bad roads for the first part of the run, and encountered a heavy storm. Even with good weather, the roads in this country are not in shape for quick automobile runs. They are so rough that they shake an automobile apart. My carriage stood the trip all right, and was in excellent condition at the finish."

Customs' Arrangements.

THE French Customs authorities are to be asked whether they will accept the valuation of the Automobile Club as to the value of a machine provided that the club first lodges a sum of money with them. The car should then be able to pass the Custom House without any other formality than the handing to the Customs officer of an official card issued by the club, stating the value of the vehicle. Such an arrangement would obviate the delays that are now incidental to all trips to France, and should it be successfully accomplished all automobilists will thank Dr. Dawson Turner for bringing the matter forward. In a communication to the Automobile Club, Dr. Turner also points out that in Scotland and France no charge is made for stabling motor-cars if the owners are staying at the hotel. Why should the practice be so very different in this country?

Finding the Average.

A CHARGE of furious driving was heard at the City of London Summons Court the other day. The police said the defendant's pace was ten miles an hour; defendant put it at four and a-half miles. "Ten and four and a-half are fourteen and a-half; divided by two, and you get seven and a-quarter," observed Sir. G. Faudel Phillips. When other judges of the pace had stated their views, Sir George said the speed worked out at five and three-quarter miles an hour. After cautioning the defendant the magistrate dismissed him. Similar discrepancies in motor-car cases would, if the averages were taken, result in similar endings, but unfortunately magistrates are bad at averages.

Jumping Automobiles.

IF we were to believe all the sanguine expectations of inventive persons the capability of the automobile would appear illimitable. When there was considerable discussion with regard to motor-vehicles for the British Army it was actually suggested that they should be made to take hedges and jump ditches after the manner of the horse. Now the proposal has gone further, and we are told that motor-cars are wanted which shall be capable of giving their owners all the exhilarating experiences of the steeplechase, and perform ordinary feats in the way of transport as well. A prominent society man of Newport, U.S.A.—why do so many such yarns emanate from Newport?—is endeavouring to "rouse the blue-bloods from their lethargy," and intends to provide a motor-vehicle steeplechase. "There are to be banks and ditches and hurdles," says our informant, "and paper screens, through which the vehicles are to dash. The course is also to be provided with obstacles." If the idea is persisted in necks will be broken, and we would suggest the originator of the scheme should have the hazard of the first attempt. Certainly he deserves it, whatever the result may be.

SIDNEY MILLET, of Pokesdown, pleaded guilty to furiously driving his motor-tricycle in the Christchurch Road, Boscombe, on November 10th, and was fined £1 and 6s. costs.

WE have received from Messrs. Hudson and Kearns, of 83, Southwark Street, S.E., some samples of the combined diaries and blotting pads they are introducing for use in the coming year. We can vouch for the usefulness of these from experience, users finding at hand almost everything they require.

A NEW catalogue of motor-cycles, motor-carriages, and accessories has been issued by the London Autocar Co., 182, Gray's Inn Road, W.C. Within the 64 pages of which it is composed will be found practically everything required by the automobilist. Particulars are given of several well-known cars and special attention is directed to the voiturettes which the company is able to supply. The sections dealing with parts and accessories are very complete, and the care with which it has been compiled will doubtless be much appreciated.

A CRUISE ON LAND—OR THE LOG OF A MOTOR-CAR.

BY MISS DOROTHY EDMUNDS.

(Concluded from page 606.)

NEXT morning we started off in good time *en route* for Carlisle, and made some of the best running over immense stretches of moorland and beautiful roads, going through Crawford and Beattock. For many miles we ran parallel with the rail-road, and had the advantage of a long down grade. The engines were pulling splendidly, and there was an indescribable charm in the exhilaration of rapid motion through the fresh moorland air, startling every now and then in our run some grouse or rabbits, occasionally passing flocks of sheep, but for the most part we had the road practically to ourselves. We exchanged salutes several times with the engine-drivers of the passing trains, they blowing their whistles and we tooting the horn, each recognising the peculiar advantages of horseless vehicles.

Near Beattock we overtook a postman carrying a heavy mail-bag, and he gladly availed himself of the proffered seat for his first run on a motor-car, and it was fortunate that he was with us, for we approached an unattended horse with a cart, and it was only by the man's timely aid in getting hold of the

but were dissuaded from giving too much time to this quest by the minister, who was in a little shop where we were making inquiries, and who explained that unless we were personally interested in the records they were not worth the trouble of looking up and of the actual old smithy there does not seem to be anything remaining. Shortly after leaving Gretna Green we had to slow down and go very cautiously over a long piece of road that was freshly covered with broken stones that were being laid by some men who seemed to have a fiendish gleam of delight in

their eyes at the annoyance and trouble this caused us; we fortunately, however, crawled through without damaging the tires and were enabled to proceed without further event to Carlisle, where we again put up at the County Hotel. As we had on several occasions experienced some trouble through the burners blowing out, my father had a small alteration made to the chimney and several holes perforated in the door of the burner chamber, which we were glad to find completely cured this trouble. Next day we proceeded from Carlisle to Barnard Castle, making a splendid run to Penrith. The broad but undulating road gave the cars an excellent chance of some switchback work, and we made capital time. After lunching at Penrith we proceeded through Temple Sowerby and Appleby, excellent roads so far, but after leaving Appleby we found the country very hilly to Brough, and from there to Bowes had the roughest piece of riding we had experienced in the whole journey. We followed

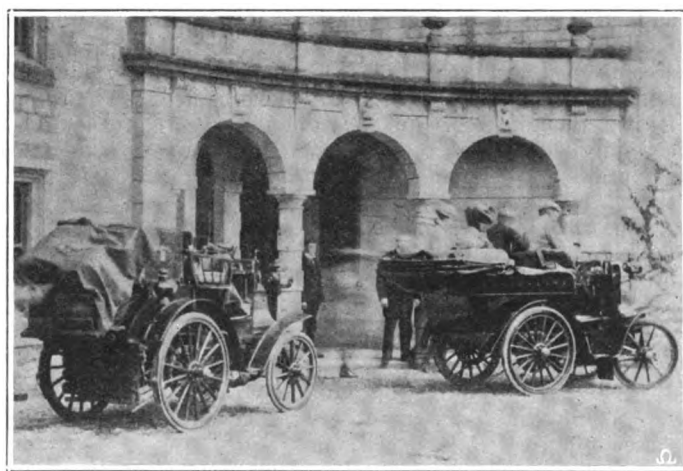


HELPING A POSTMAN ON THE ROAD FROM DUMFRIES.



ON THE SCOTCH ROAD—CATTLE PHOTOGRAPHED FROM THE FRONT OF THE CAR WHILE IN MOTION.

horse that we avoided what might have been an awkward collision. We proceeded to Lockerbie, and stayed there for lunch. Afterwards we went on, the road being in excellent condition, and soon reached Ecclefechan, where we stopped to visit the early home of Carlyle. Then we proceeded to Gretna Green, where we tried to find some traces of the old blacksmith's smithy,



THE TWO CARS READY TO LEAVE LEYBOURN (YORKS).

a mere track, it could not be called a road, with deep cart ruts in several places and covered with loose stones. The country was extremely wild, and it was very hard work for the car and certainly did the tires no good, but after leaving Bowes we again struck a piece of good road. Then we discovered that the tire which we had repaired in Scotland had become loose, and we had to crawl on very slowly in order to prevent slipping it altogether, and we did not arrive at Barnard Castle till 6.30. The climb up the hill from

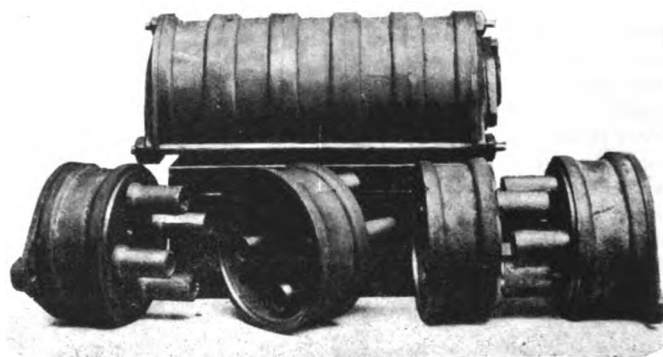
the river to the hotel was about the steepest grade we had yet encountered on the whole journey, with a somewhat loose and rough road; the novelty of a motor-car attracted a considerable crowd and we found it very necessary to get up without stopping or unloading. We were heavily laden and the tire was loose, but we managed to negotiate the hill successfully. On measuring carefully next morning my father found in some places the grade was 1 in 6. We managed next day, after waiting several hours, to effect the repair of the wheel and get the tire on again, in fairly good condition by the aid of a local engineer and a cycle-repairer. The latter was an interesting man, who appeared to have his business divided between dealing in clocks, curios, and repairing cycles. In the afternoon we left Barnard Castle for Leyburn, in Yorkshire, *via* Richmond. The day was lovely, and the views of the richly-wooded country, with its hills and valleys, in the bright sunshine, left an impression of a scene of beauty never to be forgotten. We much enjoyed our ramble through the quaint old town of Richmond, with its castle and river, and cobble-stoned streets. It was here that we weighed the car with its full equipment, and found it made 31½ cwt. with everything complete, and it certainly spoke well for the Mossberg roller bearings when one considers the speed and load we could carry with only a 6-h.p. engine. Later on we proceeded up the lovely Swale Valley, across the hill over to Leyburn, where we stayed with friends who well maintained the reputation of Yorkshire hospitality. Next day, unfortunately, the weather was bad, so that we could not make some projected local trips. On the day following, Saturday, September 8, we left Leyburn for Yorks. We ran through much typical Yorkshire scenery, visited Jervaulx Abbey, also the Cathedral at Ripon, and stopped for lunch after which we hoped to make a good run on the capital road into York. Unfortunately again there were indications of coming trouble with the tire which had on previous occasions been several times repaired, so we ran very slowly and cautiously, but just as we were within about a quarter of a mile of York city ascending a slight incline the tire suddenly parted company with the wheel and came off altogether. This was most awkward and annoying, but it was fortunate we were so near our destination. The tire having become badly cut it was impracticable to replace it, so we sought shelter for the car at the hands of a friendly blacksmith, and unloading the luggage into a passing cab proceeded to the Station Hotel. It was the intention of my father to have repaired and proceeded by road to London, but as important business engagements called him up the car was shipped by rail to Mulliner's to have the painting completed and the wheel sent to Paris for repair. So ended a most enjoyable run on the new car. The old car, which had accompanied us all the time, continued her journey by road to London, stopping at Coventry to be overhauled. The record of its run, though not so quick as the new Parisian Daimler, was certainly most satisfactory. It practically never broke down or stopped for repairs and alterations during the whole run, and though by no means as swift as its new companion, it proved that it is possible to get a good average speed Daimler motor-car that can accomplish a run of this distance without fear of interruption or breakdown, which, of course, is very gratifying.

You may ride on a horse, or a mule, or a moke,
 You may drive in a carriage, or sail in a boat,
 You may swim in the water, or fly in the air,
 Go just as you like, but only take care,
 You may skate, you may walk, take train, tram, or 'bus,
 Go in great state, or without any fuss,
 You may bike on a wheel, a single or tandem,
 Go just as you please, at will or at random,
 You may stay at home near, or travel afar,
 But nothing can equal a mote on a car.

OUR Midland representative had the opportunity the early part of this week of seeing Mr. J. D. Siddeley's 16 h.p. Daimler car in its final stage of construction. It possesses all the latest improvements in design and detail, and is fitted with Mossberg Roller bearings throughout, also tube and electric ignition. The car can be moved bodily with the pressure of one finger.

THE HUDLASS SILENCER.

MR. F. W. HUDLASS, of Southport, who is devoting much attention to motor-cars, has lately devised a new silencer, of which we are able to give an illustration herewith. As will be seen, the apparatus is quite a new departure. It is built up in sections, any number of which can be bolted together to suit any size of engine. Mr. Hudlass informs me that in practice five of the sections are sufficient for a 6 h.p. engine, the size of the five-section silencer being only 5 in. by 12 in. The strong feature of the device is that there are no small holes, as in



the ordinary silencer. The smallest hole is ¾-in. in diameter, and by this means the amount of back pressure is considerably reduced.

THE AUTOMOBILE CLUB'S TRIALS OF ELECTRICAL VEHICLES.

IN our issue of the 10th inst. we were able to briefly chronicle the events of the trial on the 8th inst., the course being over thirty miles of fairly stiff road. The "Powerful," entered by the British and Foreign Electrical Vehicles Company, the Electric Motive Power Company's car, the Canadian Company's car, and the Electrical Undertakings car completed the course. Owing to the accident to the chain on the previous day, the "Joel" car started late. Further chain troubles were experienced, which caused the car to complete a distance of only sixteen miles.

The trials terminated on Friday, the 9th inst., with a run over a fairly level course, the object being to show how far the vehicles could go on one charge. Unfortunately, owing to the heavy rain on the previous night, the roads were deep in thick and greasy mud, and this considerably retarded the progress of the machines. The British and Foreign Electrical Vehicle Company's "Powerful" carriage completed sixty miles; the Canadian Electric Motor Company's car had to abandon the run at the end of twenty-three miles, owing to an accident to a ball bearing. The Electric Motive Power Company's car was also withdrawn at the end of fifteen miles; the "Joel" car was withdrawn at the end of three miles, owing to punctures; and the Electrical Undertakings car completed thirty-five and three-quarter miles.

LADY JEUNE had an article on the possibilities of the motor-car in last week's *Ladies Field*.

MESSRS. M. AND P. MOYLE, of 124, East India Dock Road, Poplar, and Charles Street, Hatton Garden, E.C., inform us that they have obtained licenses to store and sell motor spirit at both of their establishments.

THE Ariel Motor Company, Limited, of Birmingham, have sent us a copy of their new illustrated catalogue of motor tricycles, quadricycles, and trailers. Some useful instructions as to the operation of the machines are included in the catalogue, while appended is a long list of testimonials from pleased purchasers of Ariel motor-cycles.

THE PICK VOITURETTE.

WE are this week able to illustrate the voiturette which Messrs. J. H. Pick and Company, of Blackfriars Works, Stamford, are exhibiting at the Stanley Show. As will be seen, it is propelled by means of a $2\frac{3}{4}$ h.p. vertical air-cooled petrol motor geared to the rear axle. Messrs. Pick have

band brake between. The shaft coming straight out of the motor case carries a pair of friction clutches attached to pinions, one with 32 teeth meshing with the 124-teeth large gear wheel, and one with 16-teeth gearing with the 132-teeth gear wheel; the latter forms the slow gear, the former the fast—equal to twenty-five miles per hour—with a difference of about fifteen miles per hour. The two clutches are controlled by one lever;

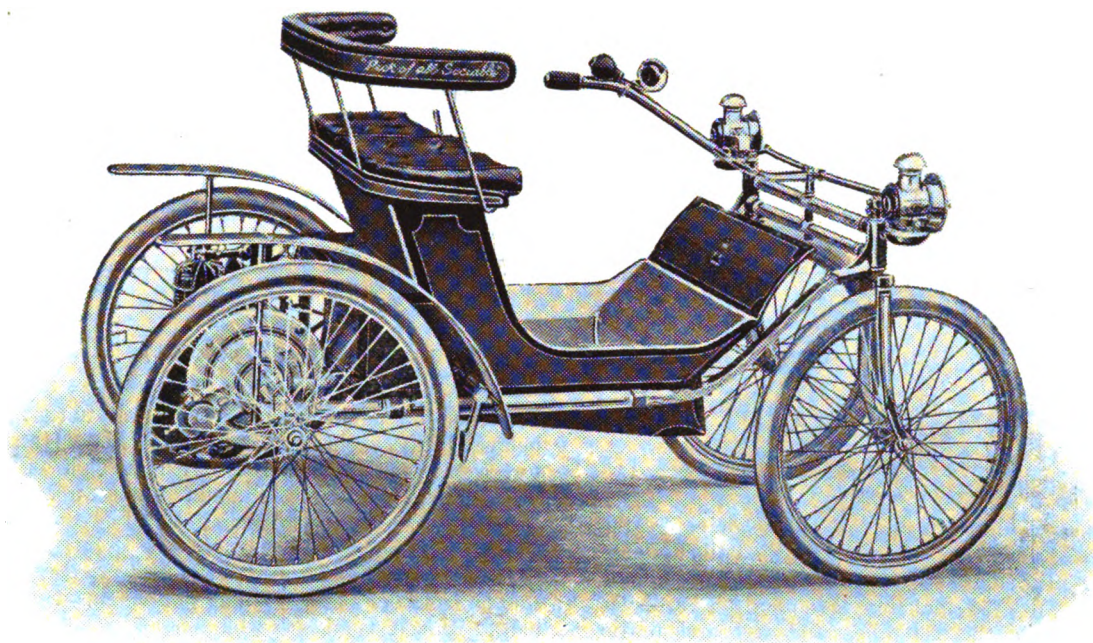


FIG. 1.—GENERAL VIEW OF VOITURETTE.

devoted special attention to the efficient cooling of the engine and have devised a special air-cooling funnel, which gathers in the air in front and, passing it under the body of the car, blows a draught directly on to the cylinder. The makers inform us that this arrangement enables the car to run 100 miles without over-

moving the lever to the right puts in the slow gear clutch, while a movement to the left engages the high-speed gear. Messrs. Pick inform us that they recently gave this gear a good trial extending over fifty miles and found it to act satisfactorily and to be absolutely noiseless. Another feature of the car is to be found in the patent front springs connecting the front carriage with the

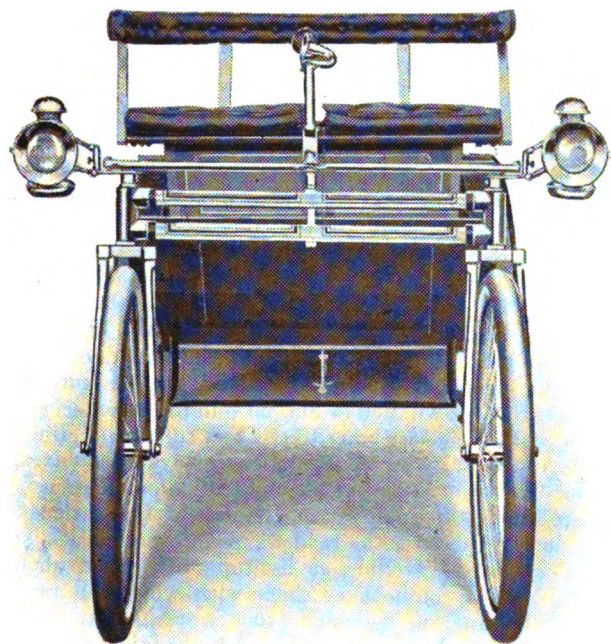


FIG. 2.—FRONT VIEW.

heating the cylinder. The motor is equipped with a surface carburettor of their own type, which they state uses much less petrol than the carburettors at present in use. In the transmission gear no chains or belts are employed. Two large gear wheels of different sizes (124 and 132 teeth) are mounted on the driving axle with the drum containing the combination differential gear and

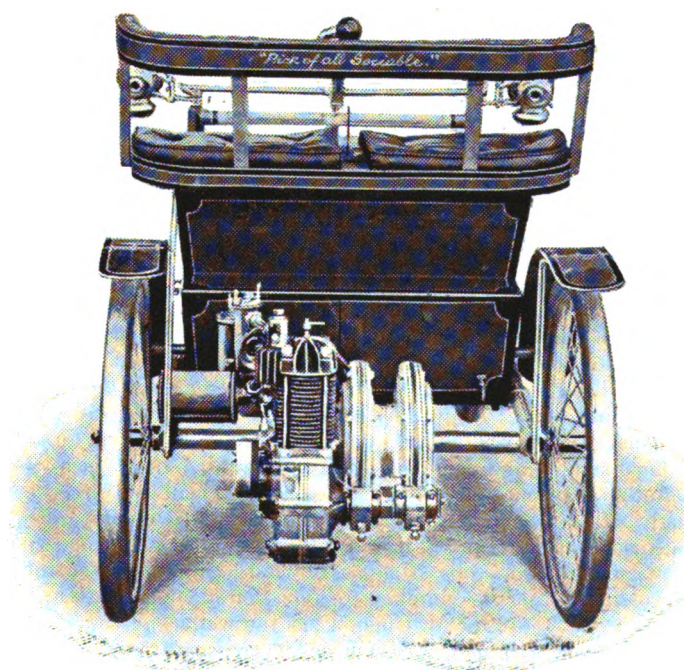
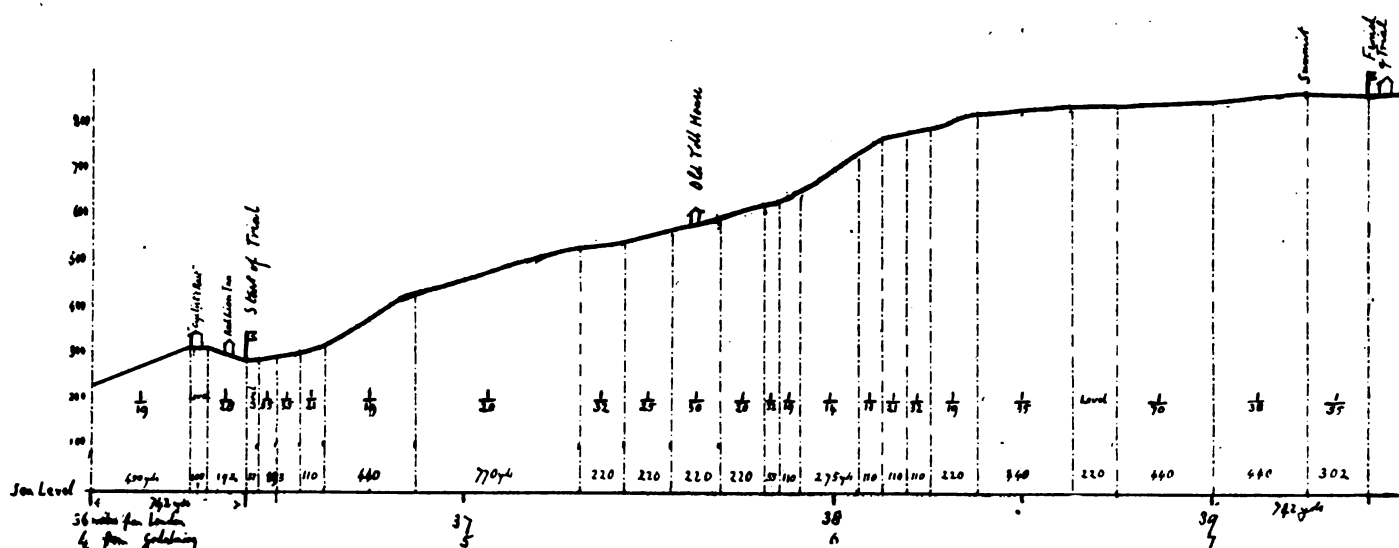


FIG. 3.—REAR VIEW.

main body, these being claimed to practically do away with vibration. The frame is of tubular construction, while the road wheels are of the cycle type. The front steering wheels are carried in forks similar to those adopted on bicycles, and the seat is fitted with pneumatic cushions. The car is very light, the weight complete being only $2\frac{1}{2}$ cwt.



THE HINDHEAD CLIMB. CONTOUR OF HILL, SHOWING GRADIENTS. (see page 630.)

THE HILL-CLIMBING RACE AT GAILLON.

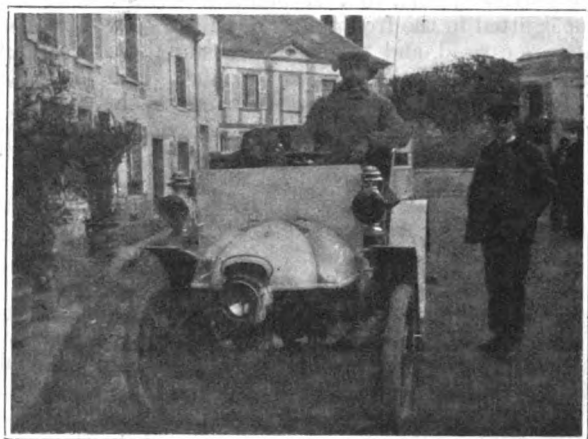
(From Our Own Correspondent.)

WHEN Monsieur Ernest Cuénod offered to drive me on his 10 h.p. Richard to the scene of the hill-climbing trials I gladly accepted, for the Swiss Automobile Club's vice-president is such a genial companion and his car is so speedy that the prospect of the 130-mile run was particularly attractive, and one to be eagerly anticipated. Add to this anticipation of a delightful trip the certainty of witnessing some exciting racing, and the motor man will understand the punctuality with which I put in an appearance at Georges Richard's big garage in the Avenue de la Grande Armée on the morning of the eventful day, and my punctuality was rewarded by the interesting sight of the voiturette brigade busy putting the final touches to their tiny vehicles, preparatory to starting out upon what for them was a fairly lengthy journey. Chief interest very naturally was centred in the official representative of the company, a dainty little *tonneau*, which later on in the day made excellent speed up Gaillon's steep grade, only to find upon reaching the summit that by reason of the premature closing of the *contrôle* the performance could not be included in the official returns. Hard lines for the gallant little car, which had carried its four passengers right manfully over the sixty-five miles of route from Paris and mounted them to the top of Saint-Barbe. Once the small fry had got under way I had a few minutes' leisure to admire the lines of the snowy-white *tonneau* in which, a quarter of an hour later, I was to find myself speeding down the Avenue du Bois. Thanks to M. Cuénod's skilful driving we negotiated the slippery surface of the Boulevard Bineau without mishaps, but the route to Maisons Lafitte, always bad, was in such a deplorable condition on Sunday morning that not until that horsey town had been passed and the famous forest of Saint Germain entered could our 10 h.p. be given her head. But at last over came the lever, with a bound the snowy car gets into her stride, and soon we are speeding along with a beautifully easy movement, which sends a thrill of pleasure through all three of us, for the *mécanicien* is evidently also an enthusiast, if his beaming face is to be believed. On, on, we speed, past the Croix des Noailles, down the hill and over the level crossing until the chimney tops of Poissy come into view, and then we slow up, for M. Cuénod has the welfare of the automobile movement too much at heart to drive through towns and villages at the pace affected by certain motor men, and which can but result prejudicially to the industry and to the sport. Slowly, then, through Poissy, but once clear of the bridge we can again utilise our fourth speed, and the beautifully even surface of the road flies by us at thirty-five miles an hour until Triel is reached. Here, at the bridge, we halt a moment to pay our toll,

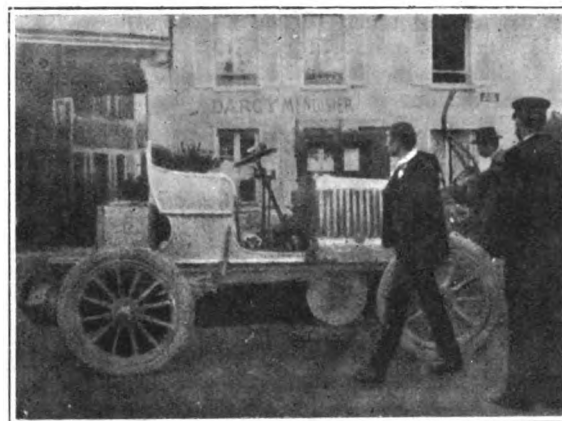
and then on again with never a halt until Meulan, the spot beloved of yachtsmen, is entered. Greasy *pavé* calls for extra care, and it is with a sigh of relief that the hard, dry macadam is again found upon the other side of the town. From Meulan to Mantes the road is—well, an ideal French route—can one pay it a higher compliment?—and but for a fifteen minute *panne* searching for a key shaken from one of the driving pinions our time would be excellent. But it is always the “but” in automobilism, and our record is quite spoilt by this mischance. Once at Mantes, however, we pulled up, for—drinks, I think I hear you say; but no, petrol this time, my friend, and then start afresh upon our journey. Rosny is soon reached, and that something is in the air is evidenced by the groups of villagers whom we find at intervals along the route, and who have evidently taken up their points of vantage expressly to see the horseless vehicles go by *en route* for Gaillon. Then, too, we overtake and pass quite a number of “autos,” less speedy than others, and so the journey presents an ever-changing tableau. At Bolleboisse we climb the tremendous hill which mounts abruptly from the river's banks, and after passing through Bonnières we enter upon that stretch of road which, hugging the Seine, is so shut in by a ridge of hills that it always appears destitute of sun. Here it is colder than ever, and we shrink instinctively into our clothing and pull our caps well down over our ears. And the lady motor likes it, and buckles down to the work with an ardour which sends the wind whistling past us and brings tears to our eyes in spite of the protecting goggles. But here we are at Vernon, and halting at the Hôtel de Paris we decide to make a hasty lunch before starting on the remaining 14 kilomètres of our journey. In the *salle à manger* we find Count Bozon de Périgord and several other well-known automobilists, while during our hurried meal the sound of running motors is almost continuous. Now and again, too, we hear the roar of a racing car or the vindictive Maxim gun-like spattering of a *cycle de course*, and then we start to our feet to catch a glimpse of the passing monster. Now we are under way again ourselves, and heading for Gaillon. With but a couple of kilomètres or so to go, we are busily discussing the chances of the various competitors, when away down the road we see a small black speck, but a speck which, travelling at lightning-like speed upon the white surface of the route, takes shape with wonderful rapidity. Above the whistling of the wind, too, we can hear the loud report of a racing motor, and barely have we had time to hazard an opinion as to the probable rider when, with a rush, he is upon us. Crouching almost under his machine, which jumps and bounds in a manner truly terrifying, we are just able to recognise Béconais' determined-looking features before the “roi des motocyclists” is past us with a rush and a roar which leaves a veritable singing in our ears. So he has finished his trial, and we have not seen it. A pity, but we compensate ourselves with the

thought that we have seen him at full speed on level ground, which is, perhaps, even more sensational than his hill-climbing performance. And now we are at Gaillon, whose narrow, badly-paved streets resound with the snorting of motors. Before the doors of the Hôtels Saint-Nicolas and Soleil d'Or we see clusters of motor men, but the worthy villagers themselves are conspicuous by their absence, for all are witnessing the race at Sainte-Barbe. Through the town we pass, and always travelling at a slow and cautious speed, we follow the route to Rouen. About a kilomètre further on we see the famous hill rising like a wall in front of us, and fairly black with people. What a day for Gaillon! Every man, woman, and child of the little township is surely there, and the gorgeously uniformed gendarmes have evidently all their work cut out to maintain a clear passage for the racers. Three buglers of the local fire brigade are stationed upon the hill, and just as we reach the foot a

and we are not surprised to learn that the time made gives an average of 42 kilomètres per hour. Right upon the summit I find René de Knyff busily engaged upon his big Panhard, in which of late King Leopold of Belgium has so frequently made excursions. And there, too, are a number of well-known automobilists too numerous to mention, and I find that the topic of conversation is Béconnais. His mount, it appears, was a new two-cylinder motor developing 14 h.p., and his time, from a flying start, for the kilomètre of hill was 55 secs., or at the rate of 65 kilomètres an hour. No wonder, then, that he had passed us half an hour before at a terrific speed. A 14 h.p. engine should be able to push a tricycle along a bit, I fancy. What say you? A few minutes' chat and then I mount again beside M. Cuénod, who had just brought his car and full complement of passengers up the hill in the creditable time of 3 mins. 27 secs. Steadily we descend, and,



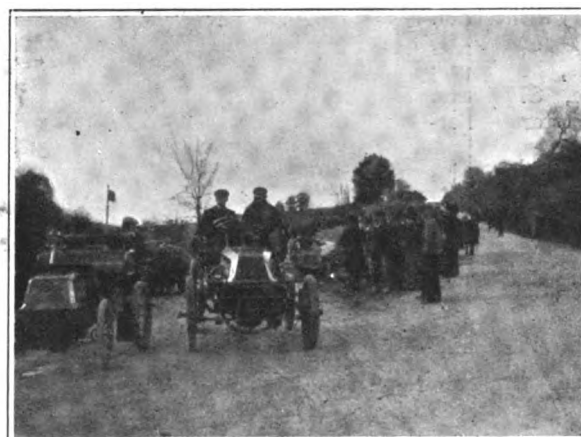
M. CUENOD, VICE-PRESIDENT SWISS AUTOMOBILE CLUB, AT VERNON.



BBEA BBEA DE DIETRICH RACING CAR AT VERNON.



A SERPOLLET STEAM-CAR STARTING ON ITS TRIAL.



LEVEGH ON HIS MORS RACER AT FOOT OF HILL.

garde à vous is sounded by the first and repeated by his companions, posted further up the course, for the purpose of warning the spectators of a coming racer. Leaving the car by the road side in company with dozens of other self-propelled vehicles of every type and make, I commence the ascent of the hill on foot, and have negotiated about half the distance when, following upon the bugle call, a car is seen to detach itself from the crowd below and mount towards us with wonderful rapidity. It is Levegh, and although the big Mors is but travelling upon her slowest speed she passes me at about 16 miles an hour. Then follows a Serpollet steamer, then a motor-bicyclist pedalling vigorously, then a quadricycle, and finally M. Brasier, the actual winner in the big car category. Less highly geared than Levegh and Hourgières the Mors car driven by Brasier mounts with great rapidity; indeed, on the easier grade, just before the finish, the fourth speed is utilised,

dodging our way through the crowd, we make for Gaillon. Once through the town we spin along in great style and overtake any number of cars, while we ourselves are overtaken by Girardot, Levegh, Hourgières, de Knyff, and other kings of the road. Vernon, Bolleboise, Bonnières, Rosny, Mantes, Meulan are all quickly passed, and then at Triel we halt a moment to warm the inner man, for it is cold I can assure you, and the *mécanicien* is wise to avoid the wind by crouching in the bottom of the *tonneau*. On to Poissy and through the forest we speed, and finally enter Paris by the gate sacred to automobilists, the Porte Maillot. We house the car, and then make tracks for the "Excelsior," the Avenue's new café-restaurant, where our appetite is appeased by an excellent dinner. Automobilists, try the "Excelsior" whenever in the neighbourhood of the Avenue de la Grande Armée, for you will not regret the experiment. And now, to conclude, I append the official returns of the race. *Les voici!*

THE INTERNATIONAL CHARETTE.

THE accompanying illustration shows the attractive little car which has just been put on the market by the International Motor-Car Company. It is some months since Mr. F. O. Seyd told us he had a new light vehicle to be sold at a popular price on the stocks, and we have awaited its appearance with interest. As will be seen, the car seats three persons, all facing forward, with plenty of room for each passenger. The motor, which can be of $3\frac{1}{2}$ h.p. or 5 h.p. as desired, is of the vertical single water-cooled type on the De Dion system. It is located in the fore of the frame under a bonnet which can be readily detached. The motor itself contains a number of commendable features, the chief among which being that both valves, which are on top of the motor, are entirely water-jacketed. The engine, though small, does not run at a high speed, a rate of 800 to 1,000 revolutions being sufficient to develop its full power. The water circulation is on the gravity system, so that pump troubles are obviated. A radiator is fitted in the front of the vehicle. Two gallons of water only are carried, and this will, it is stated, last 100 miles. The engine is started with the usual handle, which is fitted at the side of the car. The exhaust is carried to the back of the car, and is very quiet. The ignition is, of course, electrical, and it is of a simple kind, which enables the makers to claim that it will rarely give trouble.

Coming now to the transmission gear, three speeds, with reverse, are available, and any speed from three to thirty miles can be attained on good roads, the entire regulation of which is actuated by levers on the steering post. Wide belts transmit the power from the pulleys on the motor shaft to a countershaft in the rear, which gears to the live road axle by means of toothed wheels. Two brakes are fitted — one on

the countershaft, actuated by a pedal, and the other on drums connected to the hubs of the rear wheels. The axles, framework, and steering connections are very strongly made, the connection between the steering standard and the rod being by rack and pinion. The road wheels are of the cycle type shod with pneumatic tires of a special kind, with which the makers give a guarantee, a point which will be appreciated by those who have experience of the incessant repairing of pneumatics. The body can be removed in a few minutes, thus giving access to the whole of the transmission and gearing beneath the floor, whilst the back seat can be detached separately and the space used for luggage if desired. An interesting feature of these cars is that every one is run by road from Coventry to London with a non-stop run. Last week one of these vehicles ran from Coventry to Great Portland Street, London, in 4 hours 10 mins., a very creditable performance. We hope soon to have an extended trial of one of these small cars, when we shall again refer to it. In the meantime we may mention that quite a number of them are now on view on the International Company's stand at the National Cycle Show.

THE Hozier Engineering Company, Limited, of Glasgow, are about to open a London dépôt at 19, Baker Street, Oxford Street, London, W., where they purpose holding an exhibition of "Argyll" voiturettes, and also to have on view their latest pattern four-seated car fitted with 5 h.p. motor.

1. Two-seated cars weighing more than 400 kilogrammes.—Petrol: 1, Brasier (Mors), 1 min. 26 $\frac{1}{2}$ secs.; 2, Lefebvre (Bolidé), 1 min. 33 $\frac{3}{4}$ secs.; 3, Hourgières (Mors), 1 min. 33 $\frac{3}{4}$ secs.; 4, Levegh (Mors), 1 min. 35 $\frac{3}{4}$ secs.; 5, Diétrich, 2 mins. 21 $\frac{1}{2}$ secs.; 6, Compagnie Française, 4 mins. 2 $\frac{1}{2}$ secs.; 7, Hidieu, 4 mins. 58 secs. Steam:—1, Serpollet, 1 min. 58 $\frac{3}{4}$ secs.; 2, Serpollet, 2 mins. 19 $\frac{1}{4}$ secs.

2. Four-seated cars, petrol or alcohol.—1, Terront (Bardon), (petrol), 2 mins. 8 $\frac{3}{4}$ secs.; 2, Gobron-Brillié (alcohol), 4 mins. 36 $\frac{3}{4}$ secs.; 3, Bardon (petrol), 4 mins. 48 secs.; 4, Delantre (petrol), 5 mins. 42 secs. Steam:—1, Serpollet, 2 mins. 13 $\frac{3}{4}$ secs.; 2, Serpollet, 2 mins. 30 $\frac{1}{4}$ secs.

3. Voiturettes (two-seated) weighing from 250 to 400 kilogrammes.—1, Van Berendonck (Aster), 2 mins. 32 secs.; 2, Darracq, 2 mins. 49 $\frac{3}{4}$ secs.; 3, Ader, 3 mins. 5 $\frac{3}{4}$ secs.; 4, Mercier (Gladiator), 3 mins. 18 $\frac{3}{4}$ secs.; 5, Fernandez (Sirène), 3 mins. 29 $\frac{3}{4}$ secs.; 6, Bied-Charreton, 3 mins. 32 secs.; 7, Théodore (Darracq), 3 mins. 34 $\frac{3}{4}$ secs.; 8, Rudeaux (Darracq), 3 mins. 41 $\frac{1}{4}$ secs.; 9, Ader, 3 mins. 45 $\frac{1}{4}$ secs.; 10, Quérey, 4 mins. 11 secs.; 11, Itasse, 4 mins. 31 $\frac{1}{4}$ secs.; 12, Lambert, 5 mins. 3 $\frac{1}{4}$ secs.; 13, Bouffartigue, 5 mins. 12 $\frac{1}{4}$ secs.

4. Voiturettes (four-seated) weighing from 250 to 400 kilogrammes.—1, Darracq, 3 mins. 23 $\frac{1}{4}$ secs.; 2, Darracq, 3 mins. 35 $\frac{1}{4}$ secs.; 3, Darracq, 4 mins. 18 secs.

5. Voiturettes (two-seated) weighing less than 250 kilogrammes.—1, Gladiator, 4 mins. 25 $\frac{3}{4}$ secs.

6. Voiturettes (four-seated) weighing less than 250 kilogrammes. No competitors presenting themselves, this category was eliminated.

7. Motor-Cycles (one seat) with chain.—Flying start—1, Béconnais, 58 $\frac{1}{2}$ secs.; 2, Teste, 87 $\frac{3}{4}$ secs. Standing start—Bardin, 111 $\frac{1}{2}$ secs.

8. Motor-Cycles (two seats).—Flying start—1, Gustave (quadricycle), 1 min. 50 $\frac{3}{4}$ secs.; 2, Bucquet (tandem), 2 mins. 22 $\frac{3}{4}$ secs.; 3, Deckert (quadricycle), 4 mins. 30 $\frac{1}{4}$ secs.

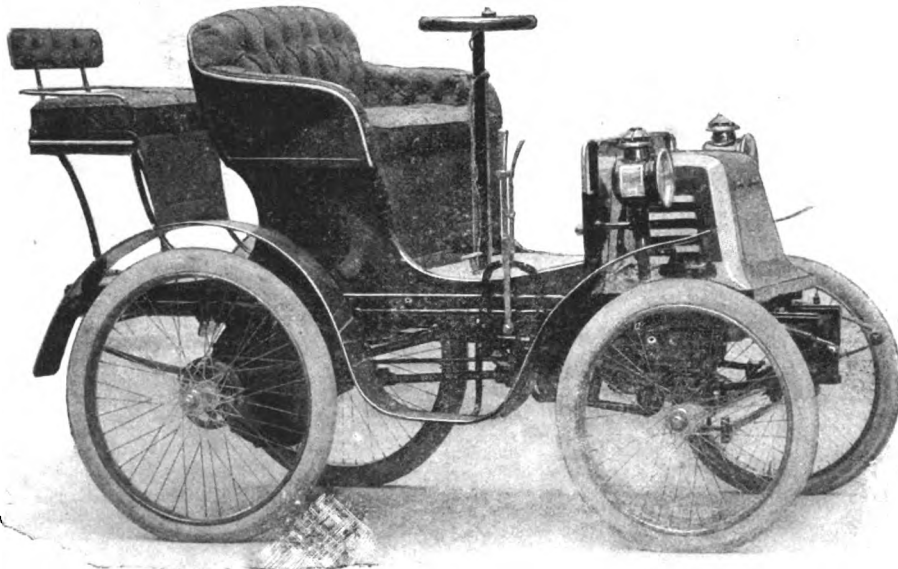
9. Motor-bicycles.—1, Bonnard (Werner), 1 min. 48 $\frac{1}{4}$ secs.; 2, Bucquet (Lamaudière), 1 min. 58 $\frac{3}{4}$ secs.; 3, Cousin (Werner), 2 mins. 3 $\frac{1}{4}$ secs.; 4, Lesaint (Werner), 2 mins. 34 $\frac{1}{4}$ secs.; 5, Lamaudière, 2 mins. 35 $\frac{1}{4}$ secs.

10. Motor-cycles without chains.—Flying start, Béconnais, 55 $\frac{3}{4}$ secs.; standing start, Bardin, 111 $\frac{1}{2}$ secs.

In every category all previously existing records were broken, a striking testimony to the progress made during the last twelve months.

THE Columbia Motor-Car Company, Ltd., has been registered, with a capital of £1,000, to manufacture, sell, let on hire, and deal in electric motors, cycles, bicycles, velocipedes, and vehicles. Registered without articles of association.

MESSRS. HOLDING AND SON, of 7, Maddox Street, London, W., who make a speciality of clothing for motorists, have sent us a copy of a new catalogue they have just got out, in which some particularly smart and practical garments are illustrated. Mr. T. H. Holding, the head of the firm, has given great attention to the requirements of the users of motor-cars, so that the garments he has designed are well worthy of inspection. The ladies, too, are not overlooked, the catalogue giving illustrations of some special coats designed for their use.



GENERAL VIEW OF THE INTERNATIONAL CHARETTE.

HERE AND THERE.

HEAR from Mr. F. W. Baily that the Crystal Palace Company will shortly open a *garage* near the main entrance to the Palace. This will be of great convenience to the automobilists visiting this really national institution. Pending the completion of the permanent building temporary arrangements will be made during the forthcoming show, and motor-vehicles can be stored for 1s.—half that rate being charged for motor-tricycles. Members of the Automobile Club and of the English Motor Club will be allowed a reduction of 50 per cent. on showing their badges of membership.

THE Crystal Palace is not the only place where members of clubs obtain an advantage, Messrs. R. Scaife and Co., of Armley Road, Leeds, having agreed to allow a reduction on all repairs executed by them for members of the Yorkshire Motor-Car Club. This privilege is also extended to those connected with the English Motor Club.

AT last we have a motorist being charged for alleged furious driving and the case being dismissed. This is really remarkable, and Captain Digby and Mr. C. North, the two magistrates who heard the case at the Grimston (Norfolk) Petty Sessions, deserve special mention for their impartiality in the matter. As a report of the case was given last week the details need not be repeated. Suffice it to say that the police said defendant was driving at a greater speed than twelve miles an hour. In addition to the motor-car driver and the constable, there were three witnesses: one said the car was being driven at between nine and ten miles an hour; another "questioned whether the car was going more than six or seven miles an hour"; and the third saw "the car pass, I should think, at thirty miles an hour." But the strange thing was the dismissal of the case. And in Norfolk, too! Well, wonders will never cease, and magistrates may, some day—perhaps in the coming century—realise that the truth may come from tongues other than those in the mouths of the police.

PARTICULAR care should be observed in passing through the following counties, the councils of which have lately declared in favour of further restrictions on the speed of motor-cars or for numbering vehicles in a conspicuous way:—

Essex.	Oxford.	Norfolk.
Lincolnshire.	Berkshire.	Middlesex.
Hampshire.	Suffolk.	Surrey.
Worcester.	Leicester.	

GUIDED by common-sense, the West Suffolk County Council has declined to be associated with the irritating movement now being developed against automobilism. At the last meeting the Highways and Bridges Committee recommended official support to the proposal to reduce the limit of speed from twelve to ten miles an hour; but several councillors declared against the idea. Mr. Jay ridiculed the idea of a horse and trap being allowed to travel twelve miles an hour, while a motor-car, which was under greater control, was to be restricted to ten miles an hour—a view which apparently had considerable weight. Sir Henry Banbury spoke up strongly on behalf of motor-cars, but I regret to have to add the names of Sir Joshua Rowley and Colonel Barnardiston to the list of gentlemen whose automobile education has been greatly neglected. Both gentlemen should be taken for rides on the cars of any local owners. The Marquis of Granby should also be placed in the same category, because of his speech at the last meeting of the Leicester County Council.

AT a meeting of the Ramsgate Town Council Councillor Cort said he had seen a motor-car going along the High Street faster than a South-Eastern train. To those who imagine that the acme of speed has been reached on the railway such a statement will appear extraordinary, but to those who know the South-Eastern it will be regarded as the commonest commonplace.

By the way, the many suggestions for the utilisation

of motor-vehicles by the fruit growers of Kent seem to be crystallising into fact, and on Friday a meeting was held at Sittingbourne to consider whether the produce of the farmers and fruit growers of the county could be economically conveyed in motor-cars. Speaking on this point at the annual dinner of the Mid-Kent Agricultural Association Mr. F. S. Cornwallis, the deputy-president, said he was sure the railway companies themselves would be glad if they could find some alternative mode during certain months of the year by which the fruit and other produce could be promptly conveyed to the London markets. Well, if that is so, why don't they make some trials? There are a score of automobile firms who would be willing to assist.

I BELIEVE that the fruit growers have been in consultation with the British Electric Traction Company on the subject, and that the suggestion has been made to haul the trucks by means of a steam tractor. By leaving the fruit gardens about five o'clock in the evening, the produce would be in London in ample time for the early morning markets.

IN the Dovedale district of Derbyshire motorists may encounter very stiff hills and enjoy most delightful scenery at the same time. It is a favourite resort of Sheffield people, and the accompanying illustration depicts Mr. James Barber, a well-known cutlery manufacturer, of Sheffield, and a friend shortly after their arrival at Dovedale, a pleasing distance of thirty-eight miles from Sheffield. Mr. Barber is on the front seat. The journey was done in three hours' running time over a very hilly road. Altogether ninety-five miles were travelled on the day the photograph was taken, the average for the whole journey being exceedingly good. As will be readily seen, Mr. Barber owns a Marshall car. This he has had five months, during which time he has driven it more than 1,500 miles, and with the exception of a few small adjustments he has not had to spend a penny on repairs.



MOTOR-CAR poets are getting on. Here are four lines from the latest—I dare not give more:—

Oh, I love to steal away in the waning of the day,
When the sun is painting pictures on the sky.
And upon my petrol steed through the country breezes speed,
With the light of motoration in my eye.

The "light of motoration" is not nearly so blinding as dust; but it may be fatal to poets. I should like to hear what Mr. Alfred Austen has to say upon the subject.

WITH Mr. Edge as a defendant and Mr. Staplee Firth as special pleader, no wonder the St. Alban's magistrates dismissed the case last week. Probably had Mr. C. Jarrott been called as a witness, the advice from the Bench as to telling friends not to go too quickly would have been dispensed with.

LOLLIUS.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

Gobron and Brillié and the Alcohol Competition.

UNQUESTIONABLY, the firm who showed to best advantage in the recent Critérium de l'Alcool is MM. Gobron and Brillié, and these constructors are naturally proud of the performances made by their vehicles. Among the first fifteen arrivals at Rouen no fewer than four Gobron-Brillié cars were to be found, the first of the four being driven by Madame Gobron herself. In the course of a conversation which I had the other day with M. Brillié, he told me that all these cars used pure alcohol as fuel. Many of the other competitors used *mélanges* of petrol and alcohol, but the experiments made by M. Brillié had convinced him of the practicability of doing an excellent performance without resorting to any such mixtures, and his confidence was perfectly justified, for from start to finish the firm's cars ran without a hitch. Purchasers of these vehicles now know that they may employ either petrol or alcohol without in any way changing their motor, and that the force developed is precisely the same in either case. What a pull this gives the owner of a Gobron-Brillié over the man with another type of motor in which such a change is impossible without troublesome changes to the carburation, etc.! This fact in itself should greatly increase the already numerous orders held by this firm.

The French Automobile Club.

THE membership roll of the Automobile Club of France now includes 2,389 names, and continues to increase with unfailing steadiness. Members, too, are finding that much is now being done to render the magnificent club-house in the Place de la Concorde really attractive. I do not mean in the matter of appearance, for the Hôtel Pastoret has always been palatial, but I mean rather in the matter of amusements. Another billiard table has been added, additional chess boards, etc., have been provided, and tournaments at the latter game will probably be organised during the winter months. Billiard enthusiasts will be able to take lessons from a professor of the fascinating game, while fencing and boxing men are also provided facilities for becoming proficient in these arts of self-defence. The formation of the Motor Club is already having good results upon the A.C.F., and the member of the latter must, indeed, be difficult to please if he is not satisfied with what the society is now doing, both for the industry and for its members. A little honest competition is excellent and the best possible remedy against stagnation.

On the Versailles Road.

No route in the neighbourhood of Paris see more traffic than does the famous road joining Versailles to the capital, and none is more favoured by automobilists. Passing through charming scenery, it forms the initial stage of numberless delightful excursions, and therefore rejoices in a continual stream of pleasure-seeking motor men, while the *chauffeur* intent on business frequents it by reason of its hilly character, so admirably adapted for carriage testing purposes. Throughout its length, some fourteen miles in all, there hardly exists a quarter mile stretch of level ground; and the hills of Suresnes and Picardie are capital tests of a motor-vehicle's ability. The latter hill is particularly noteworthy, for down its long slope have rushed into Versailles the competitors of many historic races, and exciting indeed have been the struggles to reach first the *grille*. Every Sunday automobiles in their hundreds speed up and down Picardie, and not a few mishaps have there been witnessed. Some few days ago a curious accident arose, in which, however, the automobile was the victim of the horse. Two noble steeds, drawing a handsome carriage, suddenly bolted while descending the hill and ran blindly into the motor-car of M. Daudet, which successfully resisted the shock, although suffering severely in the matter of carriage work.

After this deed of deliberate aggression, the hay-motors proceeded no further, for the solidity of their would-be victim had a sobering effect upon their nerves. There must have been something radically wrong with these two horses, for, generally speaking, the noble steed is too amicably disposed towards his mechanical brother to do him deliberate injury. But they won't do it again! and they will remember to descend Picardie slowly next time.

The Late Count Cahen d'Anvers.

THE funeral of the late Count Raphael Cahen d'Anvers, whose death was recently recorded in these columns, took place on the morning of Wednesday, the 31st ult. The body of the unfortunate Count had been brought from the scene of the accident to Paris on the previous Monday night, and had been laid upon the usual *catafalque* in one of the ground floor rooms of his residence, 144, Avenue des Champs-Élysées. Then, on the Wednesday morning, in the presence of the family the funeral service was conducted by M. Zadoc-Kahn, the Grand Rabbi of France, and M. Dreyfus, the Grand Rabbi of Paris. After the conclusion of the service, the coffin was interred in the family vault at Passy. A number of automobilists assisted at the ceremony, among them being: Baron Zuylen de Nyevelt, MM. René de Knyff and Pinson. The automobile which the late Count Cahen was driving when he met his death was the vehicle used by Girardot in the Gordon-Bennett cup race. Just previously to delivery of the car to the Count, it had been mounted by King Leopold of Belgium, and, even fitted with a touring body, it could do fully eighty kilomètres an hour. Considering the terrible shock the vehicle suffered but slight damage; indeed, apart from the broken steering gear, no vital organ was touched. The car has since been sent to Charron's.

The A.C.F.'s Tour in Tunis.

THE postponed tour of the Automobile Club of France in Tunis will take place from February 22nd to March 16th, and a truly delightful programme has been prepared. Leaving Marseilles on February 22nd by one of the boats of the Compagnie Franco-Tunisienne, the tourists will arrive at Tunis a couple of days later. During the following two days the town will be visited and drives taken to Le Bardo, La Goulette, La Marsa, Carthage, and other environs. On the 27th Zaghuan will be visited, a ninety-kilometre drive, and then on the following day the party will set out from Tunis for Kairouan, *via* Soussa; this is a distance of 190 kilomètres, and a rest will be taken on the following day. On March 2nd a 170-kilometre run to Sfax will be made; one day's local drives in the wonderful olive groves will follow, and then on to Gabès, *via* Meuzel and Ghenini. Four days will be spent in and around Gabès, and then a race of 405 kilomètres back to Tunis will be indulged in by those fond of fast travelling. The other members of the party will make their way back to the capital by stages. March 13th and 14th will be devoted to excursions to Bizerta, Lake Bizeret, etc., and on the 16th the party will embark for Marseilles. Special terms have been secured for the conveyance of members and their cars to and from Marseilles, and £20 should cover the expense of this delightful tour. Entries should be made to the Club, who will return the £4 entrance fee to every starter.

An Italian Competition.

THE Fuel Consumption Competition, of which I wrote an account last week in these columns, would appear to have found special favour in Italy, for the well-known journal the *Automobile* of Turin announces its intention to organise a similar event for Saturday, December 8th. The selected route is Turin, Madonna del Pilone, Pina Torinese, Chieri, Cambiano, Monealieri, and Turin, a total distance of thirty kilomètres, or some nineteen miles. This early imitation of the *Auto-Vélo's* competition is not surprising, for the idea is of so practical a nature that it appeals strongly to all who are interested in automobilism. As Georges Prade said to me during the course of the

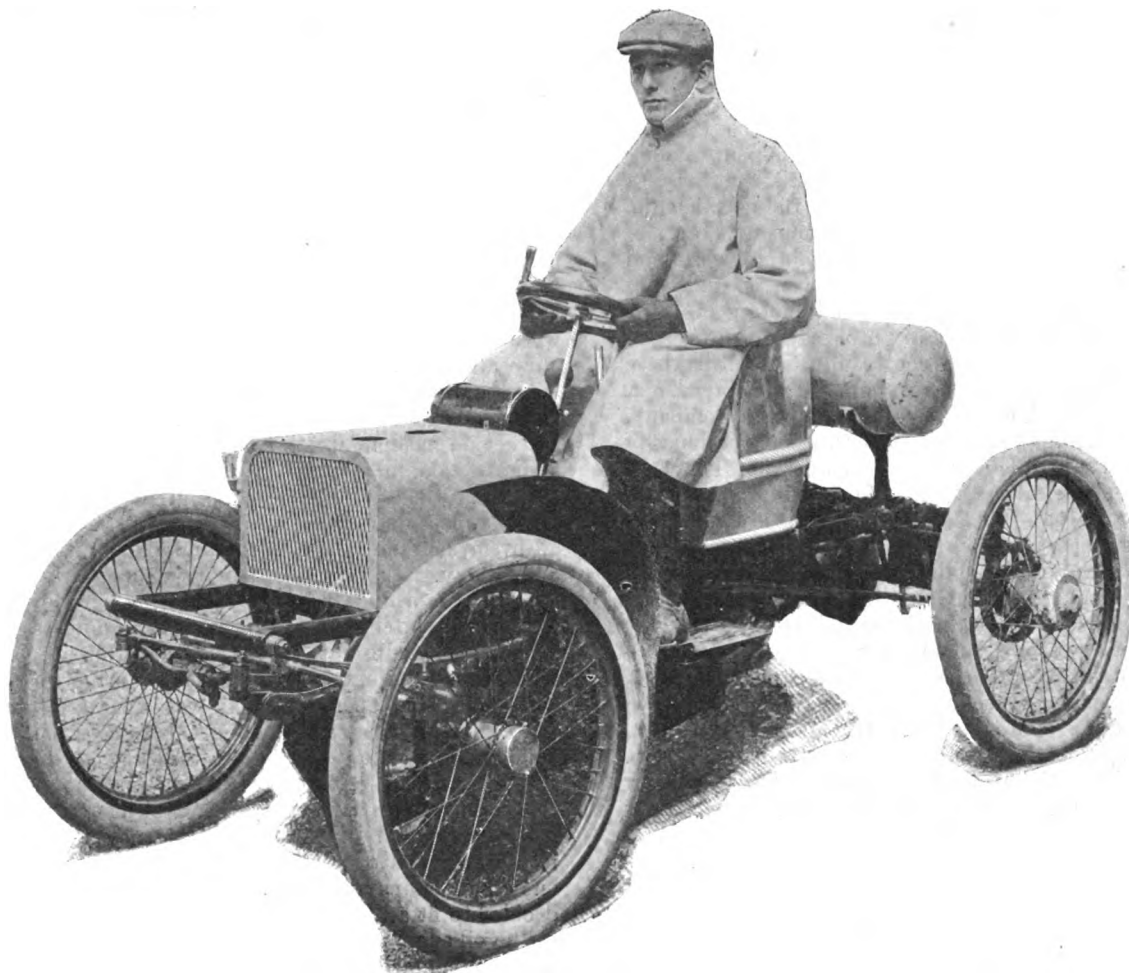
French event, "This is the sort of competition you English like, for it is practical and useful data is obtained." His remark was perfectly just, and such a competition would, I feel sure, find considerable favour in England.

Fresh Motor-Cycle Records.

At last! After many attempts Rigal has got his own back, and once again figures as holder of the motor-cycle hour's record. It was at absolutely his last available moment that he accomplished his darling wish, for the day following his successful attempt he was due at Beauvais, there to commence his military service. Even to the last the elements played him false, and during a portion of his record run rain descended heavily and rendered the track at the Parc des Princes in a terribly dangerous condition. Plucky little Rigal, he thoroughly deserves his

The A.C.F. Fetes.

It is interesting to note that no fewer than eighty members of the Automobile Club of France have received decorations in recognition of their services in connection with this year's Paris Exhibition, a striking proof of the part played by the Société d'Encouragement in the success of the big show. In order to do full honour to these newly-ribboned members, the club committee propose to organise a grand fête for Thursday, December 20th, at which many of the leading *artistes* of Paris will appear. The beautiful theatre will be utilised for this gathering, which will be quite one of the events of the season. Naturally it is yet too early to speak of the programme, but that it will be excellent cannot be doubted by anyone who has already had the good fortune to assist at one of the club's fêtes. They are always enjoyable, for programme and management are alike



THE 10 H.P. DE DION RACING MACHINE, DRIVEN BY MR. C. JARROTT IN THE RUN TO SOUTHSEA.

Photo by]

[Argent Archer

triumph. Apart from the indifferent weather, too, the motorcyclist had bad luck, for after beating Demester's distance for the hour at the end of 58 mins., the frame of his machine gave way, and instead of being able to add some $2\frac{1}{2}$ kilometres more, Rigal was compelled to stop altogether. But for this mischance the record holder would undoubtedly have covered 73 kilometres within the hour; as it was, he only improved upon Demester's distance by 298 mètres, that is to say he covered 71 kilometres 563 mètres as against 71 kilometres 265 mètres by the former holder. Here are his times, as taken by Monsieur Gaudichard, official timekeeper to the A.C.F.:—10 kilos., 8 mins. $2\frac{2}{5}$ secs.; 20 kilos., 16 mins. 14 secs.; 30 kilos., 24 mins. $24\frac{3}{5}$ secs.; 40 kilos., 32 mins. $36\frac{1}{5}$ secs.; 50 kilos., 40 mins. 47 secs.; 60 kilos., 49 mins. $0\frac{3}{5}$ secs.; 70 kilos., 57 mins. 20 secs.; 71 kilos. 563 metres, in 58 mins. 20 secs. I fear that Rigal's peace of mind at Beauvais will not be of long duration, for with the return of fine weather both Béconnais and Demester will be attacking his figures.

irreproachable, while the attendance is invariably numerous and fashionable. The club will have a very gay season this winter, for the committee intend to give a regular round of festivities and show Paris that it is not the sleepy institution that some people would appear to think it.

WE hear that a large number of English motor-car agents have lately been over to Paris purchasing cars at the Exhibition.

At the Guildhall, on Monday, the Metropolitan Motor Manufacturing Company, Limited, appeared before Sir Henry Knight, by their secretary (Mr. George Adams), in answer to a summons charging them under the 32nd section of the Companies Act, 1862, with having refused to allow inspection of their register of members. Sir Henry Knight had no doubt the case had been proved against the company, but still he did not think there was any wilful refusal or default. However, the Act had been infringed, and the company would have to pay 20s. and £3 3s. costs.

MOTOR-CARS AT THE CYCLE SHOWS.

THE annual cycle shows at the Crystal Palace and the Agricultural Hall are now in full swing. At the Stanley Show the exhibits include a fair number of motor-cars and cycles, while at the National Show practically the whole of the northern half of the nave is devoted to the automobile section, thus making an extensive and interesting display of modern motor-cars. While a good many of the vehicles will not be new to motorists, there are quite a number of fresh designs, among which we note the 5 h.p. voiturette of the Motor Manufacturing Company, Ltd. This company is also exhibiting, in addition to a number of standard 6 h.p. vehicles, a 12 h.p. Panhard car with double cabriolet body, and an 8 h.p. car with tonneau body. Another new departure is a quadricycle fitted with a 2½ h.p. motor, the combustion chamber of which is water-cooled. The Star Motor Company, Wolverhampton, in addition to their 3½ h.p. car, are showing a four-seated car fitted with a 4½ h.p. single-cylinder motor. This vehicle is gear driven and is provided with three speeds forward and a reverse motion. Another new Star car, for two, three, or four persons, is fitted with a double-cylinder engine of 6 h.p. The Daimler Motor Company, Ltd., have a large stand, prominent among which is the frame, complete with motor and transmission gear, of a 20 h.p. car; another one of 16 h.p., and one of the new 4 h.p. Kimberley voiturettes. The Progress Cycle Company, Ltd., of Coventry, have an interesting display of motor-cycles and voiturettes. The latter, which have recently been considerably improved, are fitted with De Dion water-cooled motors of 3½ or 4½ h.p., as desired. Mr. E. W. Hart, of Luton, is showing several of the Sirène 5 h.p. voiturettes recently illustrated in these columns, and which did so well in the recent 100-miles trial. A big stand is that of the Automobile Manufacturing Company, Ltd., who, in addition to motor-cycles, have three or four types of voiturettes on view, as also Richard and Delahaye cars. There are also the Cleveland electrical cars. In addition to the Mayfair voiturette, the Sports Motor-Car Company display a large four-seated car, which they have named the Sports American phaeton. It is fitted with an 8-h.p. double-cylinder engine of the Panhard type: the transmission is on the Gautier-Wehrle system, no chains or belts being used. The International Motor Company have on view a number of cars, including the new Charette, illustrated in the current issue. The Locomobile Company of America, in addition to several two-seated cars, show a four-seated car for the first time. Messrs. W. H. M. Burgess, Ltd., exhibit two new types of light cars, one fitted with a 4½ h.p. engine, the other with a 3½ h.p. De Dion motor. The Motor-Car Company, Ltd., have a big stand, on which is shown a large variety of voiturettes, prominent among which is the Decauville; an illustration of the 8-h.p. car of this make was given in our last issue. Motor-cyclists will be interested in the exhibit of the De Dion-Bouton British and Colonial Syndicate, Ltd., which, in addition to voiturettes, includes the latest model De Dion tricycle, with free engine. In addition to a 6 h.p. dogcart, Messrs. Marshall and Co. have on view a Renaux tricycle. Other exhibitors include the Orient Express Car Syndicate, Ltd., the General Agencies Syndicate, the Singer Cycle Company, Ltd., Messrs. Dennis Bros., the Riley Cycle Company, Ltd., Messrs. Allard and Co., Ltd., etc. A fully illustrated report of the motor exhibits at both shows will be published in our next issue.

THE management of the Beach Hotel, Littlehampton, have engaged the services of a practical motor-car mechanic from France, and he is in constant attendance.

IN addition to the "Rex" motor glass, Rex Patents, Ltd., of Clapham, S.W., have lately introduced a French pattern of eye protectors for motorists. The new protectors are fitted with glasses of large size and various shades of colour. A special feature to which attention may be drawn is the small space the protectors occupy when not in use. The frame, which is made of solid nickel, is hinged at the bridge, the two glasses folding over on themselves, so enabling the protectors to be carried in a pocket case measuring only 4in. by 2½in. This type of protector is said to be exceedingly popular in France.

CORRESPONDENCE.

EXPERIENCE WITH A STEAM CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think, perhaps, the experience of a beginner with a steam car may interest some of your readers. Since the passing of the Act I have had a considerable amount of experience with various types of oil cars, but until Wednesday of last week I had no experience as a driver of a steam car. Thinking I would like to see for myself what advantages or otherwise the steam car possessed, I bought a "Locomobile," and having taken delivery of it made my first run to Newmarket, a distance of about 62 miles. Had it been an oil car needless to say I should have driven alone, but I certainly think it is wise for anyone buying any type of car which they have not had to do with before to take someone who has as teacher and adviser. I therefore took one of the company's drivers, and about 10 o'clock we made a start from Kensington. One thing I saw at once, and that was the superiority over all other vehicles in thick traffic. With an ample reserve of power one can dodge in and out of the traffic, shooting past other carriages in a way which one cannot possibly do with a petrol car; then again, in case of a block the reversing of the car is much simpler and speedier a matter than in oil cars. Having got into the country we began to travel at a very good speed, so good, in fact, that the mud (it was a very wet and muddy day) began to fly up off the wheels in no pleasant fashion. We therefore made our first halt at a wheelwright's shop, where we rigged up some temporary mud-guards, which, though not ornamental, were decidedly effective. We also took the opportunity to fill our water tank. Our next stop was at Bishop's Stortford, where we put up and had lunch, taking the opportunity of refilling the petrol tank and lubricating the engines. From Stortford to Newmarket no incident worth recording occurred, the only stop made being to take in water. So far I had contented myself with observing the car's little ways, but at Newmarket I took the driver's place and drove on to Gazeley, a distance of seven miles, all by myself and in the dark, climbing a very long and steep hill on the way.

Next morning, having washed the car down, I heated the torch in the kitchen fire, and in seven minutes had raised the steam to 140 lbs., at which pressure the fire is automatically lowered. I had expected to find this "firing up" process a difficult and dirty operation, and was surprised how exceedingly simple it really was. The raising of the pressure in the petrol tank, which is done with a hand pump, the same one carries for inflating the tires, is the most laborious part of the whole proceeding. After lunch I drove my hostess to Newmarket, where the car was very much admired. The return journey to Gazeley was again made in the dark with no trouble other than the blowing out of one of the lamps used for lighting up the water gauge. I have decided to fit a little accumulator and small electric lamp in place of the oil one for this purpose, so that one can switch on the light momentarily when it is desired to observe the level of the water in the gauge. Friday morning, the 9th inst., dawned cold and wet, and I did not look forward to my return journey to town. However, I made a start at eight o'clock, and picking up the firm's driver at Newmarket, made the best of our way against half a hurricane of wind and drenching rain for London. No stops were made except to fill the water tank, which has to be done every twenty miles to avoid running out where it may not be handy to get it.

Our object in getting back was in order to have plenty of time to prepare for the following day's run of the Automobile Club to Southsea; but as it turned out there were no adjustments to make—in fact, there was nothing whatever to do beyond the mere filling of the tanks in the usual way. In the morning, however, the start was delayed by a faulty air valve; but this was put right in about twenty minutes, and away we went. We did not leave Whitehall until after 10 a.m., but at lunch time I fancy we had more cars behind us than in front, notwithstanding the one compulsory stop for water. Again no adjustments of any kind required doing, and after lunch we pursued our way and had the satisfaction of reaching Portsdown Hill and taking a good position not so very far from the front of the procession,

being the thirteenth car to enter the Drill Hall. On the descent of Hindhead I inadvertently left the pump in action too long, with the result that I had my first experience of "priming," to cure which I turned on the "blow off" cock, letting some of the water out of the boiler. This was very quickly done; and afterwards I had no further trouble, though one of the glands through which the piston passes began to blow a little—the result, no doubt, of priming—and all that was necessary to cure this was a few turns of the check nut.

The car has now run just over 300 miles in five days, and so far I have had certainly far less trouble than I anticipated. I cannot help feeling that any boiler troubles, about which I certainly have heard a great deal, must be largely due to carelessness, but in a few months' time I shall be in a position to speak on this matter from personal experience. Of course the car has evident disadvantages, such as the amount of water required and the heavy consumption of petrol entailed, but against these disadvantages are balanced absolute silence in running, easy manipulation with certainty of starting, the latter of which, at any rate, is no mean advantage, as any oil motor man will, I am sure, admit. To-morrow I intend driving my car to my home near Norwich, a distance of about 110 miles. I must admit, however, that the car is less suited for touring purposes than it is for shorter trips, while for town work I cannot conceive anything to equal it.

Yours truly,

HUBERT D. EGERTON.

London, S.W., November 14th, 1900.

THE WERNER MOTOR-CYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Replying to "J. A.," with reference to the Werner motor-bicycle, it would be absolutely impossible to enumerate all the conditions which might be the cause of his motor refusing to work. I possess a Werner motor bike, and after eighteen months' experience have at last thoroughly mastered all the possible causes of its disorders. Mine is flame ignition (which has many disadvantages). I am having it converted to electric. Let "J. A." look to his exhaust, and satisfy himself that the pressure of burnt gases passes away before the up stroke of piston commences. To test the meshing of gear wheels, I found a bicycle spoke handy, which, when passed through the compression tap, rests on piston top. Rotate engine axle till spoke travels down to its lowest point—the connecting rod will then be at dead centre; now look at exhaust valve—it should just be open, say $\frac{1}{16}$ in. Now, if he can find no fault in that direction, let him look to the connecting rod end; perhaps one of the straps have become loose and may be lying in the crank chamber. Again, make sure that exhaust way has a clear passage and silencer (if any) is not choked. There is a possibility of axle cranks being pinched together, so as to throw axis untrue, and work tight in bearing. Inlet valve may be too tight (the spring); exhaust valve spring may be too slack or easy, lubricating oil may be too thick in crank chamber; don't use solid oil in lubricator. I found it more convenient to add a large self-feeding lubricator. The electric contact breaker may not be adjusted correctly; look to platinum contacts—they must be firm in their sockets. The piece on steel spring should have pan head on both sides for safety. Look to spark when plug is fitted; batteries may be run down. Even new ones may be spoiled entirely by a careless contact, which would short circuit itself. The mixture may be erratic in proportion. I have had to put an extra gas-cock on my intake pipe, so when an extra supply of mixture was wanted, it came without in any way interfering with the proportion. I believe if you examine the intake pipe it will be found if you want to increase the power you open gas-tap more. That then throws proportion of mixture out, so you must then alter inlet of air so as to make things right again. It was, this constant carburetting that decided me to add another gas cock on my motor. I shall be glad to hear further from "J. A.," and would be pleased to give my services if I could be of any help to him.

Yours truly,

BEECHER WARD.

London, S.E., November 5th, 1900.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The letter in your last issue contributed by "A. L. B." will doubtless arrest the attention of all your readers who take an interest in the subject of motor-bicycles. Although I have achieved no encouraging success on my motor-bicycle, yet, by many indications I am impelled to the conclusion that this machine must come to the front. "A. L. B." apparently considers that the principal difficulty which I have encountered in the complexities of the Werner is caused by some shortcoming of the accumulator. This may be so, but the trouble is that all the voltmeters by which it has been tested exhibit conflicting results, and I have yet to find a meter on which reliance can be placed. Intricacies seem to infest or obtrude in many components of the motor, and if an instrument be obtained to aid in the detection of them, it may turn out to be imperfect and misleading. These annoyances recur so diversely and frequently, that they offer a serious blemish to the allurements of the motor: unless therefore a motorist has the ability to detect, or the good fortune to meet with, so excellent a machine as "A. L. B." has secured, he may be apprised that the pleasures of the motor-bicycle are not nearly so readily procurable as might be desired. This is why I have ventured to bespeak the assistance of those amateurs who have the skill and the will to confer the benefit of the knowledge they have acquired on their less experienced confrères and in the hope that some maker may be induced to market a motor-bicycle of substantial materials and properly constructed by British workmen.

Yours truly,

J. A.

Altrincham, November 13th, 1900.

THE ESTCOURT VALVE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in your issue of October 27th a description of what is termed "an improved induction valve" invented by Mr. Estcourt, and made solely by J. Brooke and Co. I wish to point out that I introduced this idea over two years ago (Messrs. Yeates, of Suffolk Street, Dublin, made them for me), and have fitted a number of cars of different makes with the inner or buffer spring on the induction valve, as described.

Messrs. Hutton and Co., Dublin, have, on my advice, also been fitting them for over a year to various makes of cars.

Yours truly,

JOHN F. COLOHAN.

Woodville, Blackrock, co. Dublin, November 4th.

THE MOTOR TRADES' PROTECTION SOCIETY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In consequence of actions having been threatened against manufacturers, dealers, agents, and owners of motor-cars, it has been felt by automobilists that united action is necessary to prevent an unjust monopoly being established and vexatious proceedings commenced. In furtherance of this view, a meeting was called and resulted in a representative and influential gathering, which decided to form itself into a society and register a company limited by guarantee for the protection of owners, users, manufacturers, dealers, and agents in motor-cars and their accessories. A committee was appointed consisting of Messrs. J. J. Mann, Lisle, Adams, Bersey, Cappellen, Hewetson, Austin, Friswell, and Seyd, and resolutions were passed for immediately organising the society. The society has been formed for the protection of the trade generally, and also for the protection of owners and users of motor-cars.

Automobilists desirous of joining in this movement or wishing for the protection to which the efforts of the society will be directed are requested to communicate immediately to

Yours truly,

84, Chancery Lane, W.C.,

G. H. HELMORE, Secretary.

November 21st, 1900.

By an oversight, the photo of a group of Daimler cars reproduced on page 622 of our last issue was credited to Mr. Argent Archer, instead of to Messrs. Curzon, Robey and Co.

THE HURTU VOITURETTE.

A NEW light car which has lately attracted some attention in French motor circles is the voiturette recently put on the market by La Compagnie des Automobiles et Cycles Hurtu, of Neuilly-sur-Seine, of which an illustration is given herewith. The double suspension and the direct transmission employed on these cars at once attract attention, for both are special features of their construction. The motor used is the 3 h.p. water-cooled De Dion so much in favour with all constructors of voiturettes. When desired, however, a water-cooled Aster can be fitted. Three forward and one reverse speeds are provided, all intermediary variations being obtained by means of a friction clutch. A radiator is fitted in connection with the water circulation, and a tank carrying sufficient petroleum-spirit for a ninety-mile run is provided. Steering is controlled by a horizontal hand-wheel, while the wheels are of the cycle type, shod with pneumatic tires.

MR. PATRICK, cycle agent, of Ardee, Ireland, is now keeping a stock of motor car spirit on hand.

MESSRS. STANBURY AND COMPANY, cycle and accessory manufacturers, Commutation Row, Liverpool, are now catering to the want of motorists by keeping a stock of motor-car spirit.

MESSRS. MORRIS BROS., cycle and motor-car works, Pontypridd, have obtained a license to store 200 gallons of spirit, so that motorists visiting South Wales need not fear any difficulty in getting a supply of this essential article.

MESSRS. FRISWELL, LTD., of 48, Holborn Viaduct, London, E.C., have just got out a new list of the motor-cars, etc., they have on hand at the Automobile Palace. These include the Royal Enfield tri-cycle, the Renault De Dion, Clement-Panhard, Perfecta voiturettes, the Mors Petit Duc, and Peugeot phaeton, of each of which excellent illustrations are given.

IN the annual report of the Commissioner of Police of the metropolis for the year 1899, just issued by the Home Department, it is stated that licences were issued to 30,102 drivers and conductors, 124 drivers being licensed for vehicles propelled by mechanical power. Of the 3,626 omnibuses licensed for hire, five were driven by mechanical power.

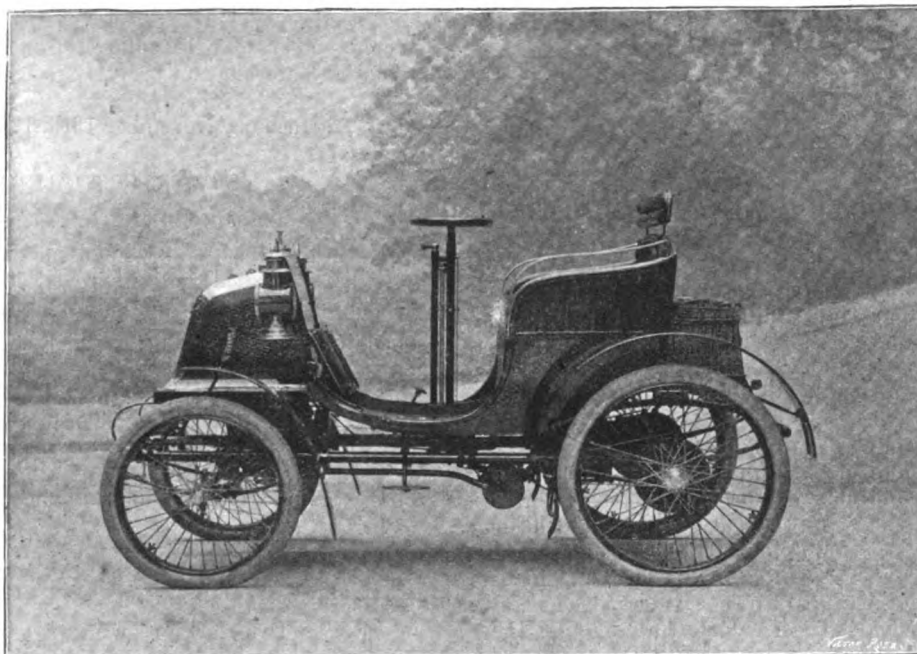
THE British and Foreign Electrical Vehicle Company, Limited, has been registered with a capital of £150,000, to adopt an agreement between Mr. S. A. Cobbett, of 14, Devonshire Square, E.C., of the one part and this company of the other part; a second agreement, made between Mr. E. W. Hart, of Luton, of the one part and this company of the other part; and a third agreement, Mr. C. E. Lee, and Mr. J. K. George, of the one part, and Mr. E. W. Hart, for this company, of the other part, for the acquisition of the business, undertaking, assets, and liabilities of the Lecoll Electric Battery Company, Limited, and, generally to carry on business as mechanical and electrical engineers, etc. The registered office is 14, Devonshire Square, London, E.C.

MOTOR-TRICYCLES. SOME DEFECTS AND REMEDIES.

BY A. E. S. CRAIG.

THAT there is at present a partial slump in motor-tricycles, few will, I think, deny, and I venture to offer a few suggestions which are the outcome of my personal experience in dealing with some of the defects which have led erstwhile enthusiasts to discard them in despair. I consider that ignition troubles head the list. Let me therefore commence by referring to troubles from this cause. Firstly then, as regards the contact breaker of the De Dion pattern. Contacts become imperfect through charred oil or dirt. Owing to the high speed and the vibration of the trembler blade, the smallest amount of oil rapidly creeps along and feeds on to the platinum point. To prevent this I cut a piece of $\frac{1}{4}$ in. hollow lamp wick about $1\frac{1}{2}$ in. long and pull this wick like a stocking over the trembler, cutting a round hole opposite the platinum point. Partly to keep this in its place, but also for another reason of more importance, I fit on the back of the trembler, and hold by the same screw, a smaller and slighter blade than the trembler.

This can be made of a piece of clock spring about $\frac{1}{8}$ in. wide, and should be slightly arched in the middle so as to bear only at either extremity. This should be about $\frac{1}{4}$ in. longer than the distance from the screw to the platinum. This auxiliary blade or tongue has a wonderful effect in keeping the trembler up to its pitch and saving constant adjustment. Place a felt washer at the base of the contact screw; this prevents oil creeping up that way. If much oil comes through from the engine, along the spindle of the sparking cam, and it generally does, place a washer—string will do—between the vulcanite and the cam. Also drill a hole in the bottom of



THE HURTU VOITURETTE.

the aluminium sparking cover, so that any oil at the bottom will drain out.

Owing to the price of platinum the contacts are usually absurdly small, and sometimes some other metal is substituted for the sake of extra profit. See that the contact screw has a good wide plug of platinum and on the blade I recommend a piece of stout sheet platinum at least $\frac{1}{4}$ -in. diameter, so that if the blade is shifted slightly in tightening up the screw, it will not cause sparking on the edge of the points or, perhaps, off one altogether. I have used nickel contact on the blade with excellent results, but beware of German silver. The $\frac{1}{4}$ -in. diameter disc of platinum or nickel can be easily soldered to the blade, and if properly done, will never come loose. Another dodge I find somewhat successful is to file the tip of the contact screw "hot-cross-bun" fashion—that is to say, two grooves across the face at right angles to one another. This must be done carefully with a fine file. The chances of failure to spark are thus reduced by at least four to one, as the grooves help to break up the char or dirt, and afford channels for it to shake through, besides the fact that it is not likely that all four points of contact will fail at once. Do not do this to a screw unless it has a face of at least $\frac{1}{8}$ -in. platinum.

When it is necessary to clean the points of contact, do not rasp at them with a blacksmith's file; it is a waste of energy and platinum. In fact, it is better not to file them at all, and for this reason: filing or scouring with emery simply scores the surface with ridges which tend to hold dirt, and, moreover, takes away the hard skin that is formed by the continual hammering of the contacts, and it is obvious that the new soft surface has first of all to be made smooth of the file marks and then dented in further till a new skin is formed. Try and clean the contacts, therefore, with a piece of rag steeped in petrol, and if necessary, by gently scraping at any obstinate bits of black with a sharp knife rounded at the point.

I have read somewhere that the trembler should be adjusted to tremble, and I humbly beg to differ. It is beautiful in theory and, of course, works nicely for a time—a remarkably short time generally—and then off comes the aluminium case and you grovel with a screw driver and swear words. I do not say, do not do it this way if you have found it answer, as it is the correct orthodox method, but I will just mention my alternative. Do not bother whether the trembler trembles or not, but turn the engine until the *V* of the trembler falls into the *L* in the cam. It should nearly touch the bottom; if it does not, slacken back the contact screw until clear, and if the *V* of the blade still does not fall sufficiently into the cam, the trembler must be removed, and bent downwards until it does. Then replace the trembler and turn the engine until the *V* is on the periphery of the cam; switch on the current and tighten up the contact screw until it just touches the trembler, then screw back an eighth of a turn and try if a spark can be obtained by placing a piece of metal from blade to screw. If it cannot the points are still touching. Gently slacken back the screw a little further until a spark is obtained. Then clamp up the contact screw by the small screw at right angles to it provided for the purpose. For reliability in sparking up hills I recommend placing the points of the sparking plug very close together, about $\frac{1}{16}$ in. apart.

I prefer accumulators to dry batteries, and unless anyone is inconveniently situated for getting them recharged I advise motor-cyclists to try them. Cells of transparent celluloid enable one to see easily the height of liquid, the condition of the plates (whether sulphated or not), also to detect any pieces of paste that may fall out and short-circuit the cell. They have the further advantage of being light and unbreakable.

(To be continued.)

WE understand that Mr. Worby Beaumont's standard work on motor-vehicles has reached a second edition.

WE learn that Mr. Cecil Edge has now purchased Mr. C. Jarrott's $5\frac{1}{2}$ h.p. De Dion tricycle, and hopes shortly to have an 8 h.p. motor of the same make. Mr. Edge intends to enter for whatever motor racing may be organised in this country next spring.

MOTORISTS in the Putney and Fulham districts in need of someone to undertake repairs to their motors and cars, etc., will find Mr. W. Hemingway, Assoc.M.Inst.C.E., of the Fearless Cycle Works, 889, Fulham Road, S.W., well equipped to carry out the same.

As agents for the Daimler Company, the Nottingham Autocar Company have approached the Nottingham Corporation, with a view to supplying the fire brigade with motor tenders, for the conveyance of firemen and apparatus to scenes of conflagration.

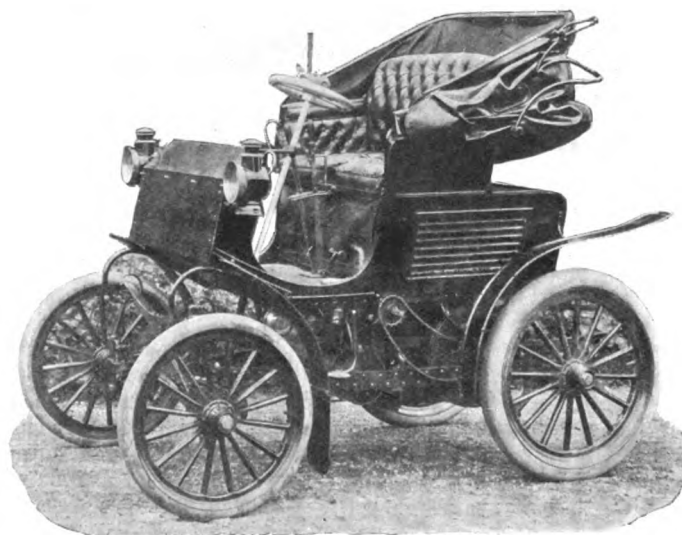
THE business of the Electric Street Car Manufacturing Syndicate, Limited, of Wolverhampton, has been acquired by the Electric Tramway Maintenance and Construction Company, Limited. Mr. Thomas Parker, Chairman of the Electric Street Car Syndicate, will join the board of the Maintenance Company.

IN his official capacity as sole Norfolk agent for the Daimler Co. Mr. Frank Morriss, of King's Lynn, has the honour of supplying spare parts and executing minor repairs to the Prince of Wales's motor-cars. These cars were recently piloted through King's Lynn by Mr. Morriss on a Parisian Daimler.

THE ROBINSON MOTOR-CAR.

MESSRS. JOHN T. ROBINSON and Co., of Hyde Park, Boston, Mass., have sent us a photograph, reproduced herewith, of the two-seated motor-car they are exhibiting at the American Automobile Club Exhibition in New York. The frame is built of channel steel, and forms the support for the engine, transmission gear, and petrol tank. The motor, which is located in the rear of the frame, comprises two cylinders, 4 in. in diameter by 6 in. stroke. It is fitted with automatic lubrication and is water-cooled, the circulation being on the thermo-syphon system. The ignition is of the magneto-electrical type, so arranged that the speed of the engine can be varied between 150 and 1,000 revolutions per minute. The engine is fitted with a single fly-wheel, the cranks working in an oil-tight case of aluminium.

Coming now to the transmission mechanism, two speeds forward, ranging up to twenty-five miles per hour, and a reverse motion, are available. The variable speed gear adopted is that known as the Upton, illustrated and described in the *Motor-Car Journal* for July 28th last. From the variable gear shaft the power is transmitted to the rear axle by a single chain.



The road wheels are of wood, 32 in. diameter at the front and 36 in. at the rear, shod with 3 in. and 4 in. pneumatic tires on front and rear respectively. Roller bearings are used throughout. Steering is controlled by a large hand wheel, mounted on an inclined pillar. The action is positive, and the front wheels are locked in any position of the steering wheel, thus removing all danger of a sudden change of direction when running at a fast speed. The body is hung entirely separate from the engine frame on springs, thus ensuring very easy riding. Eight gallons of petroleum spirit are carried and five gallons of cooling water, sufficient for 100 miles on ordinary roads. Ready for a trip of 100 miles, with petrol and water tanks both filled, the car, with hood, weighs under 1,800 lbs.

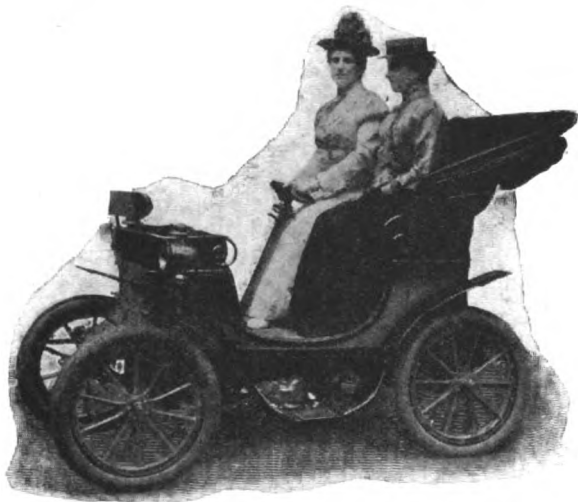
THE fourth annual general meeting of the Liverpool Self-Propelled Traffic Association is to be held on Monday, December 17th.

MR. A. M. GROSE has applied for a non-stop diploma for his $2\frac{3}{4}$ h.p. Gladiator tricycle, No. 112 in the trip to Southsea. We are requested by the secretary of the Automobile Club to ask objectors to this claim to lodge their objections without delay.

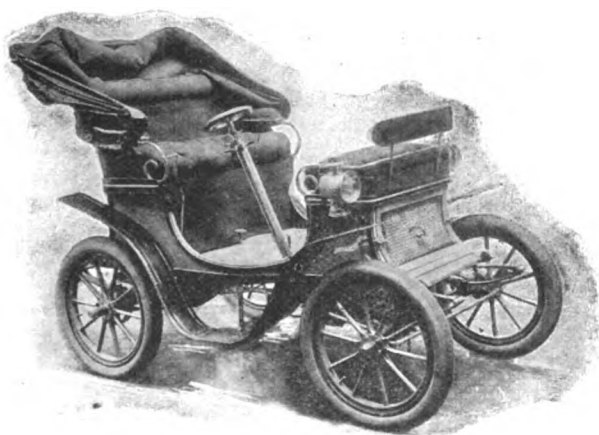
THE Roadway Autocar Company, Limited, has been registered with a capital of £40,000, to carry on in the United Kingdom and Europe, or elsewhere, the business of motor, motor-car, and vehicle manufacturers, owners and workers of patents relating to motor-cars and vehicles propelled by mechanical appliances, etc.

THE HAUTIER VOITURETTE.

THE latest voiturette of French construction to call for notice is the "Hautier," the product of the Etablissements d'Exploitation des Brevets Hautier, of Auteuil, near Paris. As will be seen from the accompanying illustrations, the little car has an attractive appearance. The motor and mechanism, tanks, etc., are all carried on an independent tubular frame to which any type of carriage body, spider, duke,



Victoria, etc., can be fitted. The attachments are of a simple character, the makers claiming that the body can be entirely taken off in three minutes. The engine usually fitted to the voiturette is of 4 h.p., it is water-cooled, and fitted with electrical ignition. If desired an engine of 7 h.p. can be substituted, and to this the makers generally adapt their special incandescent tube ignition, which permits of the rate of the explosions being increased or retarded. Whichever engine is chosen it is located in the fore part of the frame and transmits its power through a variable gear box direct to the rear axle without the use of chains or belts. The change speed gear, the



pinions of which are continuously in mesh, is adapted to give three speeds forward, ranging up to twenty-six miles per hour, and a reverse motion. Wooden wheels, shod with pneumatic tires, are, it will be noticed, adopted, while the popular sloping wheel steering is fitted. A feature of the Hautier car to which attention may be drawn is the entire absence of controlling levers at the side, the change speed gear, the reverse motion, the friction clutch, and the brakes being all controlled by means of foot pedals. The 4 h.p. car weighs complete between 4 and 5 cwt.

THE Moto Club de France announces a contest for non-skidding rubber tires for April next.

ANNUAL DINNER OF THE AUTOMOBILE CLUB.

ON Wednesday week, in the Whitehall Rooms of the Hôtel Métropole, London, the annual dinner of the Automobile Club of Great Britain took place. Mr. Roger W. Wallace, Q.C., presided. Among those who had expressed their intention of being present were the Earl of Onslow, Lord Borthwick, the Right Hon. C. Stuart-Wortley, M.P., Sir Richard Harrison, C.E., K.C.B. (Inspector-General of Fortifications), General Sir Thomas Gordon, K.C.I.E., the Hon. J. Scott Montagu, M.P., Captain the Hon. Cecil Duncombe, J.P., Mr. J. Cumming Macdonald, M.P., the Hon. C. S. Rolls, Colonel R. E. Crompton, R.E., Captain M. L. Sant (Chief Constable of Surrey), Mr. W. E. Rowcliffe (Acting-President of the Manchester Automobile Club), Mr. W. W. Marks (Clerk to the Bedfordshire County Council), Mr. E. Archdall Ffooks (Clerk to the Dorsetshire County Council), Professor Boverton Redwood, Ph.D., F.R.S.E., Messrs. W. S. Holt, F. R. Simms, Worby Beaumont, A. Bird, J. Graham White, A. L. Jones, J.P., Henry Edmunds, J. I. Thornycroft, F.R.S., Paris Singer, Leonard, Charles Cordingley, Mark Mayhew, L.C.C., R. E. Phillips, C. Harrington Moore (Hon. Sec.), F. W. Staplee Firth, E. Shrapnell Smith (Hon. Secretary Liverpool Self-Propelled Traffic Association), Captain T. S. Tulloch, Baron de Breynne, Percy Northey, Bertram Blount, J. D. Siddeley, J. S. Critchley, R. Bearcroft, Frank Lanchester, Vernon Pugh, E. H. Bayley, John D. Hill, Theodore Chambers, W. T. Pretty, Alfred Burgess, Harold Heatley, J. J. Mann, H. F. Englehardt, O. H. Bayldon, A. Thwaites, H. W. Spiller, C. A. Smith, W. M. Hodges, J. Brown, M. H. Buckea, Tilden Smith, J. H. Gretton, A. Sennett, G. Iden, Dr. Lehweiss, Maurice Capellen, Thrupp, W. Beckett Hill, Thomas Clarkson, Herbert Austin, G. H. Kahn, J. S. Mallam, H. Perrin, H. A. House, Arney, Honk, C. D. Phillips, Julius Harvey, Horton, Schneider, R. B. Bruce, W. J. Crampton, Maurice Egerton, A. G. New, Rucker, H. J. Mulliner, S. F. Edge, C. Jarrott, Clarence Gregson, F. Strickland, Lyons Sampson, H. Ashby, T. B. Browne, S. R. Roget, Roland Browne, J. J. Acworth, and C. Johnson (Secretary). Nearly every one of these gentlemen were present.

The loyal toast having been duly honoured, the chairman proposed the toast of "Their Royal Highnesses the Prince and Princess of Wales and other members of the Royal Family." This was a toast, he said, which automobilists regarded with especial interest. The Prince had two cars, and the other day the Duke and Duchess of York were driven by Mr. Rolls, at the Hendre, Monmouth, and expressed their determination to follow this new pastime. The other member of the Royal Family who was connected with motor-cars was the German Emperor, and his example was being followed by the Shah of Persia, the Sultan of Turkey, President Loubet, and other distinguished persons.

In proposing the toast of "The Navy, the Army and the Reserve Forces," the chairman said the sentiment was of considerable interest to the members of the club. In connection with the Navy and automobilism he pointed out that many of the same terms—tiller, shaft, engine, etc., were used, and with regard to the Army they had Sir Richard Harrison with them. He would probably be able to tell them what chance there was for automobiles being developed in the Army. They knew they had been used in South Africa for heavy traffic, but they had not heard much of their adoption for the lighter kinds of haulage. They were very pleased to see Mr. Crompton back again. It had been proposed to have an automobilists' Volunteer corps, and anyone who witnessed the run to Portsmouth could see and appreciate the great advantages associated with motor-cars in that connection, and also see a large number of cars that would be at the disposal of a Volunteer corps. With the toast he felt tempted to associate the health of the police. During the recent run they had found the greatest consideration shown by the police, and he took the opportunity of acknowledging it.

Sir Richard Harrison responded. He felt honoured at having such a duty at a gathering of so important and far reaching a body as the Automobile Club. The Navy and the Army depended very much upon mechanical power. It was impossible for a navy, and almost impossible for an army, to carry out a campaign unless assisted by mechanical power. The transport of ammunition had become something beyond the power of animals, the care of the sick required an amount of transport that could hardly be understood, and all that pointed to the fact that unless along lines of communication they had a river on which vessels propelled by mechanical power could move, or railways along which engines could run they could hardly conduct a campaign. That had been borne out in South Africa, and they were beginning to feel that not only must they have mechanical power on the lines of communication but that there was also a field of usefulness on the actual battlefield close to the enemy. One of their difficulties was to bring up the heavy guns that had to be taken up to the front. How could they be better conveyed than by means of engines such as they had already sent out to the seat of war. In the future they would have to send to the front the searchlight that Colonel Crompton had been associated with. They would also have to provide some rapid transport to keep the army in touch with the railroad, and he could not help thinking that with the very extended battlefields of modern days they would require some rapid engines to enable the generals and staffs to see what was going on. The Royal Engineers had for many years past been doing their little best to further traction engines. Such engines had done useful work in the war under Colonel Templar. Besides those transport engines they had also sent out engines in connection with the electric light, and there Colonel Crompton had done a great deal of useful work. With regard

to the future he could say that Lord Roberts had recognised the value of what such engines could do and had sent Colonel Crompton to help them at the War Office with his practical advices, and to find out what kind of motors would be required in future wars.

Professor Boverton Redwood proposed the Legislature, remarking that the present position was full of danger to automobilists, and they must be watchful lest what they had was taken away from them. The Legislature had conferred powers on local bodies in anticipation that they would be properly exercised. Members of both Houses of Parliament should be informed that what they gave automobilists was in danger of being made of less value than they intended to make it. He thought they might appeal with a very great deal of confidence to members of both Houses of Parliament who showed much care in grappling with technical subjects.

Mr. J. Cumming Macdonald, M.P., responded and recalled how rapidly the Light Locomotives Act of 1896 had been passed through Parliament in less than a fortnight. He believed the future development of this movement to be illimitable, and possibly in the future one of the best batteries in the Royal Horse Artillery would be that which dispensed with the services of horses altogether.

The Right Hon. C. Stuart-Wortley, M.P., proposed "Success to Automobilmism." He promised to consider, with sympathetic candour, any proposal brought forward in Parliament for the removal of the tare limit about which the Liverpool Self-Propelled Traffic Association had interested itself. With regard to speed on the roads he asked what was the true test? Should it depend on some arbitrary fixture of a maximum number of miles per hour or should it be that in the given case there was no real danger to the public? It reminded him of a phrase once used by Sir William Harcourt, "the mastering sense of the common law." There was a law prohibiting driving to the common danger, and was not that the true test? Was not that in harmony with the rule of the club which moved the whole question to a higher plane, and which was that they should not drive in an unsportsmanlike way? In that, he thought, they had the charter of their future liberty. That brought him to consider two possible systems of public safety; that of other countries which was to teach the public to look after themselves, and that of this country, which was to prevent citizens having any possible opportunity of taking care of themselves. The loss of life was not greater under one system than the other. The interests of automobilists were threatened by the Association of County Councils. If their objects were for the welfare of the people, as a whole, they were usurping the functions of the Houses of Parliament. It was monstrous that county councils should be, by a majority vote, placed in the position they were by that Association. He proposed the toast to an important industry, which he wished to see acclimatised on English soil.

The Hon. J. Scott Montagu, M.P., responded, and, in doing so, reviewed the work of the Automobile Club during the past year. The 1,000-mile Trial was strong testimony to the reliability of motor-vehicles. Having shown how similar arguments were used against railways as were now used against automobiles, Mr. Montagu went on to say that further restrictions would not be placed upon motor-cars if their drivers showed deference and tact to the general public. In recent elections motor-cars had been largely used, and the way in which they were handled had done much to dispel prejudice. He hoped to see the industry grow on British soil. The export from France for the first nine months of the present year had been at the rate of £333,000 per annum, and half of the vehicles represented by that amount had been brought to England. Most influential people had been added to the list of supporters of automobilism during the year. If they would lie low victory would ultimately be theirs. He appealed to automobilists to be careful of the rights of other users of the road, to keep on the right side of the road and not to take a pleasure in running over dogs. No man could be a good judge of motor-cars unless he had ridden them, and he was glad the Club was about to educate county councillors in that direction. They could also congratulate themselves on the growing friendliness of the Press. In conclusion, he read a letter from Lord Kingsburgh, urging self-restraint on the part of automobilists.

Colonel R. E. Crompton proposed the toast of "The Visitors," and referred to the work he had done in South Africa during the last eight months. In Natal, traction engines had been tried in times of heavy rains when transport of any kind was very difficult. By May, engines which were capable of drawing loads across the veldt were up to the firing line, and from that time onwards the automobile had not suffered in South Africa. When Lord Roberts wanted to get guns into difficult positions, he sent for self-moving engines. South Africa was covered with dead animals that had been employed for haulage. The position would have been very different had automobiles been employed. Of 130 tons of food for two columns sent by steam traction from Pretoria to a point twenty miles to the west, 100 tons were for the horses and only 30 tons for the men. He hoped to relieve the British cavalry of the huge weight the unfortunate horses now had to carry. It was his ambition to introduce into the service a light vehicle that should carry a large portion of that load. Engines had taken 12-ton guns up inclines of 1 in 5, and if the existing engines had done that, what would those produced in the future be able to do?

General Sir Thomas Gordon replied, eulogising Colonel Crompton's work in India—work which dated from 1871. He also emphasised the value of the introduction of automobiles into Persia by the Czar.

The health of the Chairman, proposed by the Hon. Cecil Duncombe, and heartily drunk by the company, brought the interesting proceedings to a close.

FURIOUS DRIVING CASES.

At the Diss Petty Sessions last week, Frederick W. Fitt, Norwich was charged with driving a motor-car at Roydon to the common danger of passengers, on October 31st.—Mr. Reeve, solicitor, Norwich, appeared for the defence.—W. H. Berry, relieving-officer, Kenninghall, deposed that he was driving from Diss to Roydon, and when near Blackboard Farm, he heard a motor-car approaching. There was a sharp bend at this spot, and the car came at a very fast rate round that bend. Witness's pony was frightened, and, swerving to the right, ran up a bank. Witness was not prepared to judge the speed, but it was far too fast for a dangerous bend in the road.—For the defence, it was stated that a horn was blown, and the motor brought to a dead stop in passing Mr. Berry's cart.—The Bench decided to dismiss the case, but, in reply to Mr. Reeve's application for defendant's costs, the Chairman said the Bench declined to make an order, as they did not consider it a case that ought not to have been brought.

JOHN HILLS was charged at Hastings, last week, with furiously driving a light locomotive.—The case against defendant was that he drove his motor along the front at Eversfield Place in a furious manner and knocked down three University School students, who were cycling. It was alleged that the motor travelled at from twelve to fifteen miles an hour.—For the defence, it was contended that the speed had been exaggerated and that no complaint was made until after the accident.—A fine of £2 and costs was inflicted.

At the St. Albans City Sessions, on Thursday last week, a case of considerable interest to motorists and others was heard. It was one in which Mr. S. F. Edge, of London, was summoned for driving a motor-car at a greater pace than fourteen miles an hour in the Verulam Road on Saturday, November 3rd. Defendant pleaded not guilty, and was defended by Mr. Staplee Firth. Head Constable Blatch, in opening the case, said that it arose out of a report that was made to the police on November 3rd. It was alleged that three motor-cars were proceeding down the Verulam Road at such a rate that a serious collision was only just avoided. The leading car was on the wrong side of the road. Enquiries were made by the police, and the result was that the defendant was seen at Northampton and was seen again on the road back home. P.C. Cowan said that on Saturday, November 3rd, he was on duty at the fountain near the Market Cross at 2.50 p.m., and saw three motors go through together, all of one colour. The defendant was driving the first car. There were two others—one a lady—in the car. They were then going at an ordinary pace. Lady Bingham, who was next called, said that at about three o'clock on November 3rd she was in her victoria, drawn by two horses, coming out of the Branch Road into the Verulam Road. As they were nearing the corner she heard the sound of a motor coming, but there was no hooter sounded. Her coachman pulled up as shortly as he could, but the motor was practically upon them, and, although her coachman had pulled up, she thought nothing could avoid an accident. The motor was on the wrong side of the road, and the driver did not slacken speed. This was the largest of three cars which were there, and she considered that they were going at about twenty miles an hour. Edward Stanup, coachman to Lord Bingham, said that as he was driving out of the Branch Road on the afternoon in question there were three motor-cars coming down the Verulam Road. They were going at from twenty to twenty-five miles an hour, the first one going something like an express train. As soon as he saw them, he pulled up as shortly as he possibly could. P.C. Brotherton gave evidence to the effect that on Sunday, November 4th, he was in the High Street looking for three motors. At about 6.50 he saw a large motor coming round the Redbourn Road and going in the direction of London. The car was a light grey one, and Mr. Edge was driving it. Witness asked whether he went through the city the previous day, and P.C. Cowan, who came up, identified him as the gentleman who had. Witness asked him what time he went through, and Mr. Edge said about 1.30, but after witness had told him he went through with two other cars at about a quarter to three, he then said, "As to the time, I didn't notice. I was by myself in front, and I did not know what was behind me. There might have been a traction engine for what I know." He asked why he had been stopped, and witness then informed him of the occurrence of the previous day. He then said, "Was there any damage done?" and asked what was wrong. The defendant was then sworn, and said he did a good deal of motoring, having travelled nearly 70,000 miles. On November 3rd he came in St. Albans at about 1.30 p.m. and stopped for lunch. There were then three other motor-cars in the Peahen yard. He knew two of the cars, and left St. Albans with them at about a quarter to three. Mr. Mayhew, who was driving one of the cars, was in front of him at the Market Cross, witness having stopped at the hotel to pick up his wife. They were going on to the Birmingham Road, and in the Redbourn Road witness passed Mr. Mayhew to get in front, and was in front when he passed the Branch Road. Continuing, the witness said that his car was the same shape as Mr. Mayhew's, only it was not of so recent a make and not so strong. The road was exceedingly greasy, and witness was driving very slowly, and seeing the carriage coming out of the side road, he crossed over to the other side, which was a most natural thing to do. He was only going at nine miles an hour. There were three speeds on the car, which was driven by an oil engine, and on this afternoon he had the second speed on, for when the roads were greasy the car was liable to have side-slips. He had his engine slowed at this moment, as they were going down a slight slope, in order to avoid side-slips. He did not drive the car for one moment more than nine miles an hour. This was the only evidence called for the defence, and Mr. Firth proceeded to address the Bench for

the defence, submitting that no case had been made out. They had heard a great deal about what was almost a collision, but that was undoubtedly owing to the careless driving of Lady Bingham's coachman. The Bench, he was sure, knew the Branch Road corner, and he ventured to say that none of them would attempt to drive round there at a trot. It was what he called a "blind" corner, for, when coming down the Branch Road, it was impossible to see what was coming down the main road. Mr. Edge could have stopped his car immediately if he had thought that there would have been an accident. It was admitted that they had heard the motor coming, and it was perfectly clear that the coachman ought to have pulled his horses up sooner, but he could not do so because he was trotting. He would remind the Bench that the summons was for driving a motor-car at more than fourteen miles an hour. But there was no definite evidence at all on the part of the prosecution as to that point. The Bench retired, and on returning, the Mayor said they had gone very carefully into the case, and, looking at the matter fully, they thought the information was not made out, although the witnesses both for the prosecution and the defence had given their evidence very properly. If the case had been brought under a different section, that was with driving the car to the danger of the public, they would have taken a different view of it. The case would, however, be dismissed, and they were unanimous in that decision.

THE BLACKPOOL MOTOR-CAR COMPANY.

THE case of Hamilton and others v. the Blackpool Motor-Car Company came on for hearing before Mr. Justice Buckley, in the Chancery Division of the High Court of Justice last week. It was an action by four directors to enforce a mortgage alleged to have been given them by the company to secure them in respect to a guarantee they had given to the Lancashire and Yorkshire Banking Company to cover an overdraft of the defendant company. After evidence on both sides had been given, his Lordship said he had to determine two questions—one of fact and the other of law. Was this deed executed at a time when the company was unable to pay its debts, in pursuance of and performance of an antecedent obligation to execute that security when called upon? He had come to the conclusion that before December, 1898, there never was any binding engagement on the part of the company that these four directors should have such security; nor did the directors execute their guarantee in the faith of such security. The question of law was whether the directors were creditors within the meaning of Section 48 of the Bankruptcy Act, 1883. It appeared to him that they stood under a contingent liability to the bank on behalf of the company. They were sureties for the company, and came within the meaning of Section 48. Therefore their claim must fail, and he must declare the deed to be void, and the plaintiffs must pay the costs. On the application of Mr. Terrell, execution was stayed, on the usual undertaking, with the view of appealing.

A DRUNKEN MOTOR DRIVER.

At Bow Street Police Court last week, David Pullen was charged before Mr. Marsham with being drunk while in charge of a motor-car. Police-constable 252 E stated that at twenty minutes to eleven o'clock on Monday he saw the defendant driving a motor-car in the Strand at the rate of between twelve and fifteen miles an hour. The car was swerving from side to side and witness called upon the prisoner to stop. He did so, and he then saw he was drunk. At the station he denied being intoxicated, and a doctor was sent for. He said the prisoner was very drunk. There was a gentleman in the car with him. The prisoner now said he must give way to the doctor's opinion, but it was a bad night, and motors always slipped about on a wet road. A gentleman in court, whose name did not transpire, said the prisoner had brought the motor from Salisbury for him, and had been in his employ for two months. Mr. Marsham told the prisoner that he had done a very dangerous thing, and ordered him to pay a fine of 20s., and 7s. 6d. doctor's fee.

A MOTOR-CAR CASE AT FORFAR.

IN Forfar Sheriff Court last week the record was closed in an action at the instance of Mrs. Ann Cathro Mitchell, or Lumsden, wife of Philip Lumsden, Kirriemuir, and the said Philip Lumsden for himself, and as administrator-in-law of his pupil child, Lavina Smith Lumsden, in which pursuers seek to recover from Alexander Ross French, dentist, Forfar, the sum of £75 and £25 respectively in name of damages for alleged personal injuries. In the condescendence it was stated that in the afternoon of the 13th July, the defendant negligently drove a motor-car along Millar's Lane, Kirriemuir, with the result that he knocked down and drove over the pursuer, who was walking towards her home with her child in her arms. The defender, it was averred, was driving at a dangerous pace, and in a careless and reckless manner for such a locality. Without any warning, defender recklessly ran the car into the lane, injuring the female pursuer and her child. The pursuer was very seriously injured by the wheels, or one of them, passing over her legs, and was confined to bed for about six weeks, an operation on her left leg being found to be necessary. The child was knocked from her mother's arms, and was found to be seriously injured.

For the defender, it was denied that he either drove the car negli-

gently, or that he knocked down and drove the car over the pursuer. It is explained that immediately after he started in High Street, opposite the Post Office, several people from the crowd on either side of the avenue that he had cleared began to cross in front of him, and to avoid the risk of accident he altered his course into Millar's Lane. The pursuer was at the time standing on the foot pavement of the Square, and she recklessly and suddenly turned into Millar's Lane in front of the car. She then got excited, and tripped and fell in front. It was denied that the child was knocked from her mother's arms by the car. It was further denied that there was any ground for the claims, and that in any case the damages were excessive. The defender also expressed his regret, and, without admitting liability, offered £5 and to pay any necessary medical expenses.

ACTION FOR THE PRICE OF A MOTOR-CAR.

IN Forfar Sheriff Court last week, Sheriff Lee issued his decision in an action at the instance of James Macfarlane, cycle and motor car dealer, Perth, against Alexander Ross French, dentist, Forfar, to recover the sum of £135, being the price of a motor-car sold by pursuer to defender in July last. His lordship, in giving decree for the amount sued for, said the objections stated were on grounds either manifest at the time of sale or easily and immediately ascertainable. He therefore found in law that there was a completed contract of sale, and that the defender, not having returned or intimated his rejection of the car, but, on the contrary, having retained and used it for a period largely in excess of that necessary for trial and discovery of fault, was liable in the purchase price, with expenses.

WE hear that the Hon. C. S. Rolls, has ordered a 24 h.p. Mors car, which is expected to be delivered by the end of next month.

THE King of the Belgians has been elected as President d'Honneur of the Moto Club de Belgique, and as Haut Protecteur, Member d'Honneur of the Automobile Club de France.

THE Shrewsbury (S.T.) and Challiner Tyre Company, Limited, has been registered with a capital of £32,000, to carry into effect an agreement made by this company with the Challiner and Willoughby Carriage Tyre Company, Limited, and a second agreement with the Shrewsbury and Talbot (S.T.) Cab and Noiseless Tyre Company, Limited, and, generally, to maintain and to carry on the general business of manufacturers and vendors of and dealers in vehicles of all kinds, pneumatic and other tyres, etc.

CALLING some few days since upon Mr. H. Waterson, of Aston, Birmingham, with regard to the many "E. H." motor specialities, in which he has already formed a considerable business, we were agreeably surprised to find that so great has been the demand for his goods for use upon cars, voiturettes, etc., to be exhibited by makers at the cycle shows, that he has been unable to reserve a collection for exhibition on his own account. He has, however, secured a good space at the Automobile Club's Show in May next. Mr. Waterson will be staying at Holborn Viaduct Hotel, E.C., from Monday, the 26th, to Friday, the 30th instant, and any of our trade readers desiring quotations and data as to coolers, accumulators, carburettors, steering wheels, etc., would gather some useful information by a visit.

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THE Motor-Car Journal.

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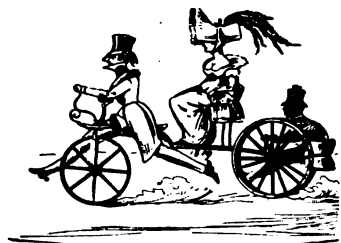
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COMMENTS.



ACCORDING to the secretary of the County Councils Association, that body has not yet discussed the reduction of the speed of motor-cars, nor has it even considered the numbering of such vehicles. All that it has done up to the present has been to invite the opinions of county councils on certain suggestions made by the East Suffolk Council. When these



have been ascertained the matter will be discussed. Hence the necessity for individual automobilists throughout the country to do what they can to educate county councillors and similar persons without delay, so that there may be created within the ranks of the County Council Association a strong protest against any proposals to further restrict the rights of users of the road. The Hampshire County Council may be expected to offer strong opposition to the suggestions that have lately been made, and seeing that that body has charge of one of the districts where motor-cars are most frequently seen its views should have considerable weight. Other councils should be brought to a similar state of mind, and every owner of a motor-car can do something in this direction by influencing any public men he may have among his friends.

Ten Miles an Hour.

THE proposal of the County Councils to limit the speed of motor-cars to ten miles an hour, thus reducing the present limit by two miles, does not strike us as a very happy or sensible proposal, and we are glad to see that the *County Council Times* declares: "We have not much sympathy with the proposal as to reduced speed; we think it unnecessary and impossible. If we are unable to procure observance of a twelve-mile limit, we cannot of one of ten miles." It is really a silly annoyance which prejudiced people seem desirous of inflicting upon motorists.

In Norfolk Again.

WHAT delightful councillors have been elected to look after the interests of the people of Norfolk! Apparently a great number of these learned and interesting gentlemen regard motor-cars as hooks whereon to hang their fads and fancies. At a meeting of the Western Highways Committee of the Norfolk County Council, Mr. J. B. Mitchell moved that a bye-law be passed that all motor-cars bear a number plate five inches long, the charge for these to be a guinea for private cars and five guineas for those let out to hire, the money thus obtained going to the roads account. Further, the speed of cars was not to exceed twelve miles an hour, and when a car met or passed a vehicle, the driver of the car was to stop and render assistance if necessary. The chairman advised Mr. Mitchell to take his suggestion to the full meeting of the Council, and there probably the guinea plate five inches long will be trotted out and regarded with awe by the wondering councillors. What with this plate and the

sounding gong which another Norfolk gentleman has suggested, the motorist's career will be overwhelmed with complications.

"Breakdown of the Royal Motor."

The burners of the motor-car belonging to the Prince of Wales went out on Monday, causing a delay of two minutes. This slight incident was sufficient to secure a long paragraph in the daily papers with the startling heading "Breakdown of the Royal Motor." To give the matter such a title was absurd, as the affair was in no sense a mishap—only one of those little trifles that, but for the fact that it happened when the Prince was aboard, would never have been noticed in the press. It appears that his Royal Highness, who has been spending a few days with Lord Farquhar at Castle Rising, concluded his stay on Monday morning, and left for London by the 11.47 a.m. train from Lynn. It was a bright, exhilarating morning, and His Royal Highness rode into the town in a motor-car, being accompanied by Lord Vane Tempest, the Right Hon. Henry Chaplin, and Hon. S. Grenfell (Equerry-in-Waiting). On the way a slight delay occurred, for in the jolting over the rough, uneven surface of the Gaywood road one of the burners went out. The party were already behind time, for the departure of the train was a little overdue. A large motor-brake which had conveyed the luggage of the guests to the railway-station and was returning approached, and the Prince and the others immediately transferred themselves to it and went on to the station, the other vehicle following at an interval of a couple of minutes, after the burner had been relighted. The Prince caught his train after all.

Punctuality.

MOTOR-CAR services to be prosperous must be punctual, and we would impress the fact upon all who contemplate starting such means of public convenience. A correspondent living in a Midland town writes:—"Last night I waited thirty minutes in the rain near ——— Church for a motor-car for ———. Three passed me within that time from the other end, but not one from the direction I wanted to go, and I had finally to give it up and get home by some other means. The motor-cars in question are supposed to run every quarter of an hour, but in fact they start at any time, and as happened last night three ran within the half-hour in one direction and none in the opposite one. This has been the experience of a number of persons to whom I have spoken, and all have expressed the wish that the local authority would, if they have the power, insist on a time-table being declared and adhered to."

King Leopold.

KING LEOPOLD of Belgium is enjoying all the sensations of automobilism, for since his return to Brussels he has actually been racing. True, it was neither against a rival car nor an express train that His Majesty competed, but even a cyclist affords good sport sometimes, and the King's adversary appears to have given him a good run for his money.

Following the Avenue de Tervueren, *en route* for Quatre-Bras, the royal 12 h.p. was proceeding at a moderate pace, when suddenly a cyclist darted by, crying, "Polle, the last at Quatre-Bras pays for drinks!" The King's good humour was nowise disturbed by the familiarity of the speaker, and, signing to his driver, the latter quickly had the car running on her fourth speed. Caught and passed, the challenger tried in vain to hang on behind, but all in vain, and when King Leopold reached Quatre-Bras not a sign was to be seen of his adversary. Rather mean to back out of the promised drinks, but perhaps the audacious cyclist had some qualms on the subject of his disrespectful address to the monarch, and considered flight the better part of valour.

Racing in Germany.

THE "Berliner Automobil Renn Verein," the new German club whose formation was recently announced, has just made known its intention to organise during next summer a great automobile race over a distance of 1,000 kilomètres, or 625 miles. The route selected is Berlin-Hamburg-Bremen-Berlin, but the exact itinerary is not likely to be settled upon for a long time to come. This event, together with the proposed Paris-Berlin race, should do much to heighten the interest in the new sport, and we should not be surprised to see a great development in German automobilism during the forthcoming year. Dresden-Leipzig and Berlin-Aix-la-Chapelle have already fired the racing instincts of German motor men, and with further encouragement the sport may spread as widely as it has done in France. It is further rumoured that the Automobile Club of the West of Germany will hold a race from Königsberg to Aix-la-Chapelle, in which several French *chauffeurs* will compete.

Accident to Mr. R. Egerton.

WE are sorry to hear that Mr. Reginald Egerton is laid up with a broken rib and is marked with many bruises. He was the victim of a curious accident, being crushed through the woodwork of a coach-house door by a heavy Daimler car in a most unaccountable manner. He was between the back of the car and the heavy door, which was closed and bolted. His escape was marvellous. After being repaired at the hospital, Mr. Egerton was driven home in the car, which he said did not jar him in the least. The man who came into the hospital next had his hand badly chewed up by a horse, and Mr. Egerton could not help saying to him—"Dangerous things, horses"—and he agreed.

Automobiles v. Tramways.

TRAMWAY men are apparently discontented in the United States. During the past summer there has been considerable agitation, and rumours of strikes as thick as speeches in the Presidential campaign. In this connection a meeting of the Executive Board of the International Street Railway Men's Association, held in Detroit recently, becomes of interest, for President W. D. Mahon recommended that the board start to raise funds by assessment to buy automobiles for the purpose of putting them to work in cities where the companies treat the men unfairly or where transportation facilities are meagre. President Mahon's idea is to put a complete automobile service in operation in a city as soon as a strike is declared, and to have the automobiles operated by the men who formerly operated the street cars. The board approved of the idea, and authorised the president to draft a plan of assessment.

The Automobile Club of America.

THE Automobile Club of America tendered a banquet on the 9th ult. to the exhibitors at the recent motor-car show in New York. About 200 persons sat down, the gathering being presided over by Mr. A. C. Bostwick, vice-president of the Club. Addresses were made by Messrs. A. C. Bostwick, George F. Chamberlin, Samuel T. Davis, jun., Prof.

R. H. Thurston, of Cornell University, and Arthur J. Eddy, of the Chicago Automobile Club. Professor Thurston commended the progress shown by the exhibits, and then delved into history, tracing the idea of road locomotion down through the ages to the early days of the present century. He pointed out that the work of Hancock and Gurney was as practical for their day as any at the present time, but the public was not ready for the new locomotion. Railways absorbed attention, and legislative interference finally put a quietus on the movement. Now all is different. The public is prepared for the road-motor, and powerful agencies are advancing its cause. The general principles underlying the motor-vehicles are now known, and all that remains is their application. He had seen more novelties in the mechanical line at the motor-car show than he had ever found in an international exhibition.

1,000 Miles Non-Stop Run.

LAST week we reported the early stages of the long non-stop run on the Crystal Palace track. The 5 h.p. Decauville car covered the 1,000 miles in 48h. 24min. without a single stop. The 8 h.p. car, however, stopped during Wednesday night, owing, we are informed by Mr. Moffat Ford, to the carburettor having become frozen, a large piece of ice being subsequently extracted from it. It had previously run 314 miles, and on the morning of the 22nd it was started again with the object of covering 1,000 kilomètres (625 miles) without stopping. This it successfully accomplished in 24h. 54min. During the night's run, a lantern that had been left in the body of the car overturned, and the flames quickly spread to the upholstery and woodwork. Only when he felt the heat did the driver discover what had happened. On his slowing down several men mounted the vehicle and extinguished the flames while the car was in motion.

Motor-Car Engines.

AN interesting lecture on "Motor-Car Engines" has been delivered before the Yorkshire College Engineering Society, in the Engineering Lecture-room of the College, Leeds, by Dr. J. T. Thresh. The lecturer predicted a very rosy future for the motor-car, and remarked upon the reliability of the cars manufactured now, as compared with those made a year ago, when it was thought almost impossible for any car to run forty miles without a breakdown. A thousand miles without a stop would be thought nothing of nowadays. In drawing a comparison of modern motors, Dr. Thresh prophesied that in a few years' time steam would displace oil and spirit motors, and when electricians had discovered a better kind of secondary cell or battery, electric motors would undoubtedly supersede all other types. Speaking from his own personal experience of the primary cost, safety, speed, and cost of working motor-cars, the lecturer advanced the opinion that if motor-cars must become cheaper, the workmanship would become inferior. In point of safety, the motor-car possessed every advantage over the "animal motor." It had already been perfected up to a running speed of sixty-two miles an hour and upwards on the highways. As for the cost of working, in a run of eighty miles, occupying ten hours, the expense incurred by a Serpolett steam car would be 2s. 6d., by an oil car 3s. 4d., and by an electric car 4s. 8d., including the price of electricity. The doctor illustrated his lecture by taking to pieces and reconstructing a typical internal combustion 2½ h.p. engine weighing 54 lb., capable of a speed of twenty miles an hour, the parts and *modus operandi* of the working of which he fully described.

Automobiles at Hotels.

WE recently notified that a hotel proprietor on the South Coast was purchasing a motor-vehicle to take visitors to and from the station. Then Mr. G. M. Brown, of the Central Hotel, Princes Street, Edinburgh, went a step further, and purchased a motor-phaeton from the Motor Manufacturing Company, Limited, for the conveyance of visitors to places in

the vicinity as well as for station work, when required. The experiment has proved wholly satisfactory, and another motor-vehicle is to be introduced in connection with a large hotel he owns at Annan. There is no doubt a great future for automobiles in this direction.

The Nice Automobile Club.

ON Saturday last there took place at the club-house in the Boulevard Gambetta the annual general meeting of the members of the Automobile Club of Nice, at which some sixty well-known motor-men assisted. Among them may be mentioned the names of the Baron de Zuylen, president of the Automobile Club of France, and the Count Biscarreti di Ruffia, president of the Automobile Club of Turin. It is interesting to note as an evidence of the prosperity of the A.C.N. that, in spite of an expenditure of some £2,800 during the last twelve months, £60 still remains on the credit side of the books. The business transacted was of the usual character, and the large majority of retiring officials were re-elected. For the ensuing year, therefore, M. J. Gonsin will again act as president, the other leading officials being—vice-presidents, MM. Paul Chauchard and Ernest Sardou; treasurer, M. Ferdinand Crossa; secretary, M. Pierre Clérissy. Later on in the day the club's season was formally inaugurated by a banquet at the Hôtel d'Angleterre, at which a great number of members were present. Nice is already alive with automobiles, and the number of *chauffeurs* continues to increase daily. It is going to be a great season for the new sport on the Riviera this winter.

Automobilism in Russia.

BURDENED with a multitude of vexatious regulations, the Russian automobilist does not enjoy the rosiest of times, and he therefore warmly welcomes any relaxation of the existing restrictions, no matter of how slight a nature it may be. One such concession recently granted by the authorities relates to the numbering of self-propelled vehicles. Formerly every automobile was required to carry a couple of numbered lanterns in order to permit of easy identification by night as well as by day. Naturally the numbers greatly obstructed the light given by the lanterns, and motor-men complaining bitterly of the regulation, a modification has been introduced whereby the lanterns are freed from the numbers, which in future will be placed one in front and one behind every motor-vehicle. It is not an enormous concession, but when the tendency is rather to accentuate than to relax existing regulations automobilists gladly welcome the most insignificant favour. The day when the Czar becomes *chauffeur*, Russian authorities will regard automobilism more favourably, perhaps.

Barricading the Streets.

COULD Macaulay's New Zealander be brought to London before the close of the present century he would probably imagine that the metropolis was in a state of siege, and that the visit of Mr. Kruger to Paris had caused the authorities to barricade the main thoroughfares. Curiously devised fences line some of the chief streets, and deep trenches have been dug in which scores of men are busy at work. These sights, together with the presence of great lumbering wagons, give life and actuality to such a notion. Probably some of the visitors to the capital were alarmed a few weeks ago, but now everyone has grown so accustomed to the hideous features of the streets that they are regarded with less nervous feeling. But while the fear has subsided the annoyance and irritation has developed into active hostility. This week the tradesmen of East London have met and denounced the nuisance caused by the main thoroughfare leading from the City to the east being "up," and at Wednesday's meeting of the Court of Common Council it was proposed that the companies thus hampering the traffic of the streets should be compelled to carry on their work by continuous shifts night and day. While there is little business in the streets the contractors

suspend operations, renewing work as the thoroughfares become more congested. If the work has to be done let it be done quickly and continuously, for while under the present laggard system one firm may save a pound the loss to the commercial community can scarcely be under-estimated.

M.P.s on a Motor-Car.

AMONG the successful candidates at the recent General Election who found their labours facilitated by the employment of motor-cars were Messrs. W. R. Plummer and George Renwick, of Newcastle-on-Tyne. They used Mr. William Dunn's Benz car, and on the day of the election were able to



visit all the polling-booths in the constituency in less than half the time that would have been the case had an ordinary carriage been employed. In the accompanying photograph Mr. Dunn is standing in front of the car. Mr. G. Renwick, M.P., is on the front seat with Mrs. Dunn, and Mr. G. Laidlaw, electrician, is on the back seat with Mr. W. R. Plummer, M.P.

LORD HAISBURY, the Lord Chancellor, has been for a motor car ride, and subsequently expressed his pleasure at the experience.

MESSRS. ALBERT R. SHATTUCK, Albert C. Bostwick, and Juan M. Ceballos have been appointed a committee to look for suitable quarters for the Automobile Club of America where storage and repair facilities may be had.

MEDICAL men will find much convenience in the adoption of the motor-car. Automobilism is not unlike medicine—too small a dose will probably do a person no good and too large a dose may kill him. It is in finding the happy medium that safety and exhilaration will be found.

THE New Grappler Pneumatic Tyre Company, Ltd., Dublin, have sent us a copy of their new price list of motor tires. It gives particulars and prices of tricycle, quadricycle, and voiturette tires, as also of those for cars weighing between 6 and 10 cwt., and from 10 to 15 cwt. The weight of material in the Grappler tires has, we are informed, been substantially increased. The company also claim that by the introduction of a novel method in the manufacture of the tubes they have overcome the trouble complained of by motorists arising from faulty air tubes.

A MEETING of American automobile manufacturers was held in New York, on the 10th ult., over thirty firms being represented. Mr. John Brisben Walker, of the Mobile Company of America, was elected temporary chairman. A committee of eleven was elected to take in hand the preparation of a permanent organisation of automobile and accessories makers, and to have power to draft a constitution and by-laws, select officers for the first year and to secure a certificate of incorporation. Those present signed a resolution to the effect that the object of the prospective organization would be to advance and protect the interests of trade.

MOTOR-TRICYCLES. SOME DEFECTS AND REMEDIES.

BY A. E. S. CRAIG.

(Continued from page 645.)

A great deal of trouble awaits the unwary novice who does not understand the principle of carburation. The usual form on tricycles, known as the De Dion, is the triangular box holding the best part of a gallon of spirit. There is, in my opinion, only one merit in this type, and that is simplicity. It is wrong in theory, inasmuch that the lighter gases are bound to be given off first, leaving a residue of stale petrol that is not desirable. The jet, or pulverising carburettor, is the one that will avoid this, and elegant little devices on this principle are on the market. The next defect in the triangular-box carburettor, which I need hardly say is of the surface type, is its very unequal action on varying roads. In spite of the baffle plate, the jolting over rough roads makes a considerable alteration of air mixture necessary, and this is a great nuisance. It is especially awkward at the commencement of a hill, and many a weary mile have motor-tricycle riders had to push, in hilly country, with unequal road surface, on this account. It is, moreover, a source of danger, owing to the bulk of liquid and explosive vapour in communication with a chance of ignition.

That such a danger exists I have had personal experience, and can show as a warning a discarded carburettor of the De Dion type, in which an explosion occurred through this cause, and I regard it as little short of a miracle that it did not result in a fearful accident. The usual safety discs of gauze were there; though blown out of shape by the explosion. I do not advise attempting to remedy the defects of this carburettor; the best thing to do is to discard it entirely, or convert it into an air tight supply or auxiliary tank.

Beware of stale petrol; it is an unmitigated nuisance, unreliable as to mixture and inefficient in power. In the triangular boxes one always has stale petrol more or less, and of course the best thing to do is only to put in as much spirit as you know will be consumed in one ride. Should there be a residue, it is best to empty it out and keep it for cleaning purposes. Never take it for granted that the petrol you buy is fresh, even if in an alleged air-tight can or drum; test it for yourself, and then you will know. I believe the day is coming when ordinary paraffin, or some more stable spirit than at present used, will be adopted, and then of course the specific gravity is not likely to vary; but at present we must be content to adopt all precautions to reduce the chances of things going wrong. Always carry a densimeter, but remember that if you draw some petrol to test from the bottom of a De Dion pattern carburettor it probably will not show the same density as some drawn from the top. This is especially the case when fresh spirit has been added to stale. Agitating the brass tube attached to the baffle plate will only temporarily mix new and stale spirit. A lot depends on the nature of the igniting spark as to the exact degree of density which will work in a motor, and a great deal also depends on the type of carburettor. A pulverising type is worth its weight in gold compared to a surface carburettor for using stale petrol, just as much as a fat spark is worth three thin ones.

Many *chauffeurs*, novices mostly, leave their air valves open when they stop, especially if they have it set at what was the correct mixture; in fact, some, I believe, leave them open all night, and then wonder why the mixture which worked so beautifully the day before should be so provoking after a night's rest. Just as a good engine driver can keep up a head of steam, and run to time, with a coal sheet that will earn him and his fireman a weekly premium, so can a *chauffeur*, who studies his air mixture, travel at least fifteen miles more on a tricycle with one gallon of petrol than the average happy-go-lucky amateur. Always, therefore, close the air valves on stopping; you can easily get the mixture the same again, and perhaps better than before.

When running at full speed on the level or slightly down hill, try and see how much air the motor will take. Do not

meddle with the mixture half-way up a hill, or the chances are you will want some air yourself when you get to the top! Try to find the correct hill mixture when climbing short hills.

When a motor will not start in the morning after being left over-night, there is, of course, a probability that stale petrol is the cause, but if it starts on its run all right, it is very improbable that it will cause a stoppage during the day, except in the case of a triangular tank carburettor, and then only after a stop of some duration. If your carburettor is warmed by exhaust, do not let more through than will allow the spirit to vaporise sufficiently. The colder the mixture is admitted into the cylinder the more power will be obtained, owing to the fact that a larger quantity is drawn when its density is greater than when rarefied by warmth. It is a good plan to fit a tap on to the bye-pass exhaust pipe, so as to be able to regulate this, according to the warmth, or *vice versa* of the day.

(To be continued.)

THE *Oil World* states that a Mr. Stoop, of Soerabaja, has obtained a concession from the Dutch Colonial Government to establish a service of motor-cars between Cheribon and Indramajoe.

MOTORISTS journeying through Liverpool should note the address of Messrs Watson and Co., 30, Falkner Street. They stock petroleum spirit, and repair motor-vehicles.

AMONG the repairers and suppliers of petroleum spirit in the eastern suburbs is the firm of Mathews Brothers, 10, Woodford Road, Forest Gate, E.

THE forms of official appointment as repairers of De Dion motors and cars, etc., have been forwarded to all the firms whose applications for the post have been accepted by the De Dion-Bouton British and Colonial Syndicate, Limited. A list of these will be shortly published by the syndicate.

THE popularity of the voiturette is extending, and a groom in West London who likes not motor-cars, with which he says no self-respecting person ought to have anything to do in consequence of their uncertain behaviour, mispronounces the word as "Whatcherat," a term almost worthy of Sam Weller.

THE Imperial Autocar Manufacturing Company, Limited, has been registered with a capital of £4,000 to acquire the business carried on at Manchester by H. M. Addey as the Imperial Autocar Manufacturing Company, and the business carried on by W. Tutner at Manchester, and to carry on the business of autocar, cycle, carriage, and vehicle manufacturers.

MESSRS. WERNER FRERES AND Co., Paris, write us to the effect that it has come to their knowledge that certain dealers in "job" lines of motor-cycles are selling a machine called the "Werner Moto-cyclette." They state, however, that the machine thus being sold is an obsolete model with experimental tube-ignition motor and was not manufactured by them.

ON the Automobile Club's run between Winchester and Fareham, a wire connected with the ignition on the Wolseley car broke. It took some time to find this; hence a delay of quite an hour. That was, however, the only trouble on the return journey, and the car ran from Basingstoke to Hyde Park Corner without a stop.

THE Gordon Cycle and Motor Co., 140, Seven Sisters Road, Holloway, has extensive workshops for the repair of all kinds of motor vehicles. They have facilities for coach-building and painting, and also ample storage room for cars. Their riding school is nearly half a mile in extent. The company stocks petrol and all accessories.

A CORRESPONDENT of the *Aberdeen Free Press* has been giving his experiences of driving a Peugeot phaeton from July, 1898, to October, 1900. During that time he has had 160 runs, and has covered a distance of about 10,000 miles. During the whole time he has had very few stoppages, and none have exceeded forty minutes in point of time. The car consumed, on an average, one gallon of petrol for every sixteen miles run, carrying four passengers. It was fitted with 3½ in. Michelin tires, and some of them did as much as 4,000 miles without repairs over roads made with hard Aberdeenshire granite. Ten punctures occurred over the 10,000 miles.

THE "ARDENT" MOTOR AND VICTORIETTE.

ONE of the latest cars of French construction to make its bow to the automobile world is the "Ardent" victoriette, made by Messrs. Caron and Company, of 48, Rue Saint Ferdinand, Paris, and of which illustrations are given herewith. The car has seating accommodation for four persons

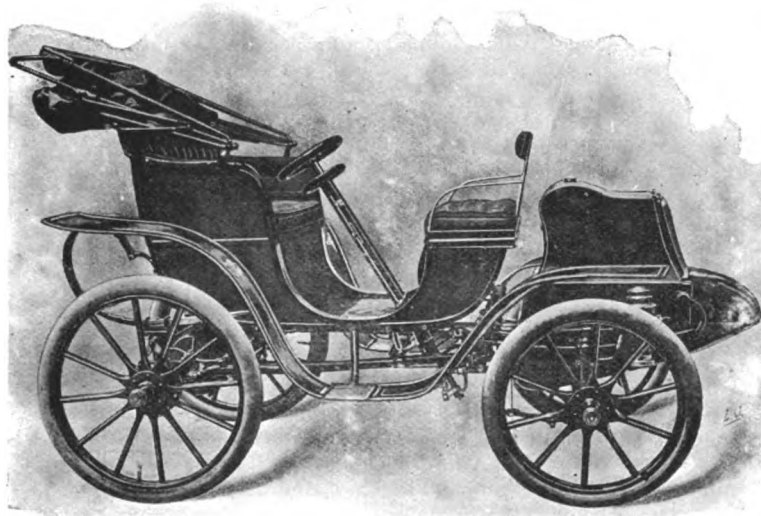


FIG. 1.—GENERAL VIEW OF "ARDENT" VICTORIETTE.

sitting *vis-a-vis*, and, as will be seen, special attention has been devoted to the suspension of the carriage body, this being quite independent of the frame, on which it is supported by C springs at the rear and by a transverse plate spring at the front. Fig. 2 gives a view of the motor employed to drive the car; it is of the two-cylinder air-cooled type of 5 h.p.,

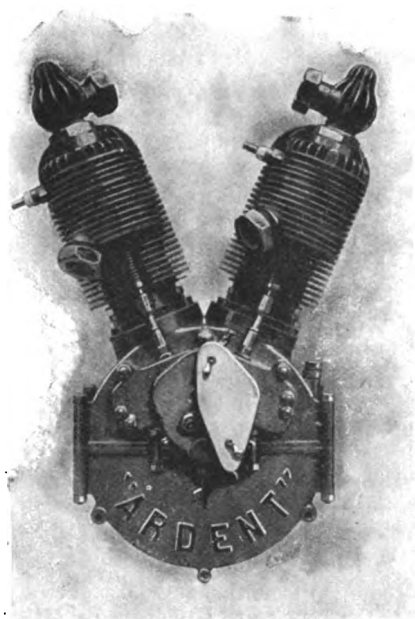


FIG. 2.—THE "ARDENT" TWO-CYLINDER MOTOR.

the two cylinders being set at an angle of 45 degrees and mounted on the same crank case. The pistons are connected up to a single crank shaft, one explosion taking place at each revolution of the latter. Notwithstanding statements to the effect that air-cooled engines of such high power do not prove satisfactory in practice, Messrs. Caron claim to have overcome all difficulties on this score. It will be noticed that there is an unusually large number

of radiating fins, extending not only around the cylinder, but also round the valve and explosion chambers; in fact, the makers state that their motors are provided with three times the amount of radiating surface usually available. The dimensions and form of the explosion chambers have also been designed to facilitate as much as possible the flow of the explosive gas, as also the products of combustion, so that the latter have but a brief contact with the walls of the cylinder and the valve chamber. Attention is also drawn to the large diameter of the inlet and exhaust pipes. The valves are so fitted that they can be quickly removed for inspection or grinding-in purposes, while the crank shaft bearings are of

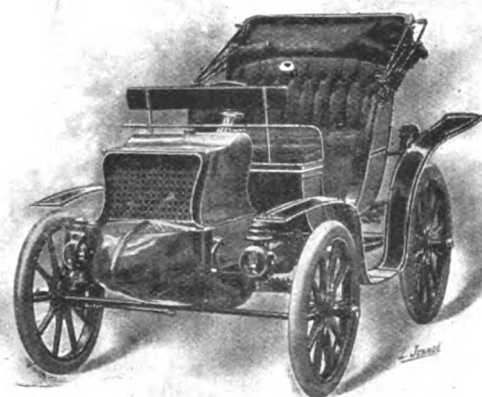


FIG. 3.—FRONT VIEW OF THE "ARDENT" VICTORIETTE.

phosphor bronze, and are entirely independent of the crank case. The ignition is electrical, the sparking in the two cylinders being controlled by a single cam.

As shown by the illustrations, Figs. 1 and 3, the engine is

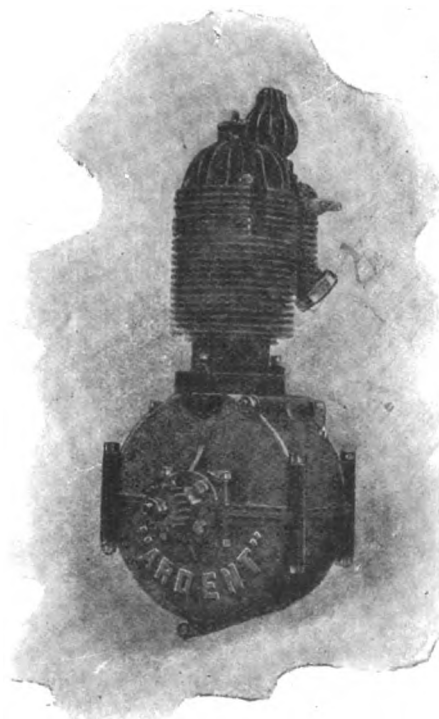


FIG. 4.—THE "ARDENT" SINGLE-CYLINDER MOTOR.

located under a bonnet in the fore part of the frame. Three speeds forward and a reverse motion are provided. The power of the motor is transmitted through a friction clutch to the variable speed shaft, which carries a train of spur wheels continually in mesh with corresponding wheels on a parallel shaft, which terminates in a bevel-wheel gearing, with a similar wheel surrounding the differential on the back axle. As already mentioned, the variable-

speed gear wheels are always in mesh, the desired pair being made to drive by means of sliding sleeves. Not only are the change-speed gear and the bevel gears on the rear axle all enclosed in a dust-proof case, but the driving shaft is also encased, and so protected from dust and dirt. Steering is controlled by a sloping hand-wheel; below this on the same pillar is a second—notched—wheel, in which works the lever controlling the change-speed gear. Provision is also made for starting the engine from the driver's seat. The road wheels are of wood, and shod with pneumatic tires. Ample braking power is provided, one foot pedal controlling a band brake on the differential, and another actuating similar brakes on drums attached to the hubs of the rear wheels.

In addition to cars, Messrs. Caron are also making motorcycles and small motors for the same. The latter is of 3 h.p., and is illustrated in Fig. 4; it is of the single-cylinder type, and comprises all the features already referred to in the case of the double-cylinder motor, so that no further description is necessary.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

Next Year's Belgian Exhibition.

AN interesting feature of next year's Belgian Automobile Exhibition, which will be held in the Pôle Nord at Brussels from the 16th to the 24th March, will be the practical testing of the various vehicles shown. These experiments will be carried out under the direction of a special committee appointed by the Chambre Syndicale de l'Automobile, and the results should afford most valuable information to intending purchasers. The universal adoption of this scheme would enormously enhance the utility of exhibitions, for as at present organised they mostly ignore the practical side of the question. The visitor is bewildered by the sight of a great variety of types, many of which have had no acquaintance whatever with the road, and he comes away not one bit nearer a decision than when he entered. But the subjection to practical tests of all the vehicles shown and the publication of the results would aid the buyer enormously, and would also put a stop to that practice of showing uncompleted cars, so frequently adopted by many makers. At Brussels the tests will take place in the hall and the park of the *Cinquantenaire*, which will be used as an annex to the exhibition. The organising committee has been fortunate in securing the patronage of Prince Albert of Belgium, whose interest in all matters relating to the new industry is well known.

The Automobile Club of Belgium.

YET another general meeting must be chronicled, and this time it is that of the Automobile Club of Belgium. Held on the afternoon of Wednesday, the 21st ultimo, it attracted an attendance of over one hundred members, for the general anticipation was that animated discussions on several subjects were likely to take place. Thanks largely, however, to the diplomacy of the president, M. F. Van der Straeten-Ponthoz, all unpleasantness was avoided and the business of the meeting was carried through with expedition. One of the most important subjects dealt with was the question of roads, and from the committee's report it would appear that the Government is likely to take steps to ameliorate these. Another matter under discussion was the proposed tour of Belgium, and it would appear probable that the itinerary will embrace the towns of Brussels, Charleroi, Namur, Spa, Liège, Antwerp, Ghent, Bruges, and Ostend. Nothing in the nature of a race will be attempted, the general idea being based much upon the lines of the 1,000-miles Trial in England. The work of organisation will not be rendered any easier by the fact that apparently the A.C.B. has not the whole-hearted support of all sections of Belgian automobilists, a fact to be sincerely deplored, for in the case of a new movement such as automobilism the efforts of all interested

should pull in the same direction, and no petty differences should be permitted to endanger the welfare of the entire cause.

Paris Motor-Cabs.

"No, let us take a motor!" cried an English visitor to Paris as I was about to hail a horse-drawn cab on the Boulevard the other day, and when I murmured something about millionaires only engaging such vehicles he pulled out a cutting from an English paper, reproducing M. Lépine's recent police ordinance fixing the tariff for automobile *fiacres* at two francs per course and two and a-half francs per day. "Very nice on paper," said I, "but in actuality quite a different story, as you will see," and, stopping an electric cab, I asked its driver what would be his fare to take us to such-and-such a spot, naming a street situated a mile away. "Ten francs," came the prompt reply, and the same figure was quoted by the driver of one of the little Peugeot voituresses whom we hailed. Now both these vehicles belong to the first class, and are quite exempt from the Préfet of Police's ruling, only as no motor vehicles appear to be running under the ordinary cab category visitors are apt to be led astray by the announcement that the fares are at such-and-such rates, and accordingly engage the first automobile that comes along in blissful ignorance that the tariff quoted does not apply to it. During a short period some insignificant number of electric cabs were plying for hire, nominally as second-class *fiacres*, but this was before the issue of the police ordinance, and to-day they are conspicuous by their absence. Therefore, the tariff as published is for a class of vehicle which, at the present moment, does not exist, and I can only warn visitors not to be entrapped into hiring self-propelled vehicles without they are prepared to pay some ten francs per hour. The figures now quoted by the first-class automobiles are moderate in comparison with what was being asked during the exhibition, for then the journey to Vincennes, for example, was frequently run up to sixty francs. And really, they were not accorded such a vast amount of patronage as to warrant any approach to charges of this sort; indeed, on the contrary, they were more often to be seen on the ranks than in active use. It is not the motor-cab which is successful in Paris, but it is the electric vehicle, hired out for lengthy periods, which is proving itself to be practical from every point of view.

Next Year's Paris Automobile Show.

AFTER much controversy and many deliberations the Automobile Club of France and the four protective associations of the automobile and cycle industries have arrived at an amicable settlement, and a combined exhibition will take place in the early spring of next year at the Grand Palais. At present the date selected for the opening is January 21st, 1901, but much depends upon the removal of the *objets d'art*, with which the Grand Palais is now filled. In the case of the show opening upon the chosen day it will continue open until the 10th of the following month. Everything then points to the success of next year's show. The building, the situation, right in the heart of fashionable Paris; the absence of outside competition, all go together to make a happy combination of circumstances, which can but bring success to the exhibition.

Motor Stealing.

THE gentleman who makes a profession of the theft of cycles would appear to be enlarging his sphere of action, for his presence has been noted in the automobile world. A few days ago a certain contractor of the Boulevard Pereire, Paris, sent one of his employés with a voiturette to call upon a Monsieur Morin, living in the Rue Bayen. Arriving at his destination the messenger alighted from the car and entered M. Morin's shop, but hardly had he crossed the threshold when the hum of a motor caused him to look round just in time to see his voiturette moving off under the guidance of an evidently

expert driver. Precipitating himself in pursuit, the victim appreciated as he had never done before the speed of his car, and after a few minutes chase he realised the impossibility of recovery and abandoned the struggle. Whether the local police, with whom particulars were promptly lodged, will be more successful in their efforts to hunt down the wily thief remains to be proved. This incident should be a lesson to those *chauffeurs*—and they form the great majority—who labour under the delusion that the man in the street knows nothing of the automobile. A chain and good padlock gives infinitely more security than the mere disconnection of the electric current, and it is but a moment's work to attach it. Be warned in time, *chauffeurs*, and take your precautions promptly.

In Belgium.

FROM Belgium comes the news that, following the example set by Antwerp, the authorities of Brussels have decided to impose taxes upon users of self-propelled vehicles. The rates, however, are not by any means exorbitant, for the four-wheeled car exceeding 800 kilogrammes in weight is only required to pay 50 francs, while for 30 francs the two-wheeler and the motor-cycle will have the right to disport themselves upon the highway. The two-wheel car being somewhat of a rarity in the automobile world, the Belgian authorities' classification is rather curious, but possibly they quote this type of car at the lower rate for the purpose of inducing manufacturers to construct such vehicles in order to secure the more advantageous terms. Poor Belgium, your *chauffeurs* do have a rough time of it between taxes, big numbers, and speed regulations. And yet in spite of all the industry thrives, a conclusive proof of the strong hold which automobilism has upon the Belgian public. And with King Leopold now developed into an enthusiast, a still greater future is opened up for the new sport. Mention of the King of the Belgians reminds me that Charron was honoured with an order from His Majesty for two cars, both Panhards, of course. The larger one, a 20 h.p., will be utilised for long excursions, while the smaller, 12 h.p., will be employed for town work. With such an example, can the Belgians do otherwise than adopt enthusiastically the new means of locomotion? I fancy not.

OWING to the pressure on our space this week several Letters to the Editor and other matters have had to be held over.

OVER twenty new members were elected to the Automobile Club of Great Britain and Ireland at the last meeting, thus bringing up the number to nearly seven hundred and fifty.

PRINCE GEORGE OF GREECE, and his uncle, Prince Waldemar of Denmark, are the latest converts to automobilism. They had a long excursion in an 8 h.p. automobile on Monday in the environs of Versailles.

ON Monday Mr. E. Shrapnell Smith gave a lecture at the Literary and Philosophical Society of Burnley, on "Motor-Cars, Past and Present." Mr. Strange, president of the Society, presided.

THE first annual exhibition of the Automobile Club of America was held at the Madison Square Garden, in New York, during the week ending November 10th. About thirty firms were represented by exhibits of complete vehicles, including steam, gasoline, and electric, and nearly two dozen others showed automobile parts, fittings, appliances and other accessories, used in motor vehicle construction, and by the drivers and users of such vehicles.

A VERY elementary attempt at humour has been made by the *South Wales Telegraph* as follows: "One of the illustrated paper contains a picture of the Automobile Club at Monmouth. The riders in their cars are depicted Car—eering along the drive to The Hendre, Lord Llangattock's beautiful seat." The only wonder is that the readers of the Welsh paper do not rise up in their wrath and slay the editor. Certainly if the prophet Job had been living now he would probably have placed his reputation for patience in jeopardy. Such efforts are more trying than an argument with refractory ignition.

CORRESPONDENCE.

THE RECENT ELECTRICAL CAR TRIALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Although the Electrical Vehicle Trials recently undertaken on the initiative of the Automobile Club of Great Britain were the means of bringing together a good many competitors, there are very many points in connection with them which are open to criticism, and the serious consideration of every one really interested in the electrical vehicle industry—not only interested in a transitory way, but especially those who, whilst thoroughly believing in the practicability and ultimate general use of such vehicles, desire that they should only be put to such uses as they are really suited to. That such a district as Chislehurst should have been chosen is alone a matter of great surprise, as no engineer who is thoroughly conversant with the electrical accumulator, or secondary battery, could conscientiously recommend a person residing in this or any similar district to use an electrical carriage without pointing out the very heavy expense entailed in the upkeep of the batteries, resulting from the very heavy discharges necessary to propel the vehicles, on account of the condition of the roads and the steepness of the hills. Of course, in summer time and dry weather the deterioration of the plates would not be so serious, but one wants a carriage in winter time as well as in summer.

Although many of the vehicles entered got through the trials in a very satisfactory manner, no useful purpose can possibly be served by forcing a car over the hills at Green St. Green and Knockholt, and what would be the condition of the batteries if these tests were continued daily for, say, only twenty days? To give an illustration of the difference in the demand upon the cells when used as they should be used, at somewhere about their normal discharge rate, and under such conditions that the upkeep of a set of cells shall not reach a prohibitive sum, but shall be within, say, £20 per annum, a small electrical carriage seating two was taken over the same roads a few days ago. That they were in a worse condition than on the days of the trials may be admitted, as there had been continuous wet weather for some five or six days since that time. The weight of the carriage complete was 19 cwt., of which the cells weigh $7\frac{1}{2}$ cwt. The two passengers weighed $2\frac{3}{4}$ cwt. Now this carriage takes 23 amperes 80 volts when run on a level hard road, and travels at thirteen miles an hour. But when run on the route F. of flat (sic), or nearly flat road, the average consumption of current was 45 amperes, the maximum being 70.

That there was one continuous half mile of flat road is open to doubt, and to those who may be unacquainted with Chislehurst but who know London, it may be pointed out that on the following day the same car was driven up Pentonville Hill, Islington, and the maximum current taken was 58 amperes, the average being 45, and the speed eight miles an hour. This will give one a fair idea of what some of the flat (sic) roads were like which were chosen for these trials. No alterations or adjustments of any description were made to the car or the battery, which was charged at Chislehurst, and during the run over the route the car was in perfect order—no hot bearings nor sparking brushes nor any other defect only that of the bad roads to account for the large output required. The car was driven from London *via* Camberwell, Denmark Hill, College Hill, Half Moon Lane, Crystal Palace, down to Penge, through Bromley, Swan Hill, Bickley and Old Chislehurst Hill, to the Bull's Head. On this last hill the current taken was 95 amperes.

Many thanks are due to the Club, and to those gentlemen who, at very great personal inconvenience and discomfort, undertook the varied duties in connection with the trials; but why the probable competitors were kept in the dark as to the routes and districts chosen until the eleventh hour and were not consulted, as was the case when the 1,000 mile run for the oil motor-vehicles was arranged, is a matter which perhaps may be explained at a later date, although it has been suggested by a cynic that the absence of the public from the trials was a matter for congratulation in view of the rumours one hears of the friendly aid of the horse required by some of the competitors.

If there are to be trials in the future—and it is earnestly hoped that this one is only the first of many—let them be arranged so as to be carried out under conditions which the true friends of this growing industry can safely advise; under such conditions as can be carried out day after day without ruining the batteries; on good roads—whether wet or dry does not matter much as long as they are hard (and your tires do not pick the road up, as they pass over it, in lumps)—and in London for preference. For town use alone the field is large enough; to recommend their use for long country drives is a mistake. There are too many difficulties in the way, such as the charging of the cells and consequent loss of time whilst this is being done, fewness of charging stations, although this latter difficulty will be removed as time goes on, and when, as on the Continent, nearly every little village has its own electric lighting station.

Yours truly,
CARL OPPERMAN.

London, E.C., November 27, 1900.

THE LONGUEMARE CARBURETTOR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Could any of your readers give me a little help in the working of a Longuemare carburettor? The great difficulty I have is in starting; I have spent two hours at a time turning the motor and working the levers before I could get an explosion in the cylinder. This done, it will work all right until I have to stop, when I have the same performance to go through, and sometimes have to give it up altogether. The motor is correct, as it starts immediately when using a surface carburettor.

Yours truly,
C. G. W.

Dovercourt, November 27th, 1900.

MEDICAL MEN AND MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a medical man, I have been much interested of late in the various letters in the *Motor-Car Journal*, *Lancet*, and *British Medical Journal*, re motors for medical men, and I should be glad of advice in your columns as to the choice of a motor for my work. I keep two horses, and practise in and round a south-country town where the hills are very bad as to gradient. I am entirely ignorant from a practical point of view of motors in general, but somehow have a leaning towards a steam car. It is also an absolute necessity that I should be able to use the car in all weathers, and it must give me as much protection from the weather as the hooded buggy I use. The distances I drive on an ordinary round are from ten to twenty miles, but I should wish to be able to do 100 miles per day, if necessary. As to speed, I should be content with five to twenty miles per hour. I may add that, at present, the cost of locomotion, including everything, averages £200 to £210 per annum.

Some of the questions I should like answered are the following, though I should be glad of any other suggestions bearing on the matter: (1) Steam or petrol; (2) horse power (remembering the hills); (3) price; (4) cost of upkeep; (5) tires; (6) how long it would take to learn to drive the car and get to know its anatomy, physiology, and, I may add, pathology? Would a mechanic and driver be able to educate self and man if he came down for a month?

Yours truly,
M.R.C.S. Eng.

Bath, November 25th, 1900.

TIRE TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As we motorists know only too well, pneumatic tires at present known do puncture. It is a nuisance, but soon got over; but when a couple of inner tubes keep on "going" from internal causes, it is no joke. I have, unfortunately, been using a pair of tires (a new kind, I imagine), which shall be nameless, the outer covers of which are in perfect order, but the inner tubes have, day after day, gone asunder in the bed of the rim—little slits about three-quarters of an inch long. The tubes are

perfectly new, i.e., they have gone about 300 miles, and they are thick. At first I thought that the trouble was caused by the spokeheads, but on further examination I find that the outer cover quite covers these and the edges nearly meet. I am now led to believe that either the tubes are not good, or else that the inner edges of the outer cover damage the tubes and make them "go." "Pinching" is out of the question. A few suggestions on this point might be very useful.

It is a great bore, as it makes the hay-motor man scoff, and the anti-motorist say, "Rotten things, those motors," with their usual wisdom.

Yours very truly,
J. REGINALD EGERTON.

Battle, November, 5th, 1900.

THE HEATING OF MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am having trouble with my Benz car through heating. After about a quarter of an hour's run the cylinder gets very hot, and steam is given off strongly from the escape pipe of the condenser; after this going on for ten minutes the steam ceases, only to reappear in another ten minutes, and so on.

I can find no stoppage in the pipes. The motor gives much less power than before, presumably on account of this. Can any of your readers give me any advice?

Yours truly,
HEATED.

Stourbridge, November 16, 1900.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—I read "J. A.'s" letter with attention last week, and notice that he suggests the successful working of my Werner bicycle is due to my having been fortunate enough to buy an extra good one. I am quite convinced that this is an error on his part, for my first machine was equally as good, if not as equally powerful. I can only reiterate that when once the conditions of working are right the machine cannot but work satisfactorily; and, moreover, it does. It possesses, in common with all automobiles electrically ignited, a spirit reservoir, a carburettor, an air admission device, a motor similar to De Dion's, superior in one respect, a battery, and a sparking plug. The difficulties of getting the whole to work are no greater, and somewhat less, for it is devoid of gears, and each part is visible at all times. I notice that one of your correspondents suggests that the timing gear has been interfered with. If that is the case, the penalty of ignorant meddling is very obvious. Should, by chance, any part be defective, the makers would, I am sure, at once remedy the defect, for I found them consistently courteous and only too ready to oblige me whilst I was in Paris. I feel certain, too, that, for their own sakes, they would never send out a machine in a faulty condition. It is only fair to attest to the constant civility and kindness of the French, whom I always have found ready to respond tenfold to any civility on my part, and this everywhere I have been in France.

To return to motor matters. If one has no friend at hand to advise, one who understands the principles involved, then the only thing to do is to set to work and really learn for oneself. It can be done in a couple of hours, and then, with the aid of a little common-sense and Messrs. Werner's little guide, a solution can be quickly found for every apparent puzzle. "J. A." should remember that the Werner machine won the first prize at the Vincennes endurance competition, beating the tricycles, and doing 500 miles without any repair whatsoever, and so could his when in proper order. Just as one has to learn how to ride or drive a horse, so has one to learn to control and work a motor, but the advantage is greatly with the latter, for all the factors involved in the process are capable of control and comprehension, which is not the case with a horse.

Yours truly,
A. L. BENETT.

94, Jermyn Street, S.W.,
November 27th, 1900.

Motor-Cars at the Cycle Shows.



AUTOMOBILE exhibits are conspicuous at both the cycle shows held in London this week, and those who have not yet visited either the National Show at the Crystal Palace, or the Stanley Show at the Agricultural Hall, should certainly do so on Friday or Saturday, 30th November and 1st December respectively. In the following pages we publish the first of a series of descriptions of the leading stands, and hope, in our next issue, to conclude with reference to many interesting exhibits which pressure on our space has compelled us to withhold from the present issue.

THE NATIONAL SHOW.



The display made by the Motor Manufacturing Company, Limited, of London and Coventry, is one of the most important that this concern has so far made. Prominent on the stand is a 12 h.p. Panhard car fitted with double cabriolet body to seat four persons. The finish of this body has come in for much commendation, it being painted in rich tinges of red chocolate and heliotrope, the upholstery being in dark red morocco to match. The arrangement of the rear seats is on novel lines; half of the back is really a hinged door, the action of opening which at the

and reverse, inclined wheel-steering, and Clipper pneumatic tires. In addition to its attractive body the tasty appearance of the car is increased by the plated brass bonnet and fittings with which it is fitted.

The "Balmoral" sixteen-seated omnibus is noticeable on account of the special care that has been taken in regard to the suspension both of the frame and the body. The latter takes the form of a covered bus with garden seats inside; the body, which is so arranged that it can be quickly converted into an open charabanc with wooden canopy, is suspended on both C and helical springs. The engine comprises two horizontal cylinders developing 13 b.h.p.; it is water-cooled, a pump and radiator being provided. The ignition is by means of an incandescent tube, the burner being supplied from an independent petrol tank. The motor and transmission gear are mounted on an independent frame; four speeds forward, ranging up to sixteen miles per hour, are available, as also a reverse motion. The power is transmitted by chains and spur-gearing, the corresponding pinions being continually in mesh. Steering is controlled by a hand wheel, around which are grouped the various control levers. Three brakes are available, while solid rubber tires are fitted to the wooden road wheels. Spring lubricators are fitted to the wheel-hubs, while all the working parts are automatically lubricated from one oil-box by means of a lever on the steering column.

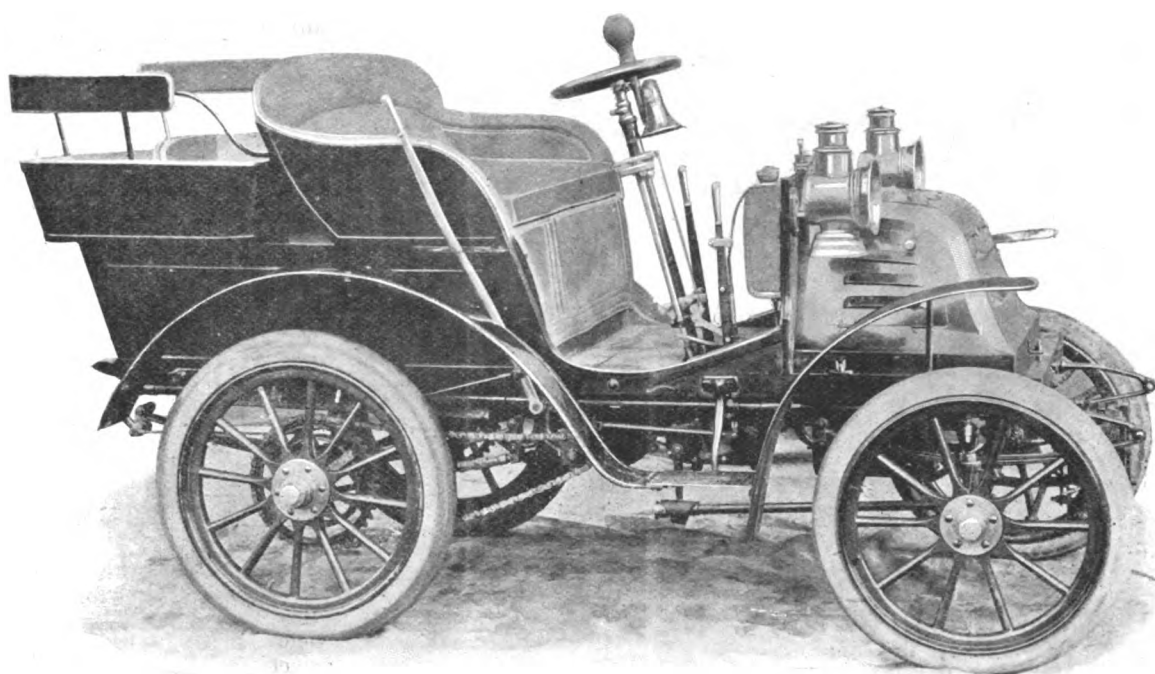


FIG. 1.—THE MOTOR MANUFACTURING COMPANY'S "MINIATURE PANHARD."

same time lifts the seat in front of it. The engine fitted to this car is of the four-cylinder vertical type, and has both tube and electric ignition. It is located in the fore part of the frame, the transmission being on the well-known Panhard system, giving four speeds forward and reverse motion. The petrol is fed to the carburettor by gravity, while a new method of controlling the electric sparking is fitted. The batteries in connection with the ignition are located in a box in front of the driver, where the connections can be seen without any trouble. A force-pump lubricator is fitted, which automatically supplies oil in varying quantities, as desired, to the working parts of the engine. The water-circulating pump is friction driven off the fly-wheel of the engine, while a large radiator is fitted in the fore part of the bonnet. The carriage is geared high, and is capable of a maximum speed of forty miles per hour if required. It is particularly well finished, with plated brass fittings throughout, and has 120 m.m. Clipper pneumatic tires fitted to the driving wheels and 90 m.m. ditto to the steering wheels. Aluminium is used wherever possible throughout the body, frame, and engine, rendering the car very light for its speed. Inclined wheel steering is provided, while the mud-guards are of extra width.

Another car which is attracting considerable attention is an 8 h.p. Panhard car, fitted with a special *tonneau* four or five-seated body, built at the M. M. Company's works. The under portion of the body is finished in false cane work, surmounted by bent chocolate panels, and patent calf back-rests. The entrance to the rear seats is on the same principle as that described in connection with the 12-h.p. car. The engine is of the four-cylinder type, the car having four speeds forward

Numerous little improvements have been effected in the standard 6 h.p. cars. The dashboard has been made lighter and fitted with more convenient handrails. The front apron, below the bonnet, is now supported by hinges, and can be readily turned up when it is necessary to inspect the water-circulating pump. The driving chains are of the single roller type, while the hand brakes, acting on drums attached to the two large chain wheels, are of the double-acting variety. Both the petrol tank and the exhaust boxes are concealed, and in the majority of cases—except where gravity-feed engines are fitted—the petrol tank, which has a capacity of 8 gallons, is arranged across the frame instead of longitudinally, as usual. The 6 h.p. Clifton mail phaeton, with leather hood to front seat, wheel steering, side change speed levers, and other improvements, is worthy of inspection. This car is exquisitely finished, and forms an ideal gentleman's carriage. Close by is a 6 h.p. mail phaeton, built with a long frame to give comfortable room for four persons and permit of luggage being easily carried, while a handsome 6 h.p. Iveagh phaeton, painted canary and black, is also staged. On this car we noticed that new side candle lamps of a new type, in which there is no danger of losing the candle holder, are fitted. An example of the M.M.C. 6 h.p. Panhard phaeton, painted in green, black, and gold, with 90 m.m. pneumatic tires to all the road wheels, can also be seen: while close by is a 6 h.p. Lynton wagonette, specially constructed for public passenger service, to seat eight persons, including the driver. It is fitted with wheel steering, side change-speed levers, aluminium base chamber to engine, and aluminium gear-box. A 6 h.p. Canford omnibus strikes us as being very

suitable for conveying passengers between hotels and railway stations. The car seats six persons inside and two at the front; the 'bus top can be detached by removing only six bolts. The upholstery is of a high order, while we notice that the windows are of bevelled glass, and that the window frames are cloth-covered to prevent noisy rattling. One of the most instructive exhibits in the exhibition is the M.M.C. public-service vehicle, which has been in use in Bournemouth, where it has been run by the Bournemouth Motors, Limited. It has been in service for 304 days, and during this time it has only been off the road five days for repairs. During the period named it has carried no less than 53,806 passengers, and has travelled a total of 22,009 miles; it has earned £645, the repairs bill only amounting to £29. These figures should be of considerable interest to anyone thinking of starting a public service in any part of the country.

Fig. 1 illustrates the "Miniature Panhard" voiturette, which has recently been put on the market by the Motor Manufacturing Company, Limited, and of which an example can be seen. As will be noticed, the car is provided with an attractive and comfortable body of the *tonneau* four-seated type; as the motor and transmission gear are, however, all supported on an independent tubular frame, any desired type of carriage body can be fitted. The engine, which is located under a bonnet under the fore part of the frame, is a 5 h.p. vertical single cylinder De Dion, manufactured by the company, and embodying certain modifications introduced by Mr. G. Iden. The diameter of the cylinder is 100 mm., and the stroke 110 mm., the normal speed being from 1,400 to 1,450

steering is controlled by an irreversible hand wheel, motion being given through a worm on to a toothed segment. The air and gas control levers as well as the ignition are all worked from the standard in a handy position below the wheel. The brakes consist of a band on the differential on the countershaft, actuated by a foot pedal. There are two pedals, one on either side of the steering standard. The one on the left operates the clutch and puts the engine out of engagement with the transmission gear. That on the right applies the band brake on the differential gear drum and also releases the driving clutch. Band brakes, on drums connected with each of the chain rings on the rear axle, applied by a hand lever at the side of the car, are also provided. The petrol and the lubricating oil are carried in a copper tank behind the dashboard, the capacity being sufficient for a run of 150 miles. The road wheels are of the artillery type, those at the rear being 28 in. in diameter, and the front 26 in.; they are fitted with Clipper pneumatic tires. A large box is formed beneath the front seat in which luggage and accessories can be carried, whilst the two back seats can be detached entirely by the removal of four bolts. The car complete weighs about 7 cwt. The petrol tank has a capacity sufficient for a journey of 100 miles. It has a division which holds a sufficient quantity of lubricating oil for the crank chamber of the engine for a run of over 150 miles. A tank, holding five gallons of water, is fitted underneath the footboard of the back portion of the body; flexible joints or connections are made between the water jacket and the water tank, and radiator or cooler (which is placed in front of the carriage between

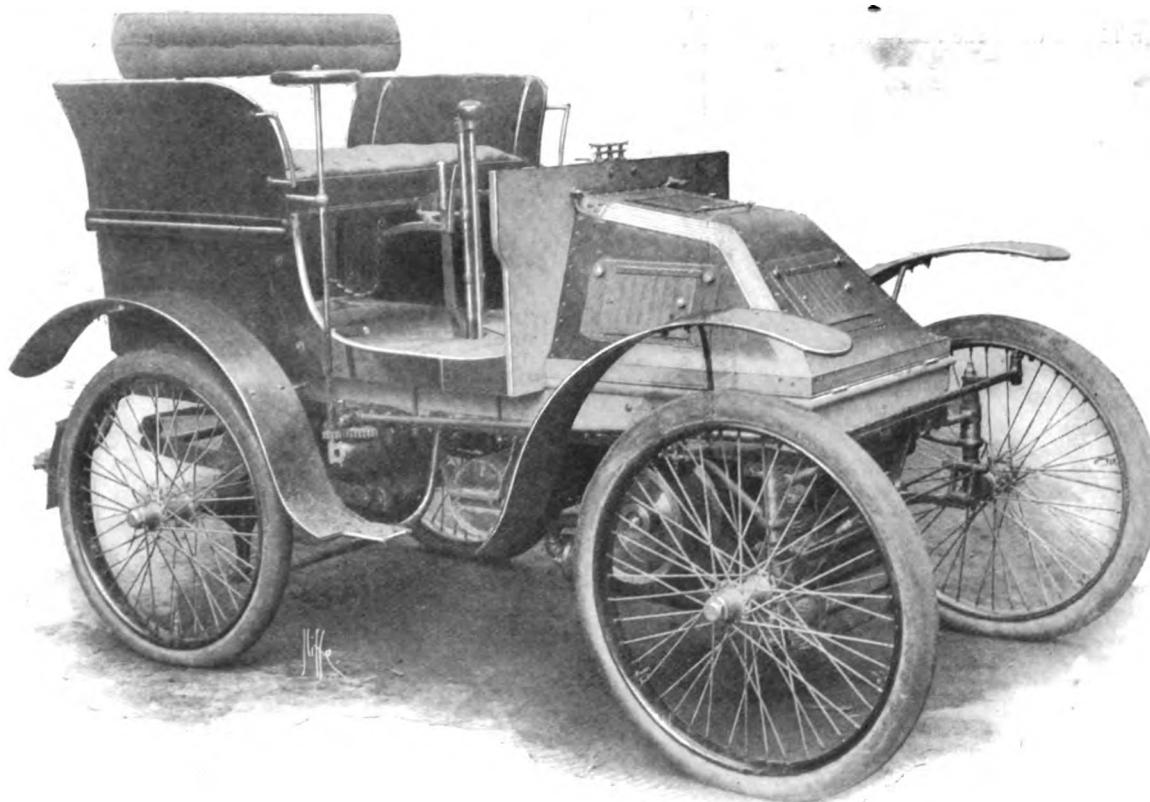


FIG. 2.—THE DAIMLER "KIMBERLEY" CAR.

revolutions per minute. The carburettor is a modification of the Longuemare type, while the ignition is electrical. The water circulation is maintained by a pump, and a radiating coil is also provided. Coming now to the transmission mechanism, this is on the lines of that adopted in the Panhard cars, three speeds forward, 6, 16, and 28 miles per hour, and a reverse motion being provided. The motor shaft transmits its power through a friction clutch, to what is practically a continuation of it, the two shafts being brought into direct connection by the fact that the two discs of the clutch, which are concave and convex respectively, are held in engagement by powerful springs. Their faces can be instantly released by a foot pedal at the side of the steering column, when, of course, the engine is thrown out of gear. The shaft runs into a gear box containing a train of toothed wheels, gearing with corresponding pinions on a parallel shaft below. All the spur wheels are continually in engagement, but only one pair drives at a time, any desired pair being made to transmit the power by a sliding clutch, which locks or unlocks them from the shaft on which they revolve when free, and by which they are driven when locked. The lower parallel shaft projects through the rear end of the gear box and terminates in a bevel wheel, gearing with a corresponding wheel on a cross differential shaft from which the power is transmitted to the rear road wheels by the usual duplicate set of sprocket wheels and chains. The forward and reverse motions are controlled by a single hand lever arranged at the side of the sloping steering pillar. The

the front springs), and a rotary pump is employed to ensure efficient water circulation. This pump is worked by friction off the fly-wheel of the engine, spring bearings to the pump spindle being provided to compensate the vibration between the engine fly-wheel and that of the pump caused by inequalities of the road traversed.

Still another voiturette of new design is that known as No. 2. It is fitted with a body to seat four persons, and is propelled by a 5 h.p. M.M.C. De Dion motor located at the rear of a tubular frame. Three speeds forward and a reverse motion are provided, a pedal-operated friction clutch connecting the engine with the variable speed gear shaft. The latter carries a train of spur wheels continuously in mesh with corresponding pinions on a countershaft. Any desired pair of pinions are made to drive by means of a feather on the shaft. A single centrally-located chain transmits the power from the countershaft to the rear live axle. The water circulation is taken care of by a pump, the usual radiator being also fitted. Steering is controlled by an inclined hand wheel, on the standard of which the change-speed and other levers are grouped. The steering gear is so arranged that any wear can be taken up by an adjusting collar. The road wheels are of the artillery wood type, and are provided with pneumatic tires. Special attention has been paid to the suspension of the car, with the view of reducing vibration and jolting to a minimum. At the forward end the frame is supported on the axle by grasshopper springs, while between the body

and frame rubber buffers are interposed. At the rear the frame is supported by helical compression springs, the axle being carried on horn blocks working between horn plates, rubber buffers being also interposed between the body and frame. The weight of the car is about 8½ cwt.

In the motor-cycle section of the stand we notice a tricycle with 2½ h.p. M. M. C. De Dion air-cooled engine and Eadie frame, the motor being fitted with the Boon exhaust valve lifter. A 2½ h.p. air-cooled motor-quad can also be inspected, while at the time we visited the stand a quadricycle, fitted with an M. M. C. De Dion engine, having air-cooled cylinder and water-cooled combustion chamber, was hourly expected. This latter improvement renders the quadricycle capable of carrying its full load up the worst of hills. The engine with this combustion chamber develops up to 3½ h.p. Another type of machine is to be found in the Werner motor-bicycle, for which the M. M. Company are the British agents. The new model of



FIG. 3.—THE SIRENE VOITURETTE WITH TONNEAU BODY.

the Werner comprises many improvements and modifications. The motor is of 1½ h.p.; it is provided with a throttle valve acting on the mixture supply pipe, by means of which the speed may be regulated down to two miles per hour. Quite a novel departure is to be found in a new valve arranged above the exhaust valve; it is operated by a small hand lever attached to the handle-bar, and brings, when desired, the explosion chamber in free contact with the atmosphere. Thus the engine can, by opening the new valve, be kept in operation when riding through crowded traffic, the usual noisy compression tap being entirely done away with. A new feature is the combined petrol tank, carburettor, and battery box. The pipe conveying the explosive mixture from the carburettor to the motor passes up through the head and handle-bar of the machine, the necessary air being also taken in through an adjustable hole in the handle-bar. The trembler and commutator are well covered in, while the induction coil is carried under the saddle, where it is protected from wet. The electric circuit only comprises four wires, the high-tension wire passing through the frame of the machine. The machine complete weighs about 65lb. The identical Werner bicycle ridden by Mr. Pennell over the Alps is also on the stand, and has been the object of considerable interest.

A big display of M. M. C. De Dion air and water-cooled engines is also made, including the new 5 h.p. size, to which is fitted a new device actuated by a lever which controls the lift of the induction valve and prevents the suction of a fresh charge of explosive mixture, and in this way reducing the vibration when the car is standing still with the engine running. We learn that the company are engaged in the construction of a 16 h.p. motor, which is intended to develop 20 h.p. on the brake, and that all future public-service and other heavy cars will be fitted with a two-cylinder engine giving 9½ h.p.

The *pièce de résistance* on the stand of Mr. E. W. Hart, of Windmill Road, Luton, is undoubtedly the Sirene voiturette (Fig. 3) fitted with tonneau four-seated body; painted as it is in pure white with brass edgings, this car, with its popular form of body, has been the centre of attraction all the week. A Sirene three-seated duc and the two-seated car of the same type which went so successfully through the recent Automobile Club 100-mile Trial, are also staged. As we have previously described the Sirene car in our columns, it is only necessary to mention that it is fitted with a two-cylinder motor; it is of the air-cooled type, of 5 h.p. Three speeds forward and a reverse motion are available, any intermediary speed being obtained by the variation of the electrical ignition. The motor is located in the fore part of the frame, where air has free access to the radial fins of the cylinders. The variable-speed gear is very much on the lines of the Panhard, the box gear containing three pairs of spur wheels, any one pair of which can be brought into mesh at a time. The reverse motion is obtained by the interposition of a small pinion between the gear wheels giving the slow speed. From the gear box the power is transmitted direct to the rear axle through a universally-jointed transverse shaft and bevel gear. Mr. Hart also exhibits several interesting electrical vehicles. First we may mention the "Lutonia" victoria, a neat and attractive looking light car suitable for two persons. It is driven by a Bergmann 2 h.p. electric motor geared direct to the rear axle. The electric energy is furnished by a battery of forty Leecoll accumulators, weighing 3 cwt. 44 lbs., the

capacity being sufficient for a run of from twenty-five to thirty miles on one charge. The controller switch is adapted to give four speeds forward and two reverse, while in one position the motor is made to act as a dynamo—that is in descending hills—so recuperating the battery. Wheel steering is fitted, while the road wheels are of the artillery type shod with pneumatic tires. The car, which weighs complete about 7½ cwt., is of a taking design and is designed to meet the wants of would-be lady motorists for use in towns. Mr. Hart also exhibits the "Toujours Contenté" (Lohner-Porsche) car which took part in the recent Automobile Club Electrical Company's trials, and which was illustrated and described in these columns at the time. Naturally its strange appearance causes visitors to devote to it more than a passing glance. At the end of the stand is another interesting electric vehicle, of which we give an illustration in Fig. 4. The body of this car is worthy of notice; the frame is of channel steel, the body and mudguards being entirely made of aluminium by Messrs. Werhlé and Godard-Desmarest, of Neuilly (Seine), for whom Mr. Hart is now acting as agent in this country. There is ample accommodation for four persons, the two front seats taking the form, as it were, of two distinct arm-chairs. The front of the car is fitted with a bonnet very much of the lines of that fitted to the De Dietrich petrol cars; in it, as also in the chest at the rear, are stored the accumulators, which consist of forty Leecoll cells weighing complete about 25 cwt., and having a capacity of a run of about fifty miles on one charge. The car is driven by two 5-h.p. electric motors geared direct by spur wheels to the rear road wheels (the illustration shows chain gearing, but this is being altered). The controller is adapted to give four forward speeds, two reverse motions, and to convert the motor on down grades into a dynamo, so recuperating the battery. The regulation inclined wheel steering is fitted, as also artillery wood wheels shod with 90 mm. pneumatic tires. The battery is arranged to be charged *in situ*, and furnishes the current not only for the motors but for two side head-lights, a Bleriot acetylene lamp of large size being carried centrally in the front of the car. The car complete weighs about 35 cwt., of which, as already mentioned, 25 cwt. is represented by the battery. This completes the exhibits on view at the time we visited the stand, but Mr. Hart informed us that he was adding an electric car very much on the lines of that illustrated in Fig. 4, but smaller built, to the order of Mr. T. G. Chambers, of Weybridge, a Lohner-Porsche electric brougham fitted with 2½ h.p. hub motors to each of the front road wheels, a quadricycle fitted with a parcel chest in place of the usual front seat, suitable for tradesmen, and two Werhlé Godard-Desmarest car bodies built of aluminium.

One of the most imposing displays in the show is undoubtedly that of the Daimler Motor Company, Limited, London and Coventry. Prominent on the stand is the special two-seated racing-car, fitted with a 20 h.p. motor. The general arrangement is that of the usual Daimler vehicles, the four-cylinder gravity-feed engine being located in the fore part of the frame. Both electrical and tube ignition are fitted, and these may be used either separately or together, as desired. An improved form of carburettor is fitted, while another improvement will be found in the arrangement of the water-circulating pumps. These are of the centrifugal type, coupled in tandem and driven by the fly-wheel in contact with a friction disc on

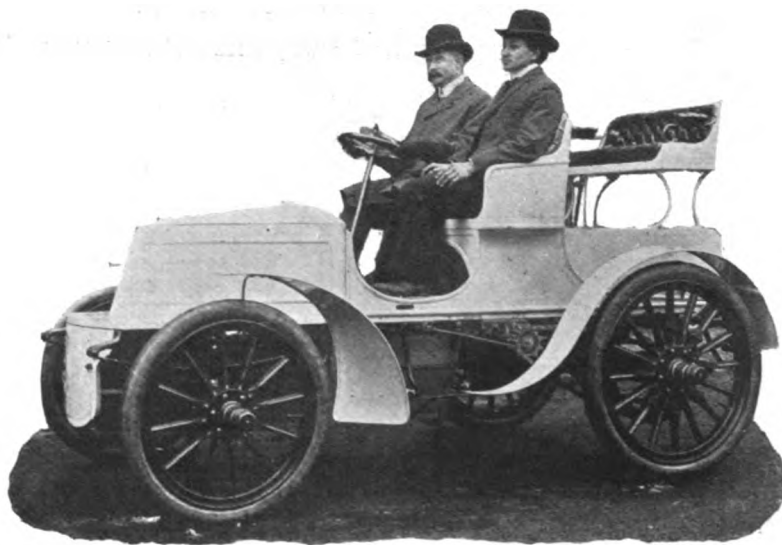


FIG. 4.—"LA PRESQUE CONTENTÉ" ELECTRICAL CAR.

their axis. In connection with the water-circulation, a radiator, consisting of no less than 86ft. of ribbed piping is fitted. A special feature of the motor is an arrangement by which three of the exhaust valves can be held open to facilitate the starting of the engine. The change-speed gearing is of the usual Daimler type—giving four speeds forward and reverse—but arranged in a specially compact form, which admits of the use of a gear box of very small dimensions, as by effecting the speed change by shifting two of the speeds to the left and two to the right, the extra length required for the sliding of the gears has been reduced by half. The steering is of the standard Daimler irreversible inclined

wheel type, which entirely prevents any sudden deviation in the course of the car should any large obstruction in the road be touched. Efficient lubrication is assured by the use of an automatic-timed lubricator, eight sight feeds being fitted in the dashboard in front of the driver. Four speeds forward and reverse motion are provided. The speed control levers are arranged on the outside of the body at the right-hand side of the driver. Special attention has been paid to the bearings, which are extra long, as also to the suspension of the car. The road wheels are of strong construction, and are shod with Clipper 120mm. pneumatic tires. A new and powerful form of double-grip block brake, operated by a pedal, is fitted on the countershaft, and also compensating band brakes acting directly upon drums connected to the sprockets of the rear road wheels.

At the side of the 20-h.p. car is the motor, frame, and gear of another car of 16 h.p. The four-cylinder motor is of the gravity-feed type, and

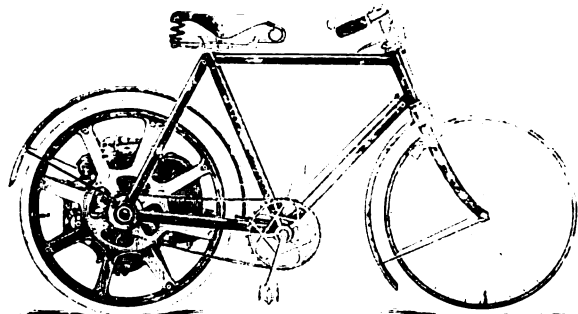


FIG. 5.—THE SINGER MOTOR BICYCLE.

is fitted with both tube and electric ignition. The new 16-h.p. engine is stated to be no larger than the old 12-h.p. type. The water circulation for the cooling of the cylinders is obtained by means of a semi-rotary pump, which is coupled up between two radiators having a very large cooling surface, one fixed to the rear of the car and the other in front of the engine cover, a tell-tale water gauge being arranged in full view of the driver. The change-speed gear, of standard Daimler pattern, giving four speeds forward and reverse, is of special interest, as the whole of the gear case, as well as the countershaft and the wheel hubs, are fitted with Mossberg roller bearings, and all thrusts are taken against ball bearings. The bearings are exceptionally long, and ample width has been given to the teeth of the gear wheels. A new departure is to be found in the water-cooled brake drum mounted on the countershaft, which is acted upon by a Drake patent brake that is equally powerful whether the car is going in a forward or backward direction. Irreversible inclined wheel steering is fitted, while the control levers are arranged on the side of the car at the driver's right hand. The road wheels are of the artillery type, shod with stout Clipper pneumatic tyres. All the working parts are well lubricated by a special pressure-feed lubricator, a striking feature of the dashboard being a row of no less than a dozen sight feeds.

The new "Kimberley" voiturette for two persons is also exhibited

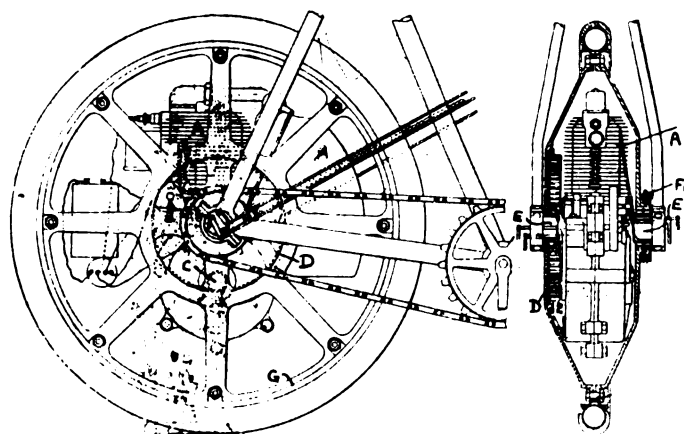


FIG. 6.—THE SINGER MOTOR WHEEL.

for the first time, and we give an illustration in Fig. 2. The motive power is supplied by a two-cylinder vertical engine of 4 h.p., located under the usual bonnet in the fore part of the car. Tube ignition is fitted, while the water circulation is maintained by a geared pump. The water tank and radiating coil are arranged in the fore part of the car. Three speeds forward—six, twelve, and eighteen miles per hour—are provided, as well as a reverse motion. The power of the engine is transmitted to the variable-gear shaft by a single 3½-in. copper-sewn straight belt, spur-gearing connecting the counter-shaft with the

rear axle. A novel feature of the transmission is the belt-striking gear, the belt being thrown on and off the loose pulley by means of a foot pedal. Three brakes are provided—a foot-operated expanding band brake acting on the inside of one of the pulleys, a hand-brake on the rear live axle, and a hand emergency brake acting on the tires, the brake spoons being extra long and pivoted. The belt-shipping foot pedal can occupy three positions: in one the driving belt is on the fast pulley, in the second on the loose pulley, and in the third the belt is on the loose pulley and the brake applied. The body takes the form of a Ralli dogcart, in walnut, giving ample accommodation for two persons and a large quantity of luggage. The car complete weighs about 12 cwt. Provision is made for taking up any slack of the belt whilst running, a ratchet arrangement being fitted by means of which the engine can be slightly moved forward. Steering is controlled by a vertical hand wheel at the right-hand side, the speed-varying lever being in the centre of the seats.

A 6-h.p. "York" phaeton of the standard type is also exhibited. This is fitted with both electric and tube ignition, radiator at rear set at an angle so that the air can have free access to all the ribbed pipes. The body is aluminium, and is painted French grey with blue lines, the effect being very pleasing. In the dashboard in front of the driver, in addition to the sight-feed lubricators, we noticed that one of Holt's Viameters, registering the gradient up and down and the distance travelled, is fitted. At the end of the stand is a 6-h.p. public-service wagonette, having seating accommodation for eleven persons. It is of the 6-h.p. standard type, and is fitted with a double sprag and conductor's steps. An exhibit which has attracted much attention is a Daimler motor, part of which has been cut away so that the operation of the valves may be examined.



FIG. 7.—THE MAROT-GARDON VOITURETTE.

Much has been heard during the past few weeks of the Singer motor-wheel, and the exhibit of the same by the Singer Cycle Company, Ltd., Coventry, has attracted much attention. On the stand are shown a lady's and a gent's motor-bicycle with the motor-wheel at the rear and a gentleman's tricycle with the motor-wheel in front. In another part of the Palace a large room has been reserved in which practical demonstrations of both the tricycle and the bicycle are being given daily. Judging from our brief stay in this room, the machines appear to be easily started and to run very steadily, the riding of the lady on the bicycle being much remarked upon. Fig. 5 gives a general view of the motor-bicycle, while Fig. 6 gives two views of the motor-wheel, which is the result of some twelve months' careful designing and experimenting by Messrs. Perks and Birch, of Coventry. To all intents and purposes the machine is an ordinary bicycle, built stronger throughout, with the exception of the rear wheel. This is of special construction, and contains the engine and the whole of the driving mechanism, therefore forming a complete motor wheel, which can be fitted to any suitable cycle, and can be taken out of the machine in a few minutes. The frame is of the ordinary cycle type, with the exception of the back fork ends, which are made in the form of halved clips, and grip the outer ends of the motor trunnions. The inner ends of the trunnions are bracketed to the crank chamber of the engine, which keeps the motor fixed in a vertical position, while on the centre of the trunnions the wheel sides revolve on ball bearings. The engine never alters its position with regard to the frame. The wheel sides are of aluminium, and are each made in the form of dished flanges, the arms of which are sufficiently far apart to form a fan to cool the motor, and also to give

easy access to it. The peripheries of the flanges meet, and are grooved to suit the channel of the steel Westwood rim, and grip the same when bolted together. By undoing these bolts the wheel can at once be divided and the engine taken out. The motor is air-cooled, of special construction, and develops 2 h.p. It is fitted with roller bearings to the main spindle and crank. The pinion on the motor-shaft meshes with an internal gear wheel, which fits into a recess on one of the wheel sides. The carburettor, which also acts as a supply tank, is of the surface type,

voiturette illustrated in Fig. 7. It is fitted with a $3\frac{1}{2}$ h.p. or $4\frac{1}{2}$ h.p. water-cooled De Dion motor as desired; the water circulation is maintained by a pump, a large radiating coil being also fitted around the false bonnet in front. Either a De Dion float-feed or Longuemare carburettor is used, the connection between it and the petrol tank being made by flexible tubing. The engine is located at the rear of the frame, and transmits its power direct to the rear axle through a friction-clutch and spur-gearing; three speeds forward—the maximum being twenty-

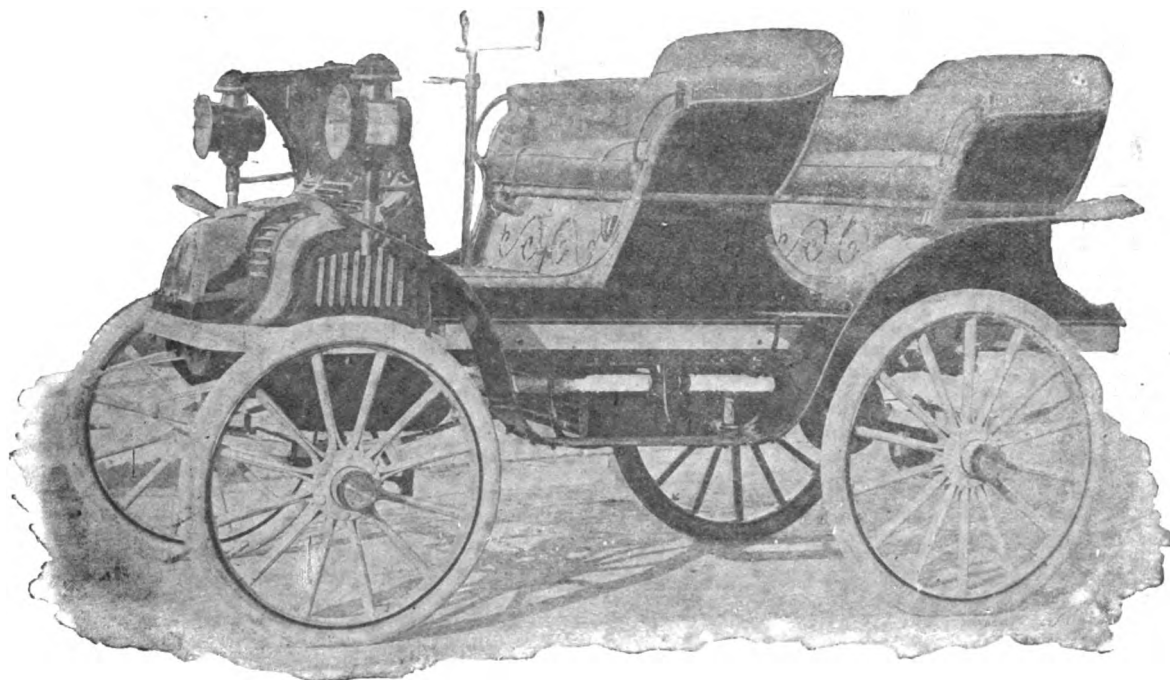


FIG. 8.—THE SPORTS AMERICAN PHAETON.

and is made to withstand vibrations from the road. It is securely fastened to a bracket cast on the front of the crank case of the motor. Ignition is effected by a Simms-Bosch magneto-electric machine. This is also fixed to a bracket cast on the back of crank case. On the rear wheel of the bicycle is a free-wheel clutch with chain ring, and a chain connects up to the usual sprocket wheel on the bottom bracket axle, the pedals being used to start the machine and assist it on steep grades. The carburettor holds half a gallon of petrol, which is stated to be sufficient for a run of fifty miles. The makers claim that the motor will carry a rider of 14 st. at twenty miles an hour on the level, and will mount a gradient of one in six without assistance by pedalling. For controlling the machine only one lever is

seven miles per hour—and a reverse motion are provided. The road wheels are of the cycle type, fitted with Clipper pneumatic tires; steering is controlled by an inclined hand-wheel, on which is mounted a small press button by which the electrical circuit is broken. A hand-lever controls a band brake on the differential shaft, while there are band brakes on drums attached to the hubs of the rear wheels, actuated by a foot pedal. The body is built of light metal with wooden panels, the mudguards being also metal. The car complete weighs about $7\frac{1}{2}$ cwt. In addition to the seat for two persons, there is ample space on a platform at the rear for luggage. In addition Messrs. Burgess show a two-seated Benz car, a Minerva motor-bicycle, and a range of motor accessories, oils, etc. At the time we visited the stand we were informed that a new four-seated car, which they have named the "Voitucar," was expected. This vehicle is fitted with a $4\frac{1}{2}$ h.p. Motor Manufacturing Company's De Dion water-cooled motor, three speeds forward, a reverse motion, and wheel steering. The engine is located in the rear part of a tubular frame, and is geared by a friction clutch and spur wheels to a live axle. Extra large water and petrol tanks are

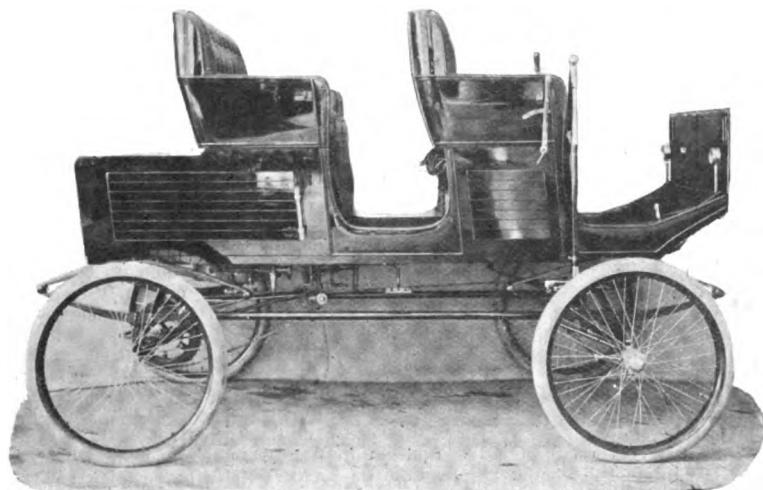


FIG. 9.—THE LOCOMOBILE FOUR-SEATED CAR.

used, this being of the same style as the brake lever and attached to the handle-bar. This lever in one position opens the compression valve, another movement regulates the mixture of the gas and air, and a third position shuts off the explosions and causes the engine to act as a brake, the compression being retained.

Prominent on the stand of Messrs. Wm. H. M. Burgess, Limited, 21, Charterhouse Street, London, E.C., is the Marot-Gardon two-seated

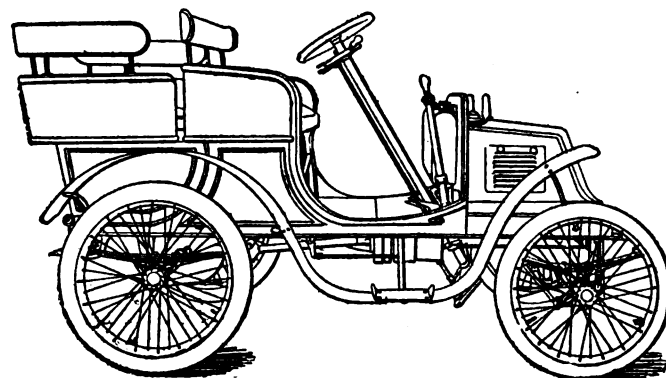


FIG. 10.—THE DARRACQ VOITURETTE.

fitted to enable the car to be run long distances without replenishing.

Several handsomely-finished Mayfair voiturettes are to be seen on the stand of the Sports Motor-Car Company, South Kensington, a doctor's car painted in yellow and black and fitted with hood coming in for special attention at the hands of visitors. The motor—either a $3\frac{1}{2}$ h.p. De Dion or a $4\frac{1}{2}$ h.p. engine—is located in the fore part of the frame; it is of the water-cooled type, while the ignition is elec-

trical. The water circulation is maintained by a small pump, a radiator being also fitted. Two speeds are provided, the power being transmitted by a single straight belt to fast and loose pulleys on an intermediary shaft at the rear; the pulleys on this shaft are of equal size, but each is connected to a pinion which is always in gear with a corresponding pinion on the rear differential axle. The pinions work in a dustproof case. Steering is controlled by a sloping hand-wheel, while ample brake power is provided. The frame is spring-suspended on cycle-type wheels, shod with Clipper pneumatic tires. On the level the car can, it is claimed, attain a speed of twenty-two miles per hour, while it will also mount gradients of one in eight. The petrol tank has a capacity sufficient for a run of 120 miles. Useful features in the car are found in the provision of a belt-tightener, controlled from the seat, and of a ratchet arrangement which prevents the car running backwards. Three other Mayfair voituresses are shown, and also a motor-quadracycle fitted with a 2½ h.p. De Dion engine.

Quite a new car to this country is to be seen in the Sports American phaeton, of which we give an illustration in Fig. 8. The vehicle, which is adapted to accommodate four persons, is fitted with a double-cylinder motor developing 8 h.p. The engine is of the horizontal two-cylinder type, the pistons of the two cylinders working on to a central crank shaft. It can be fitted with tube or electrical ignition, or both. The transmission gear is of the well-known Gauthier-Werhle type, the car being, it is claimed, able to attain on good roads a speed of forty miles an hour. Four forward speeds and one backward motion are provided. The extension of the motor shaft carrying the friction clutch terminates in a bevel wheel gearing with similar bevel wheels on an intermediary shaft carrying the variable speed gear. From this first intermediary the power is transmitted through the requisite pair of spur wheels to a second intermediary, which at its centre carries a spur wheel gearing with a large spur wheel surrounding the differential gear on the rear axle. This latter is of special construction, the axle being provided with four universal joints, any jolting due to either of the wheels meeting an obstacle, etc., being, it is claimed, in this way prevented from being transmitted to the motor and transmission gear. In order that the carriage can be quickly brought to a standstill, band brakes acting on the rear wheel hubs are connected to the same foot-pedal as that which operates the friction clutch, so that by depressing the foot-pedal the engine is thrown out of gear with the power-transmitting mechanism, and a band brake applied simultaneously. The water circulation is maintained by a pump, while radiating coils are also fitted. The road wheels, which are fitted with spring lubricators, are of artillery type shod with Clipper pneumatics. We learn that a car of this type has been supplied, and driven for some time by, H.R.H. Prince Albert of Belgium.

A South of England firm which is going extensively into the motor industry is Messrs. Dennis Brothers, of Guildford, who are showing several motor-cycles of their own construction. The tricycles are fitted with 2½ h.p. De Dion air-cooled motors, but a Component 3½ h.p. engine will be fitted if desired. The quadracycles are propelled by 2½ h.p. De Dion motors, and, judging from the machine shown, are of sound construction. The machines are fitted with a comfortable pattern of saddle, to which a back rest is attached. A point of interest in the quadracycle is that the lever controlling the compression tap is also connected up to the exhaust valve in such a way that the latter is also opened after the compression tap is turned. The machine is convertible to a tricycle by simply removing four bolts. Other features are an improved telescopic axle, differential gear, and one lever controlling three brakes on the rear axle. The "Speed King" trailer is another article worthy of notice at this stand; while of larger proportions than usual, they are very light, but strong and extremely comfortable. Among the miscellaneous accessories we notice a 3½ h.p. petrol motor with air-cooled cylinder and water-jacketed combustion chamber.

A good show of motor fittings is made by the Presto Gear-Case and Components Company, Ltd., Frederick Street, Birmingham. These are well finished and of good design, making the stand one to be visited by motorists. Petrol tanks, water tanks—including a good type for Benz cars—differential gear, condensers, coolers, carburettors, multiple lubricators, etc., provide a large section of the display. A speciality in the way of a spare oil reservoir for motor-tricycles is shown. This has a special band and an adjustable clip on the top, which relieves the strain on the bars, to which the bottom of the tank is attached. It can be readily adjusted to any desired length, and seems well devised to secure its purpose.

Two types of the now well-known two-seated steam car are shown by the Locomobile Company of America, whose stand also includes, for the first time a four-seated car, of which we are able to give an illustration (Fig. 9). The Locomobile has already been fully described in these columns (see *Motor-Car Journal*, December 8th, 1899), but since that time a number of improvements have been effected with the view of increasing the capability and reliability of the car. Reference may firstly be made to the new engine. The parts have been made heavier and stronger, and all bolts, screws, and glands are carefully secured. A self-feeding cylinder oil cup is employed, and when filled with oil this should run the carriage seventy-five or 100 miles. The design of the cross-head has been changed, and it now slides between double-grooved guides so arranged that the wear can be taken up. Plain bearings have been substituted for the ball bearings on the eccentrics. The size of the balls in the crank pin bearings and main journal bearings have been enlarged. Small oil cups have been placed on these bearings for convenience in oiling. The engines are now being made in the company's own works and the valves are set accurately to give the best results. A

leather cover is supplied when desired to protect the engine from dust. The new water-gauge glass employed is a great improvement, being thicker, with rounded ends, and so packed as to prevent breaking. The check valves at the top and bottom of the glass are now provided with wheel handles so that they may be unseated conveniently. A small, coloured, hollow glass ball is placed inside the glass, making it easy to see the water level at a glance. A water column has been placed on the carriage. This is fitted with three gauge cocks, and should the water glass become broken, the position of the water level may be determined by the gauge cocks. A globe valve has been introduced between the boiler and the throttle valve. Should the ordinary throttle valve become inoperative this valve may be quickly closed, and the steam cut off from the engine. In connection with the water supply, the plunger pump is still employed, but the connections have been strengthened and the pump plunger enlarged. There is a globe valve between the boiler and the third check valve, which may be closed, should it be necessary to inspect any of the check valves while there is steam pressure in the boiler. An auxiliary hand pump provides another method of getting water into the boiler. The pump is placed in a convenient position under the seat. It is very powerful and will fill the boiler with water in a very short time, whether steam pressure is up or not. A detachable strainer, which may be removed easily and cleaned, has been placed between the water tank and the pump. The new water tank is larger, holding 50 per cent. more water than the tank formerly used. The safety valve is arranged to blow off in the water tank. The gasoline and air tanks are a great improvement on the old ones, they being better made and heavier. The capacity of the gasoline tank has also been largely increased. A check valve has been placed between the air tank and the gasoline tank so that no gasoline can make its way to the air tank. With regard to the fire, the up and down draught has been abandoned and a cross draught has been introduced. This is claimed to preclude the possibility of the fire blowing out or burning back. The frame of the car is wider than before; the springs are stronger and the stays of heavier tubing. The steering connections have been changed, a side steering lever being now used, assuring better control of the vehicle than did the old tiller; it is also said to be much steadier, and to obviate any vibration to the hand. Referring to the four-seated car (Fig. 9), its weight with water and gasoline tanks filled is about 9 cwt. It is equipped with 28-in. cycle-type wheels, these being shod with 2½-in. single-tube pneumatic tires. The capacity of the gasoline tank is 6½ gallons, and that of the water tank 21 gallons.

The Automobile Manufacturing Company, Ltd., of 48, Long Acre, W.C., have a large stand on which a number of interesting vehicles are shown. Prominent among these is the Darracq voituress (Fig. 10), which did so well in the recent 100-mile Trial and also in the run to Southsea, when its time up the Hindhead (10 min. 19 secs.) was a record for a voituress with such a heavy load as four passengers. We have already briefly alluded to this car, with its attractive *tonneau* body. It is fitted with a 6 h.p. vertical water-cooled engine having cylinder 100 mm. diameter by 102 mm. stroke. It is water-cooled and provided with electrical ignition. The carburettor is of the Phénix type, with automatic admission. The transmission gear, which is on the lines of the Panhard, except that the power is transmitted direct to the rear axle by bevel gear in place of sprocket wheels and chains, is adapted to give three speeds forward and a reverse motion. The car, which is fitted with wheel-steering and pneumatic-tired wheels, weighs 9 cwt.

The "Savoy" is the name given to a Renault voituress exhibited by this firm. As this type of car has been described and frequently alluded to in these columns, it is only necessary to mention that it is fitted with a 3½ h.p. water-cooled De Dion motor, three speeds forward and a reverse motion, and that the car is gear driven, no chains or belts being employed. Still another voituress is that known as the "Carlton." This is made by Richard, of Paris, and is on the lines of the Vivinus and New Orleans cars already well-known to motorists. The car is arranged to seat four, *vis-à-vis*, and is fitted with a 3½ h.p. engine, air-cooled by means of a fan and radial ribs. Two speeds forward are provided, the transmission being effected by a single belt and gear wheels direct to the rear axle. A foot pedal is provided on this car, by means of which the driving belt is shipped on to the loose pulley before the gear is changed, the wear and tear on the spur wheels being in this way considerably reduced. The cycle-type wheels are fitted with Dunlop pneumatic tires, while the steering is controlled by a bar. At the end of the stand we notice a neat and attractive-looking two-seated electric car—a Cleveland Stanhope of the type illustrated in our issue of July 28 last. It is fitted with a 3 h.p. electric motor, and any speed forward or backward up to fifteen miles per hour can be attained. The battery provided is stated to be capable of running the car a distance of sixty miles on one charge. A feature of the Cleveland vehicle is that the speed, steering, and brakes are all controlled by one lever. A useful machine is a tradesman's quadracycle. This is an ordinary "quad," with a parcels chest fitted in place of the usual front seat, the chest, which is detachable at will, having a capacity of about 2 cwt. The machine, many of which are now used by tradesmen in Paris for express delivery purposes, is fitted with a 2½ h.p. air-cooled De Dion motor. A comprehensive display of motor fittings and accessories for Daimlers, De Dions, Benz, Aster, etc., consisting of complete engines, cylinders, pistons, valves, springs, sparking plugs, pressure burners, lubricators, speed indicators for tricycles only, gradient meters of improved construction, new foot-rests for motor-cyclists, dry batteries, accumulators and coils, horns, goggles, and leather jackets, occupies

a prominent position on the stand. At the time we called at the stand we were informed that a 4½ h.p. Delahaye voiturette, fitted with three forward speeds and reverse motion a 7 h.p. Richard car, with *tonneau* body, and a Stanley steam-car were expected to be added to the exhibits the following day.

Since the "Star" motor-car of the Star Motor Company, of Wolverhampton, was first brought to the notice of the public it has been considerably improved, both as regards construction and design, as will be seen from an examination of the numerous vehicles on view. The types known as Standard A. have the seats arranged *vis-à-vis* for three or four persons, while in Standard B all the passengers face forward. They are fitted with a 3½ h.p. horizontal motor, two speeds, by belts, and are claimed to be capable of mounting all ordinary gradients with a full load. One of the novel features is the employment of a new form of carburettor, the claim for which is its regularity of working in all weather. The new carburettor is so arranged that it can be quickly detached, if necessary, and its location renders the sparking plug more accessible than usual. The road wheels are of the cycle type, shod with pneumatic or solid rubber tires, as desired.

In addition to the foregoing, the Star Company exhibit two quite new types of cars, which are well worthy of close inspection. That known as Standard C has a four-seated Siamese phaeton body, and has been constructed to meet the requirements of tourists, sportsmen, or for commercial use. It is driven by means of a horizontal motor of 4½ h.p., fitted with electrical ignition and the Star carburettor. The cylinder is water-jacketed, the circulation being maintained by a pump; a radiating coil is fitted in the fore-part of the car. The crank-shaft works in an oil-containing case of aluminium; in connection with the ignition an improved form of contact is employed, and the sparking can be advanced or retarded from the seat. The engine, which runs at a normal speed of 700 revolutions per minute, transmits its power by a single 3½-in. belt to a variable speed gear-shaft, on which is mounted a train of pinions arranged to give three speeds forward—4, 10, and 20 miles an hour—and a reverse motion. From the counter shaft the usual pair of sprocket wheels and chains convey the power to the rear road wheels. The forward speeds are controlled by one handle, the reverse motion by another. Steering is controlled by a hand wheel, while as regards brakes three are provided. The petrol tank is located under the front seat, and has a capacity of 150 miles. The car complete weighs about 12 cwt.

Not content with a 4½ h.p. car, the Star Company is also showing a very attractive 6 h.p. vehicle, styled Standard D. The frame is built of channel steel, in the rear part of which a two-cylinder vertical engine is fitted. The ignition is electrical, while a pump maintains the water circulation, in connection with which a radiator is also fitted. The engine runs at a normal speed of 1,000 revolutions per minute, and a useful device is provided whereby it can be started from the driver's seat. As regards the transmission only two speeds—7 and 40 miles per hour—are fitted to this car. The engine transmits its power to the rear axle through spur-gearing, the pinions being continually in mesh. The necessary pair are made rigid on the shaft by means of clutches. The rear axle is of the "live" type, the differential gear being enclosed in its own oil-containing case. Inclined wheel steering is fitted, while the road wheels are of the cycle type, fitted with pneumatic tires; two independent band-brakes are also fitted. Particular attention has been paid to the suspension of the body—in this case a four-seated *vis-à-vis*. The frame is spring suspended on the axles, while the body in turn is supported on the frame by elliptical springs at the front and helical springs at the rear. The body, which can be entirely removed by the removal of six bolts, is fitted with hinged seats, giving access to the motor and working parts, as well as to the tool and battery boxes, etc. The car complete weighs about 6 cwt. In deciding to introduce this vehicle the Star Company state that they have been somewhat influenced by the statements of Continental builders to the effect that unless a car can attain an express railway speed it does not commend itself to certain classes. Therefore, they have decided to show that such cars can be manufactured in England, and have no hesitation in claiming that the car will travel any country roads and attain a speed of forty miles an hour under favourable circumstances.

The main feature of interest at the stands of the Progress Cycle Company, Limited, Foleshill, Coventry, is the new two-seated voiturette, of which we give an illustration in Fig. 11. The cars, of which four are shown, are of an attractive form and are neatly finished, one being fitted with a Mulliner body and painted in black and primrose, with blue lines, and with a hood. The frame is of tubular construction; the motor is either a 3½ h.p. water-cooled vertical cylinder De Dion or a 4½ h.p. M.M.C. De Dion, three of the cars having 3½ h.p. engines and one a 4½ h.p. motor. A standard pattern De Dion spray carburettor is used, and the air supply to the carburettor is properly heated to a constant temperature, as the pipe conveying it is hot jacketed by the exhaust. The engine is located at the rear of the frame, and drives by pinions a small countershaft carrying the two-speed gear. The latter is enclosed in an oil-containing case, bolted to the crank case. Through the same box runs a second small shaft carrying pinions always in mesh with those on the first shaft, either pair of which can be made to transmit the power by means of clutches. From this second shaft the power is conveyed through a small pinion to a large pinion centrally located on the rear axle. The aluminium gear box is so made that by the removal of two or three bolts the top can be taken off and the countershaft, which carries the clutches and the toothed gearing, can be lifted straight out. There are two speeds, ranging from six miles an hour on the slow speed to eighteen miles an hour on the fast. They are controlled by a lever

moving over a dial-plate underneath the steering wheel. In the central position, which is shown by a notch on the dial-plate, both speeds are "out," and the motor is running free; moving the lever forward engages the fast speed, and drawing it towards the driver engages the slow gear. The two speeds are each separately clutched, so that the teeth are always in mesh, and the speed change is made without any shock or noise. The clutches are made with metal working faces throughout. The gearing and the motor bearings are fixed by stays to the main frame tubes. Above the engine, and in the base of the rear seat are located the batteries and coil. Both are easily accessible, and the length of the wiring is, of course, very much less than if the batteries were placed under the forward seat, not only reducing the possibility of short circuiting, but, should it occur, making its detection a matter of much greater ease, as there are no wires running beneath the floor of the car. By undoing a couple of buttons, the rear seat, which is hinged, can be opened forward, so that the whole of the circuit, the motor, valves, carburettor, etc., can be easily got at. The cylinder cooling water is carried in a tank in front with a capacity of four and a half gallons. A radiator, consisting of seven lengths of gilled tube, is placed below the floor at about the middle of the car. The pump is geared off the motor-shaft by a light chain, and runs at a much lower speed than usual, thus reducing the wear.

The body is built to carry three persons, and is isolated from the frame by C springs at the rear, which are claimed to prevent all vibration from the motor reaching the car, whilst above each steering head in the front it will be noticed there are cylindrical boxes. These contain spiral springs, which are compressed by the inequalities of the road, and rise and fall in such a way that the vibration is absorbed, and sufficient vertical flexibility given to the wheel base to enable the machine to run properly with all four wheels on the road, despite the fact that one or

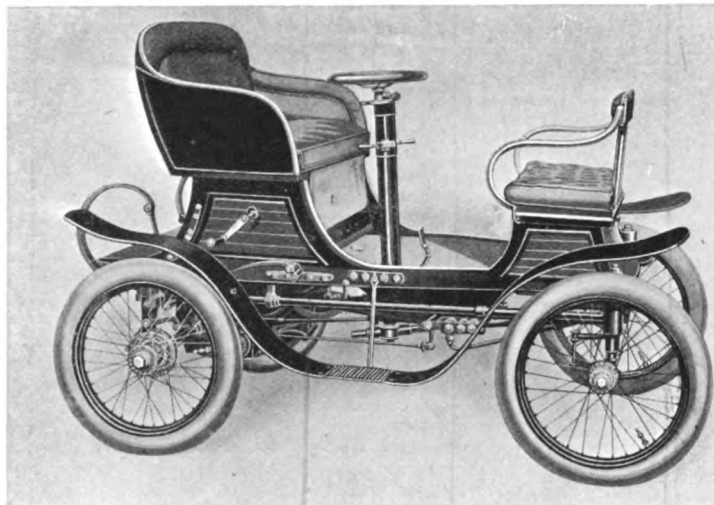


FIG. 11.—THE PROGRESS VOITURETTE.

other may be at a much higher level than the others. A tool-box is formed underneath the front seat, and there is also a box under the back, in which, in addition to the battery or accumulators, a spare petrol tank may be carried, thus increasing the petrol-carrying capacity to at least a hundred miles. An extension of the frame at the back of the car to carry luggage is also provided. Two brakes are fitted—the usual band brake on the balance gear, and the other a double band brake applied on the hubs of the two rear road wheels. The latter are of the cycle type, 26in. diameter back and front, and fitted with 3in. pneumatic tires. The engine is started by means of a detachable handle. The car, which weighs complete about 6 or 7 cwt., has, we are glad to learn, already met with a favourable reception at the hands of motorists.

Of interest to motor-cyclists are the Progress motor-tricycles and quadricycles for one or two persons. These machines are fitted respectively with 2½ h.p. and 2½ h.p. English-made De Dion motors, and are of high-class finish throughout. The front-seat attachment on the two-seated quad is well suspended, and is connected by but four bolts, so that it can be quickly detached. Another feature of interest in the machine are the rim brakes fitted to the rear wheels, and operated by a foot pedal. An interesting machine is the quadricycle for one rider. The advantages claimed for this machine over the ordinary motor-tricycle are numerous. In the first place the conversion to a two-seated quad is so simple that anyone can do it in ten minutes. Furthermore, a large basket, or portmanteau, can be attached in front, resting on the front axle in place of the seat, and with a hundredweight of luggage in front the rider need not be inconvenienced nor the running of the machine be affected. A new departure on the motor-cycles is the fitting of an arrangement devised by Mr. West, by means of which the compression tap is opened and the exhaust valve lifted by a single lever; this facilitating the starting of the motor and enabling the machine to be easily pedalled.

THE STANLEY SHOW.



The "Liberia" is the name of the latest French petrol motor-car to be introduced into this country, and judging from the four-seated *tonneau* (Fig. 12) displayed by the East Riding Cycle and Motor Company, of Hull, it is likely to become a popular type of vehicle. The frame is of tubular construction, the general arrangement being very similar to that of the Renault and Darracq voiturettes. The motor power is supplied by a 5 h.p. water-cooled Aster motor located under a perforated bonnet. The water circulation is maintained by a pump, a radiating coil being also fitted. The ignition is electrical, while the carburettor is of the Longuemare type. There are forward speeds—five, twelve, and twenty-five miles per hour—and reverse motion, the power being transmitted direct to the rear live axle through a friction clutch, a change-speed gear of the Panhard type, and bevel gear. If desired the bevel gear can terminate on a cross shaft, and the power transmitted from the latter to the rear road wheels by the usual sprocket wheels and chains. Steering is controlled by an inclined hand-wheel, around the pillar of which the various control levers are grouped. A foot pedal controls a hand brake on the driving shaft, while there are band brakes on drums connected to the hubs of the rear wheels, actuated by a hand lever. The road wheels are of the cycle type, shod with pneumatic tires. The car is well sprung, and a feature of the *tonneau* body is that the rear seats can be detached, thus rendering the vehicle exceedingly suitable as a touring car for two persons, with ample luggage room. The petrol tank has a capacity sufficient for a run of about 100 miles.

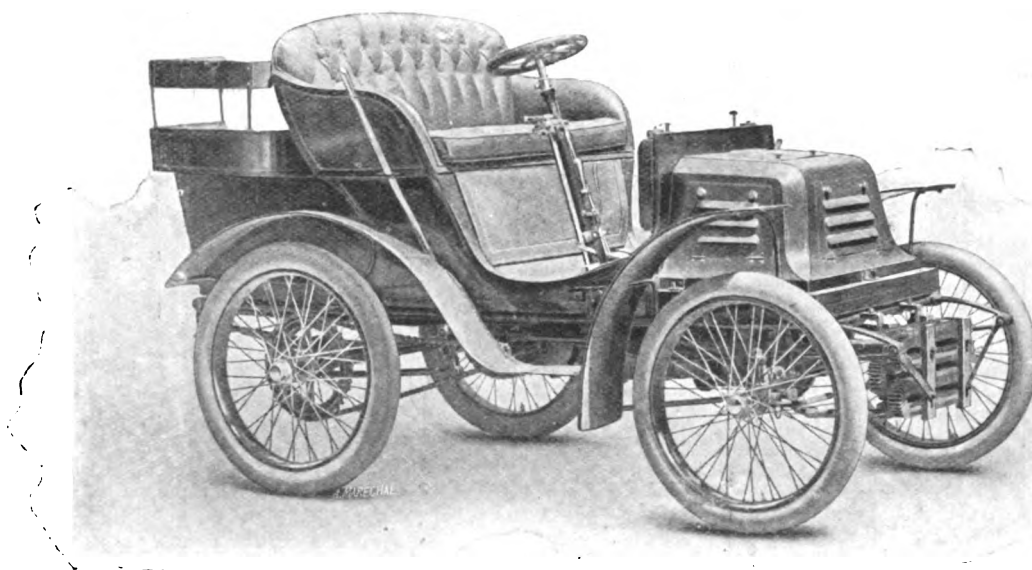


FIG. 12. THE "LIBERIA" CAR, WITH T NNEAU BODY.

Very attractive to the general public is the well-arranged stand of Messrs. Hewetsons, Limited, of Dean Street, Soho, W. Among the vehicles shown are the 4½ h.p. New Ideal hooded Victoria with four speeds, and reverse, 3 h.p. ordinary Ideal Victoria, 3 h.p. dog cart, and a 5 h.p. Emperor car, gear driven, with four speeds and reverse. It is difficult to say much that is not already known of these cars. The various details have, however, been modified and strengthened, as experience has shown to be necessary, the result being a neat carriage, which is well designed to maintain the already great popularity of this firm. At the rear of the stand is the original Benz car of 1885—an antiquated specimen looking rather sad and demure by the side of the hooded Victoria Benz, or the smart Emperor car which typify the latest examples of these cars.

A 3 h.p. single-cylinder motor-car is shown by Messrs. Roots and Venables, 100, Westminster Bridge Road, S.E. It is a two-seated vehicle, the excellent body having been furnished by Messrs. Laurie and Marner, of Oxford Street, W., and is the only heavy oil motor-car in the exhibition. This car has been previously described and illustrated in our columns, so that extended reference is now unnecessary. The cylinder is water-jacketed, the storage tanks having a sufficient capacity for oil and water for a journey of about five hours. Two speeds are provided—two and fourteen miles per hour. The countershaft is chain driven, while the connection between the countershaft and the rear road axle is also by chain gearing and friction clutches. The low-speed chain is provided with a spring jockey wheel to take up any slack, while for a similar purpose the rear axle is so arranged as to be capable of being moved on the springs. A feature of the car is the water-condensing coil, which consists of a series of copper tubes, fitted round the fly-wheel in such a way that the latter works within the coil. Some improvements in details have lately been made with a view to the further elimination of smoke and smell. Larger kerosene and lubricating tanks are now fitted, thus enabling the car to make longer runs without

recharging. Additional water tanks are also provided, and Brampton roller chains have superseded the block chains previously used. Messrs. Roots and Venables have supplied cars on this principle of 6-h.p. for use in India, and have in hand a 12-h.p. motor-carriage.

A Locomobile is to be seen on the stand of the Automobile Supply Company, 56, Broad Street, Birmingham, who also show a 4 h.p. frame and gears which can be supplied to coachbuilders and others. A motor-tricycle is also exhibited. Visitors to the show will doubtless be interested in the De Dion water-cooled cylinder heads here shown. They can be easily fitted to the ordinary air-cooled motor. The company will shortly bring out a new motor-car of English manufacture.

A very neat type of two or three-seated motor-voiturette is shown by Les Etablissements Pieper, 38, Snow Hill, E.C. The motor—a single-cylinder vertical one of 3 h.p.—is located in a bonnet at the front of the car. It is fitted with radial ribs to the cylinder for cooling purposes and electrical ignition. Two speeds are provided, the power being transmitted by a single belt working on fast and loose pulleys on a counter-shaft at the rear. The pulleys are of equal diameter, the variation in speed being obtained by different-sized spur wheels connected with the pulleys, which mesh with the corresponding spur wheels on the rear axle. The wheels are of the cycle type with pneumatic tires; ample brake power is provided, while the steering is controlled by a hand wheel. Two cars of the newest design form the company's exhibit.

In addition to the little two-seated car illustrated in our last issue Messrs. J. H. Pick and Company, of Stamford, exhibit an attractive little dogcart capable of seating three or four persons. It is propelled by means of a 4½ h.p. vertical water-cooled petrol motor geared to the rear axle. The engine is equipped with a surface carburettor of their own type,

which they state uses much less petrol than the carburettors at present in use. The transmission gear is similar to that adopted in the two-seated car, no chains or belts being employed. Another feature of the car is to be found in the patent front springs connecting the front carriage with the main body, these being claimed to practically do away with vibration. The frame is of tubular construction, while the road wheels are of the cycle type. The front steering wheels are carried in forks similar to those adopted on bicycles, and the seat is fitted with pneumatic cushions. The car is very light, the weight complete being only 4½ cwt. Special attention has been paid to the water-cooling of the engine; only three gallons of water are carried, and this, the makers inform us, was found not to be hot at the end of an eighty-mile run.

A very interesting display of motor-cars and cycles is that made by Messrs. Humber and Co., Limited, Coventry. To deal first with cars, we may refer to the Humber M.D. voiturette. This is a light two-seated car, weighing complete only 3½ cwt. The motive power is supplied by a 2½ h.p. De Dion motor, located in a perforated metal case in the front of the car in such a position that the air has free access to the cylinder and combustion chamber. The latter is water-cooled, a pump and radiating coil being fitted. The ignition is electrical, while two speeds, eight and twenty-two miles per hour, are provided, the variable speed gear wheels being always in mesh, but only in operation when the low gear is thrown in. The motor transmits its power by spur wheels to the front axle, steering being effected by a hand wheel mounted on a standard at the right-hand side of the car and acting on the rear wheels. A novel device is provided to start the motor from the driver's seat: this is effected by raising the steering hand wheel several inches in the standard. This disengages the hand wheel from the steering gear, and by giving it a few turns the engine is quickly started. Ample brake power is provided, while the "body" is comfortably sprung on C springs. A neat car is to be found in the "Humber" two-seated phaeton (Fig. 13). The engine is of the hori-

zontal type of $3\frac{1}{2}$ h.p.; it is fitted with electric ignition and radial discs for cooling purposes, the location of the engine, with the combustion chamber to the front, in the fore part of the frame, enabling air to have free access to the cylinder. Three speeds and a reverse motion are provided, the power of the motor being transmitted by belts to a countershaft at the rear and from the latter to the rear road axle by spur gearing. The wheels are of the cycle type, fitted with Dunlop pneumatic tires, while the steering is controlled by a hand wheel acting on the front wheels. The car weighs about 7 cwt.; it can attain any desired speed up to a maximum of twenty-two miles per hour. Provision is made

FIG. 13.—THE HUMBER $3\frac{1}{2}$ -H.P. PHAETON.

for the tightening of the belts from the seat; the petrol tank is fitted in the dashboard, and has a capacity sufficient for a run of 100 miles.

An entirely new car, exhibited for the first time, is the Humber four-seated mail phaeton. The frame is of tubular construction, a 5 h.p. horizontal water-cooled motor being located in the front. The water circulation is maintained by a pump, a radiating coil being also provided. The power of the motor is transmitted to the rear axle by means of two belts and spur-gearing, four speeds forward and a reverse motion being available, the top speed being about twenty-six miles per hour. Steering is controlled by an inclined handwheel, on top of which is fitted a disc carrying the various control levers, i.e., change speed, ignition, and throttle valve. Band brakes on both the countershaft and on drums connected to the hubs of the rear wheels are provided. The water tank has a capacity of five gallons, that of the petrol tank being sufficient for a run of 120 miles. The car body is built of aluminium, edged with D-tubing, and fitted with detachable cushions. The rear seats can also be quickly detached, thus converting the car, which weighs about 12 cwt., into a two-seated vehicle with ample luggage room. Cycle-type wheels are fitted, and these are shod with Dunlop pneumatic tires. The Humber Company also exhibit specimens of their motor-trikes and quads. The non-convertible quadricycle is fitted with a $2\frac{1}{2}$ h.p. motor and special tanks to enable a run of 100 miles to be made. For the comfort of the rear rider a special spring footboard is provided.

Messrs. Brown Brothers, Limited, of Great Eastern Street, London, E.C., have, as usual, a very large exhibit of motor-tricycles, quadricycles, trailers, front seat attachments, small petrol motors, parts and accessories of every kind, such as frames, carburettors, batteries, tanks, etc. The leading exhibit on the stand is, of course, the Brown-Whitney four-seated steam car, which has already been illustrated and described in these columns. In addition to the foregoing Messrs. Brown Brothers made a display of motor-tricycles and quadricycles fitted with $2\frac{1}{2}$ and $2\frac{3}{4}$ h.p. motors, front-seat attachments for tricycles, as also trailing cars, air and water cooled motors, motor-car chains and chain wheels, and accessories of every kind for automobilists and motor-vehicle builders.

The Canada Cycle and Motor Company, of Toronto and 57, Holborn Viaduct, E.C., intends to place upon the market within a short time a light motor-car; meanwhile it has introduced itself to the public with a quadricycle known as the "Imperial of Canada." The quad form is attained by attaching a front section to their motor-tricycle—an operation easily performed by simply removing the front wheel and connecting by means of nuts and bolts. All the parts are of the firm's own construction, and an improvement in the form of the pipe between the exhaust and the muffler has been made. This consists in making the ordinary pipe of a taper form, thus helping to relieve the back pressure and increasing the speed of the motor. It is fitted with an aluminium gear case and 28 in. wheels. Two and a-half inch Dunlop detachable tires are used.

One of the cars which is attracting considerable attention at the Agricultural Hall is the "Ivel" landaulette (Fig. 14), exhibited by Mr. Dan Albone, of Biggleswade. The frame of the "Ivel" car is con-

structed of steel tubing, and the arrangement of the tubes is such that all the various strains to which the frame is exposed, both from road vibration and that caused by the motor itself, are scientifically taken up, a cantilever system being adopted. The frame is mounted upon spiral springs, those of the rear axle being enclosed in steel cylinders, which are inclined towards the rear of the car, in order that the springs may act in the same plane as the lines of vibration from the wheels. These cylinders further prevent any movement of one spring without the duplicate motion on the other. This arrangement is claimed to keep the chain wheels in proper alignment, thus not only saving a great deal of friction, but also greatly prolonging the wearing powers of the chains. The front axle springs are vertical, and are designed to allow the wheels to rise or fall to accommodate themselves to the inequalities of the road. Upon this frame a double-cylinder petrol motor of 8 h.p. is carried. Electric ignition is adopted. The engine is water cooled; no pump is employed, while the water in the tanks is kept cool by means of tubes through the tank, air being conveyed to and through the same by specially arranged funnels. The body of the car, which takes the form of a landaulette, designed to seat two persons inside, with the driver and another person on the box, is supported on four C springs, being thus entirely separate from the frame and working parts. An additional seat, which can be readily detached, is also provided at the back of the car for a servant, if desired. The front of the landaulette can be let down and also the back and roof at the rear, thus converting the vehicle into an open car. The occupants of the car are completely insulated from the vibration of the motor, as well as from that caused by road inequalities, and, in addition to this, a different body can at any moment be attached to the frame in a short time, so that the purchaser may have practically two or three cars to one frame and motor. The main brakes act upon large drums within the chain wheels. A pair of tire brakes are also provided. A feature of the car is that all the levers are within easy reach of the driver, while the steering is remarkably steady, a special irreversible arrangement being adopted whereby the wheels cannot under any circumstances be deflected by obstacles on the road. The petrol tank is situated under the front seat, and the water tank is of large capacity. The tubes which pass through the tank take the place of the condenser commonly employed, while as the tank is placed well above the motor there is no necessity for the employment of pumps and their attendant complications. A three-speed gearing is provided and also a reversing gear. The motor and chains are enclosed, so that the wear and cleaning are greatly reduced. The power of the engine is transmitted to the countershaft by means of belts and a Crypto gear, Renold bushed silent chains conveying the power to the rear axle. The motor is so arranged that the flywheel runs in the same direction as the car, and a certain amount of power is thus saved which would otherwise be wasted. Moreover, as the driving belts are not crossed, there is a considerable saving of friction. The vehicle is fitted with "Ivel" ball bearings which are larger and wider

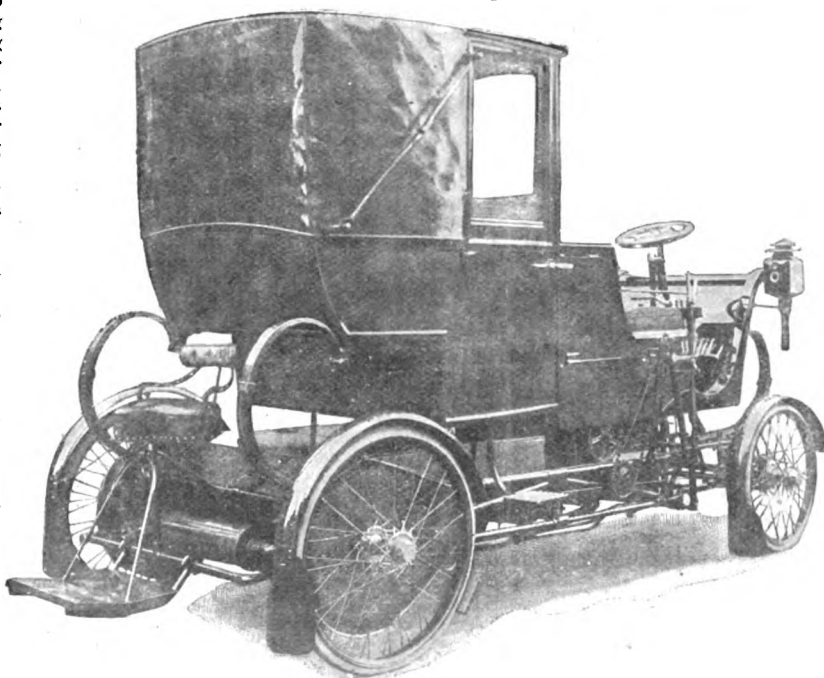


FIG. 14.—THE "IVEL" LANDAULETTE.

apart than usual. The convenience of the driver has been most carefully studied, and attention is drawn to the fact that every part of the machinery can be easily reached, so that all adjustments can be made with the greatest nicety without the trouble usually involved. Steering is controlled by a hand-wheel, while the road wheels are of the cycle type shod with solid rubber tires. The car complete weighs about 15 cwt. and can attain a speed of twenty miles an hour. A vehicle of this type has been supplied to Mr. R. C. Vyner, of Newby Hall, Ripon, where it has been attracting much attention. Mr. Albone drove the car down to Yorkshire, and while there took quite a number of Society people for a trip, including the Duchess

of St. Albans, the Marchioness of Ripon, and Lady Rosalyn, all of whom were delighted with their experience. The car was also driven one day to the Hurst race meeting, where naturally it attracted much attention.

Messrs. Burford, Van Toll, and Co., of the Orleans Works, Twickenham, occupy their stand with three voiturettes of the New Orleans type. Fig. 15 gives a general view of the attractive 6-h.p. three-seated car, recently introduced by the firm, and of which an example is on view. The car in its general arrangement follows the lines of the New Orleans voiturette, the feature being the employment of two motors arranged side by side under a bonnet in the fore part of the tubular frame. The motors, which collectively develop

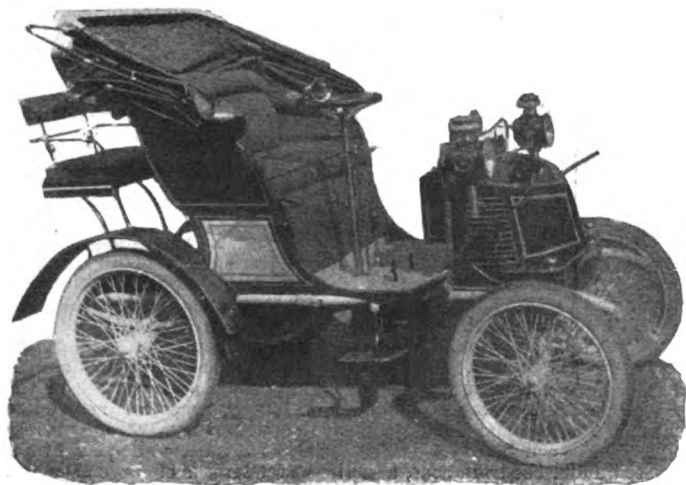


FIG. 15.—THE NEW ORLEANS 6-H.P. VOITURETTE.

6-h.p., and are of the Vivinus type, are air-cooled both externally and internally. The internal cooling is obtained by the entry of cold air into the crank chamber and cylinder each time the piston rises through the gauze-protected ports formed in the top part of the crank chamber. The external cooling is effected by means of a high-speed fan driven by the flywheel. This causes a fierce current of cold air to pass across the interior of the motor bonnet, the makers stating that they are willing to give any reasonable guarantee that the engines do not over-heat. It may be mentioned that the two motors are connected up to a single engine shaft, between them being mounted the fly-wheel and the belt pulley. A single carburettor—of an improved float-feed type—furnishes a regular explosive charge to the two motors. Ignition is of the make and break electrical type, a lever being provided on the steering standard by means of which the sparking can be advanced or retarded as desired. The parts of the motors are of easy access, the valves being arranged so as to be quickly removed when necessary. Coming now to the transmission mechanism, there are two speeds, ranging from 8 to 10, and 20 to 30 miles per hour. A long crossed belt connects the pulley on the engine shaft to fast and loose pulleys on a counter shaft just in front of the rear axle, to which the power is transmitted through one or other of two pairs of spur wheels provided. The fast pulley is fixed to the shaft upon which the sliding piece with its two toothed pinions moves. By means of a lever set horizontally beneath the steering wheel, this sliding piece is moved either to the right or left, according as it is desired to drive on the high or low speed. The belt shifter is actuated by depressing a pedal on the footboard. The manipulation is very simple, the foot lever for striking the belt being always depressed before changing speed, or for throwing the motor out of gear altogether. Steering is controlled by a horizontal hand wheel; cycle type wheels, 26in. and 30in. diameter, shod with 3in. pneumatic tires, are fitted. A foot pedal operates a hand brake on the countershaft, while similar brakes, actuated by a hand lever, are fitted on to drums attached to the hubs of each of the rear road wheels. The petrol tank has a capacity of 2½ gallons, this quantity being stated by the makers to be sufficient for a journey of eighty miles. The car measures 8 ft. by 4 ft. 6 in., and weighs complete about 6½ cwt. The two-seated car has a 3-h.p. Orleans air-cooled motor, and has two speeds. On the stand is also a long frame voiturette, which is in all respects similar to the regular type except that the frame, being 9in. longer, enables a spare petrol tank and basket to be carried.

By reason of its display of electrical vehicles the British and Foreign Electric Vehicle Company, Limited, 4, Bloomsbury Place, W.C., has been able to arrange a very attractive stand. First and foremost is the "Powerful" car, built for this company by the Krieger Company, of Paris, and carrying sixty 30 E.C. type Leecoll cells, giving 275 ampere hours. Its recent performance on the run to Southsea was so uniformly good that it is naturally receiving much attention at this show. The Crénache Co.'s "Victor" voiturette, intended to run thirty-five to forty miles on one charge, and the Stanhope Phaeton, built by the Columbia Co., are also shown. This is essentially for use in towns, and its running capacity is thirty miles on one charge. The Leecoll accumulator or second battery for electric motor-vehicles is exhibited. This is made without plates of lead, nor is free sulphuric acid used. The electrolyte consists of a neutral solution

of metallic salts, and in charging the battery these salts are transformed into a metallic coating, which is deposited on a negative consisting of a cylinder of metal gauze after the manner of electroplating. The positive plate is encased in a porous tube, and is surrounded by the negative cylinder. The Leecoll battery is claimed to give a higher E.M.F. than a lead cell—i.e., 2.5 volts, instead of only 2 volts. Owing to this high E.M.F. 32 of these cells will, it is stated, give the same voltage as 40 cells of the ordinary type. The traction-type cells weigh 18lb. each, and have a capacity of 90 ampere-hours.

Occupying a prominent position on entering the hall, Messrs. Friswell, Limited, 48, Holborn Viaduct, E.C., make a very effective display, and the vehicles being nicely staged contributes to the convenience with which they can be inspected. The fine 12 h.p. Panhard upon which Mr. Friswell has lately been seen is a central feature of the stand, while a water-cooled Renault car, fitted with the De Dion motor, is having a considerable share of attention. A petit Duc Mors, which can be adapted to seat two or three persons, a 3½ h.p. De Dion voiturette, and a four-seated Peugeot carriage complete a good exhibit. These cars are so well known to our readers that further description seems unnecessary on the present occasion.

Mr. J. L. Thomas, Barnet, exhibits a new front spring fork for cycles and motor-cycles as well as a 2½ h.p. motor-tricycle fitted with a novel design of rear frame. So far as the fork is concerned, to the ordinary front fork is attached a subsidiary one bent out at right angles four inches from the fork ends, and pivoted to the fork ends proper at the elbow formed by such bend. The upper ends of the subsidiary fork are joined together by a tubular strut, to which is fastened one end of a helical spring, the other end of the spring being attached to the fork crown proper. The motor-trike has a single rear axle, the new feature being the introduction of a pair of additional stays extending from the apex of the triangular frame to the top of the gear case, this addition, it is claimed, resulting in a more rigid frame.

A good show of motor-tricycles and quadricycles is made by the Enfield Cycle Company, Limited, Hunt End Works, Redditch. The new auto-quadricycle has a 2½ h.p. engine, water-cooled. It has an ordinary quad frame without pedals, the rear rider being on a comfortable seat instead of a saddle. There are two speeds—seven and twenty miles per hour respectively—with a double friction cone and clutch. These are put in and out of gear by a worm wheel and pinion, which works a screw at the end of the gear-box. Both the mixture levers are on a standard, and the brakes are actuated by the feet. The ball thrust is fitted with ball bearings, and the axle also has ball bearings. A Longuemare carburettor is used. The water tanks are fluted so as to present a greater surface than usual to the air, and the shape has been registered. The footboard is connected with the springs, to prevent the jolting that otherwise takes place. The petrol tank is under the rear seat, the battery box being carried under that in front.

Motor-cyclists will be interested by the new compression tap shown fitted to a motor-tricycle by Messrs. H. Lygoe and Sons, of 27, Compton Street, London, W.C. The tap Fig. 16 has been devised by Mr. C. Fitzroy Farlow; it consists of a double cock tap fitting into the top of the motor, one cock being for lubricating and the other connected to the silencer (which is opened in the same manner as an ordinary tap) and

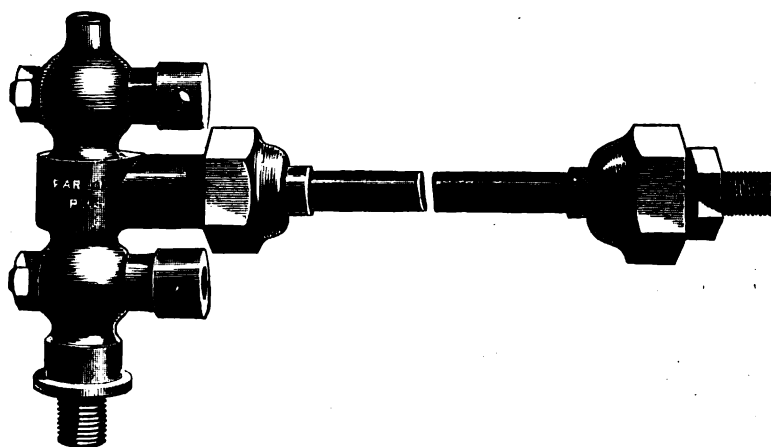


FIG. 16.—FARLOW'S COMPRESSION TAP.

having a valve closing on the suction stroke, thus enabling a full mixture to be drawn through the inlet valve instead of a quantity of non-explosive mixture (air) as in the case of an ordinary tap. The advantages of this contrivance will be obvious to all users of motor-cycles; it not only reduces the hissing noise on starting, but facilitates the operation of putting the engine in motion, and also enables the machine to be driven at a slow speed without the engine stopping.

At the stand of the Eadie Manufacturing Company, Limited, Redditch, are specimens of the firm's well-known motor-tricycles and quadricycles. Water-cooled engines are now being fitted to all the firm's quads. The Clark Brothers Cycle Company, Ltd., 24 and 26, Dames Road, Forest Gate, E., exhibit a 2½ De Dion motor-tricycle.

THE BIG EVENT OF 1901.



THE Sub-Committee of the Automobile Club which was appointed at the meeting of 31st October, to recommend as to the route for the big event of 1901, met at the Club on the 23rd November. The recommendations of the Sub-Committee, which are to be submitted to the Big Event Committee, are shown below. The Big Event Committee will be asked to adopt and forward these proposals to the Club Committee, who, as in 1900, will organise the Trial.

TWELVE HUNDRED MILES TRIAL.

August, 1901.

	*C.T.C.	†C.B.	Miles.	Miles per day.
Monday, 12th August :—				
London to Basingstoke.....	VOL. I. 206	S.E. 513	45½	—
Basingstoke to Shaftesbury.....	233	W. 689	55½	101½
Tuesday, 13th August :—				
Shaftesbury to Exeter	233	W. 718	68½	—
Exeter to Plymouth	343	W. 724	43½	112
Wednesday, 14th August :—				
Plymouth to Taunton	343	W. 724	76	—
Taunton to Bristol	306	W. (730) (846)	44	120
Thursday, 15th August :—				
Bristol to Worcester	66	W. (855) (862) (855)	59½	—
Worcester.....	66	W. 952	47½	107½
via Bridgnorth to Shrewsbury ...	197	W. 979		
Friday, 16th August :—				
Shrewsbury via Whitchurch (19½ m.).....	241	—	—	—
Tarporley (13½ m.).....	66	—	—	—
to Warrington (18½ m.).....	VOL. III. 2	N. 258	51½	—
Warrington to Lancaster.....	2	N. (209) (203)	50½	102
Saturday, 17th August :—				
Lancaster to Kendal (21 m.) ...	2	N. 203	—	—
Kendal to Dunmail Summit (20 m.)	277	186	—	—
Dunmail to Kendal (20 m.).....	277	186	61	—
Kendal over Shap to Carlisle	2	161	44½	105½
Sunday, 18th August :—				
At Carlisle	—	—	—	—
Monday, 19th August :—				
Carlisle to Glasgow	IV. 1	S. (51) (121)	95	95
				743
Tuesday, 20th August, until and including Sunday, 25th August } At Glasgow Exhibition.				
Monday, 26th August :—				
Glasgow to Dumfries.....	VOL. IV. 20	S. (119) (104)	79½	—
Dumfries to Carlisle	2	(67) (62)	34	113½
Tuesday, 27th August :—				
Carlisle to Penrith	VOL. III. 2	N. 161	18	—
Penrith to Scotch Corner.....	350	N. 181	49½	—
Scotch Corner to Borough Bridge	1 (2)	66	27	—
Borough Bridge to York.....	226	92	17½	112½

Wednesday, 28th August :—

York to Doncaster.....	1 (1)	85	33	—
Doncaster to Newark	1	137	38	—
Newark to Lincoln	27	S.E. 303	15½	86½
(Including speed trials at Welbeck)				

Thursday, 29th August :—

Lincoln to Sleaford	VOL. II. 13	323	17½	—
Sleaford to Lynn	377	399	45½	—
Lynn to Norwich	436	429	43½	106½

Friday, 30th August :—

Norwich to Thetford	401	427	29	—
Thetford to Bury St. Edmunds ...	452	449	12	—
Bury St. Edmunds to Newmarket	404	387	14½	—
Newmarket via Chesterford to	401	(391)	30½	—
Bishops Stortford.....		(537)		
Bishops Stortford to Hertford	353	473	13½	—
Hertford via Hatfield	195	477	—	—
and Barnet to London	354	525	28	127½

546

Summary :—London, Glasgow, London, August 12th to 30th August, 19 days, of which 12 are running days, 5 days at Glasgow††, 2 being Sundays. Total distance, 1,289 miles.

* C.T.C., Volume and No. of Route in *Cyclists' Touring Club Road Book*.
† C.B., Contour Road Books (4 Vols.); S., Scotland; N., North of England; S.E., South-east England; W., West England.

†† Vehicles in Section I. (carrying observers), will during this period be exhibited at the Glasgow International Exhibition. It is proposed that there should be arrangements by which they may be taken out of the Exhibition during certain hours daily to enable manufacturers to demonstrate their vehicles to purchasers, provided that they also carry official observers.

Hill-Climbing Trials.—The route includes many hills on which valuable hill-climbing records may be obtained, for instance :—

Crewkerne to top of St. Rayne Hill	3 miles.
Chard	1 mile.
Yarcombe	1 "
Straightway Head	2 miles.
Kenford	2½ "
Chudleigh	3 "
Red Hill (W. 846)	2 "
Dunmail Raise (N. 186)	2 "
Shap Fell (N. 161)	10 "
Beetock (S. 51)	10 "
Cross Hands (S. 104)	4 "
Holford Bridge (S. 104)	1½ "
Cumlock (S. 104)	2½ "
Brough (N. 181)	7 "

Classification.—It is recommended that the classification should be by prices as follows :—

- Class A.—Vehicles selling at £200 or under.
- Class B.—Vehicles selling at more than £200 but not more than £300.
- Class C.—Vehicles selling at more than £300 but not more than £450.
- Class D.—Vehicles selling at more than £450 but not more than £650.
- Class E.—Vehicles selling at more than £650 but not more than £1,000.
- Class F.—Vehicles selling at over £1,000.
- Class G.—Motor-cycles carrying two persons.
- Class H.—Public service vehicles and delivery vans : (a) Carrying not less than 5 cwt., or four persons including driver; (b) Carrying not less than 15 cwt., or eleven persons including driver.

Time of Start.—It was agreed that the time of start should be 7.30 in the morning, that there should be no stop for breakfast, but there should be three-quarters of an hour compulsory stop for lunch.

Controls.—It was agreed that the official programme should state what time should be taken by a vehicle in passing from one end to the other of a control at eight miles an hour, in order that drivers may have this assistance in regulating their speed.

Observers.—

- (a) It was agreed that vehicles carrying only one person could not be entered for competition in Section I.
- (b) That all other vehicles entered by manufacturers or agents should be required to carry an observer.
- (c) That the allotment of vehicles to the various observers should be by daily rotation.
- (d) That vehicles in Section II. on which no observers are carried should not be eligible for a prize, but their owners should receive a suitable memento of the satisfactory completion of the whole tour.

Class H.—The formation of Class H for public service vehicles and light goods delivery vans was, on the suggestion of Mr. Foster Pedley, recommended. It is proposed that these vehicles should start from London at the same time as the other vehicles, but should be allowed two days longer for the completion of the journey to Glasgow, and also that they should start two days earlier from Glasgow, and be thus allowed two days longer for the journey to London.

It was suggested that the observers on these cars should take careful note of the fuel consumption.

LEAVING A HORSE UNATTENDED.

BEFORE the Guildford Borough Bench last week, Andrew Gunner, of Ash, was summoned for having been at such a distance from his cart as not to have proper control over the animal drawing it in Friary Street on the 13th ult. According to the evidence of P.C. Rickman, defendant left the horse and cart unattended outside the Bear Inn, Friary Street. A passing motor-car frightened the horse, which bolted up North Street, but was stopped by Charles Taylor, who brought the animal back to Friary Street. Defendant said he left the horse and cart in the street while on business. Defendant, who did not appear, was fined 10s.

FURIOUS DRIVING CASES.

AT the West London Police Court, last week, George Sparks, of Staines-road, Bedfont, was summoned by the police before Mr. Lane, Q.C., for driving a four-wheeled motor-car on Sunday afternoon, the 28th Oct., at a greater speed than twelve miles an hour on the High-road, Chiswick.—There was a summons previously heard against the same defendant for driving at a greater speed than reasonable having regard to the traffic, and on that occasion he was defended by Mr. Staplee Firth.—The evidence of Police-constable Alker, 517 T, went to prove that on the Sunday afternoon in question he followed the motor-car for a distance of two miles in the direction of Hammersmith, while patrolling on a bicycle which was a racing machine. He judged the speed of the car at sixteen miles an hour, but he admitted that the defendant eased up as he passed vehicles. The magistrate found that defendant, who had been summoned under sub-section 1, was not driving at a greater speed than reasonable, having regard to the traffic, and suggested an amendment for the case to be heard under sub-section 2, which limited the speed to twelve miles an hour. Taking the two sections together he was of opinion that under no circumstances a car could be driven at a greater speed than twelve miles an hour. Mr. Staplee Firth objected to an amendment, and asked for judgment on that summons. In reply the magistrate said he would grant another under sub-section 2, but Mr. Firth argued that it would be *res judicata*. Not so, the magistrate observed, and granted the summons, and adjourned the other one.—On this occasion the defendant was not represented.—Mr. Lane, Q.C., pointed out that the penalty was £10, but under the circumstances said he should only fine the defendant 40s. with 2s. costs. He dismissed the original summons.

THE RIGHTS OF MOTOR-CAR DRIVERS.

AT the Woolwich County Court last week a lad named Stephen Williams, aged twelve years, living at Abbey Wood, brought an action, through his father, against Mr. T. Whomes, a pianoforte maker, of Bexley Heath, to recover damages for injuries caused by the alleged negligent driving of a motor-car in Woolwich. Counsel for plaintiff said that on November 18th of last year he was living with his parents in Powis Street, Woolwich, and whilst he was playing in the street with a hoop a motor-car came along at an excessive speed. Defendant and his son were on the motor, and sounded a "hooter," or horn, which caused a horse attached to one of Messrs. Thomas and Edge's carts to take fright. The cart knocked the plaintiff down, and the wheel passed over his leg, which was fractured. He was afterwards removed to the Woolwich Union infirmary, where he remained thirteen weeks. An action had previously been commenced against Messrs. Thomas and Edge, builders, of Woolwich, but enquiries went to show that the cart was on the right side of the road, and that it was being driven slowly by a man named Clarke. That action was relinquished, and the present one begun against the defendant, who, counsel contended, would not have been liable if he had not driven his car at an excessive speed. Plaintiff having borne out counsel's statement as to the injuries he received, John Collyer, chief horsekeeper in the employ of the Royal Arsenal Co-operative Society, said that the rattling noise of the motor-car, which was going at a reasonable rate, frightened the horse, and the driver of the cart could not have avoided the accident.

The defence was that the car was only being driven at the rate of five miles an hour, and that the driver sounded the "hooter" as a warning to people to get out of the way. After a long legal argument counsel withdrew the statement that the car was going at an excessive speed. Mr. Whomes said that after the accident he offered to send the lad to a convalescent home and pay £10 towards the expenses. His Honour instructed the jury to give a verdict for the defendant, and remarked that the action could not be sustained, the use of motor-cars on the highway being authorised by the Locomotives on Highways Act, 1896, and the Light Locomotives on Highways Act, 1896. The jury accordingly returned a verdict for the defendant, and counsel on both sides consented to waive all costs.

It is stated that a company has been formed to operate automobiles on the Yukon. Five cars are said to have been shipped, and these are to be operated between White Horse, the terminus of the railway, and Dawson city. Their practicability demonstrated, the company will then try the automobile in the Klondike district, running them wherever possible between Dawson and the numerous creeks of the mining camp.

"SHOULD cycle agents take up the sale of motors?" is the title of a paper which Mr. F. D. Nawell will read before the Manchester Cycle Trade Association on December 6th.

MESSRS. DE DION-BOUTON AND Co., of Puteaux, have lately completed an electric voiturette. The car in general appearance closely resembles the well known De Dion voiturette, electricity forming, however, the motive power instead of petroleum spirit.

Automobile Topics, of New York, states that Messrs. J. Howard Johnson and Clarence Gray Dinsmore, both members of the Automobile Club of America, were to sail for New York on the 14th ult. Mr. Johnson was taking with him a 24 h.p. Mors car and Mr. Dinsmore three 12 h.p. Panhard cars.

IN a recent issue we mentioned that some trials were being made at Shaerbeek, near Brussels, with a motor fire engine. The trials included an interesting experiment with the automobile versus a horse-drawn engine. Both vehicles were several times unexpectedly called out on a false alarm, to see which would be first in arriving at the scene of operations, and each time the motor-vehicle gained the victory. The latter could make, when fully manned and loaded, 32 miles an hour, the whole weight being 28 cwt. Several commanders of the Belgian fire brigade were present to report on the trials to their authorities.

A RELIABLE brake is one of the most important features of a motor-car, and motor engineers are continually striving to bring out new forms. The other day we had an opportunity of inspecting a new double-purchase brake on the Daimler car belonging to Mr. Frank Sheppard, of Putney, which has been fitted by Messrs. H. J. Taylor and Co., of Earlsfield, S.W. The brakes act on drums attached to the hubs of the rear wheels; the connecting levers are fixed well up out of the way of the chains, while the brake, which consists of a band of steel, to the interior of which wooden blocks are fixed, works, it is claimed, equally well whether the car is running in a forward or rearward direction. The band brake proper is supported by a special casting, and is so connected to the controlling lever that the band is drawn on to the drum from both ends simultaneously. In addition to its double-acting properties, the new brake is stated to weigh considerably less than the usual form.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editor's hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

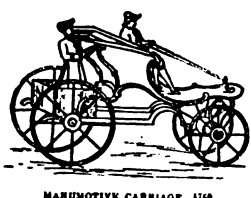
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COMMENTS.



MOTORIVE CARRIAGE 1114

THE Liverpool Self-Propelled Traffic Association gave another testimony of its energy and enterprise in the great gathering of Monday to welcome M. Forestier. M. Forestier knows the conditions of heavy motor traffic in France and its possibilities in other countries as well as any man, and the interesting paper with which he favoured the meeting should give considerable impetus to the heavy motor traffic movement in this country. On Tuesday a large party of those attending the meeting visited several places of interest, and after luncheon at the Town Hall, the Lord Mayor and Mr. C. Johnson, secretary of the Automobile Club of Great Britain and Ireland, joined the party in an automobile belonging to Mr. Alfred J. Boulton, and fitted with a special hydraulic variable-speed gear, invented by Mr. W. Hall. M. Forestier greatly admired his run through Sefton Park to the Lord Mayor's residence, and his run back to town to visit the Exchange Flags and Newsroom. He left Liverpool for London on Wednesday morning, being accompanied by a number of the members of the council of the Liverpool Self-Propelled Traffic Association. We would congratulate Mr. Shrapnell Smith, the Hon. Secretary of the Association, on the success of the meeting, and also give testimony to the appreciation of the guests at the Lord Mayor's luncheon.

A Military Motor.

RUMOURS have been rife lately of the great speed attained by a Pennington war car in Richmond Park, special permission having been accorded Mr. Pennington for the use of the park for the purpose of experiment. We understand that a company with a capital of seven figures is being formed, and that some of the leading people in the armour-plate trade have already joined the board. The company, we hear, will be brought before the public some time this month, and perhaps those interested in automobilism will be surprised to see that amongst other inclusions will be that of a firm well known in automobile circles. In the meantime, Mr. Pennington is at Kendal with his three cars—each of which has cost somewhere about £3,000 to build—preparing to go up and down Shap Fell. This is ten miles long, from Mint Bridge to the summit, and the idea is to go up and down several times on non-stop runs. Such a test will be a good one, and the honesty of the effort will do much to rehabilitate the doubts of those who, like doubting Thomas, have previously not believed. There is no doubt the present armour-plated cars, like the old torpedo car, are flyers, and that the water-cooled cylinders enable them to travel distances previously regarded as impossible.

Electric Trams.

IN Liverpool there is a most complete system of electric trams, and to the Londoner the celerity with which these speed about is a subject of great wonderment. The legal speed allowed, we understand, is eight miles an hour, but where police, trams, etc. are all under one authority, a sort of "go as you please" arrangement exists, and twelve miles an hour

seems nearer the prevailing rate, although we are credibly informed that the limit is frequently extended to nearly twenty miles an hour, especially in the outskirts of the city. The Automobile Club propose sending invitations to county councillors throughout the kingdom offering them trial rides to prove the perfect control motorists have over their vehicles; but it seems to us, and this suggestion we respectfully offer to the committee, that it would be advisable for the Club to first invite the county councillors to Liverpool, and then they will be able to see for themselves how perfectly safe, even in towns, is the legal speed allowed motor-cars, and which they seek to get reduced. Their agitation may only have the result of doing away altogether with the speed limit. The common law of the land is sufficient to provide for the safety of all, and those who drive to the common danger must pay the penalty, and all true motorists interested in the success of the industry will help the authorities in punishing reckless drivers.

Heavy Motor Vehicles.

AT all the functions of the Liverpool branch of the Automobile Club builders of heavy vehicles have been in force. Those present on Monday included Messrs. Thornycroft, Toulmin, Simpson, Musker, Spurrier, Norris, and others. Hearing that Messrs. Simpson and Bodman had ready for trial a new vehicle, ordered for use in South Africa, we took advantage of the opportunity while up north of inspecting the new vehicle, and of noting the improvements which have been made. The lorry is about 18 feet long, and is built to carry five tons. It has only one speed, instead of, as previously, three, and is capable of travelling, when fully loaded, at seven miles an hour. The engines and boiler have a capacity of 40 h.p.; coke is used instead of the Welsh smokeless coal formerly employed. Another new departure is the fitting of a positive clutch which couples the engines and rear road wheels. This clutch is controlled by means of a foot lever, and of course, when the vehicle is turning a corner, the clutch is released.

The Club and County Councils.

WITH characteristic energy, consistent with the acquisition of full knowledge on the subject, the committee of the Automobile Club is engaged in an attempt to educate county councils on automobile matters. It is proposed to urge that furious driving endangering life should be the basis of prosecution, and that as owners of motor-vehicles pay a carriage tax they have a right to claim the same privilege of privacy as is granted to private vehicles propelled by other means. A letter is to be sent to all persons interested in the matter pointing out the efforts to be made in the spring to demonstrate the control which motor-car drivers have over their vehicles, and asking councils to suspend judgment until then.

Prospective Arrangements.

SEVERAL interesting events have been arranged by the Automobile Club. On Wednesday next there will be a house dinner at the Club, followed by a paper on Motor Bicycles to be read by Mr. Joseph Pennell. Arrangements already made for 1901 include the quarterly 100-miles trials on January

1st and April 2nd, an Easter tour to Ireland or Normandy from the 4th to the 9th April, a petroleum-spirit distance contest on April 13th, hill climbing and consumption trials on May 2nd, the exhibition at the Agricultural Hall from the 4th to the 11th May, and other interesting events, including tours to Liverpool, Portsmouth, and France, as well as "the big event." A trial of the horse-power of motors and horse-power on road wheels of motor-vehicles has also been suggested.

A Christmas Tour.

MOTORISTS wishing to spend Christmas Day at Plymouth should, if they are members of the Automobile Club, join the informal tour which is being arranged to begin on the 21st inst. On that day it is proposed to go to Salisbury—a distance of eighty-eight miles—and on Saturday from that city to Exeter (eighty-nine miles). On Christmas Eve the party will go *via* Chudleigh and Ashburton to the great naval town, which by that road is forty-three miles from Exeter. On Boxing Day the return journey will be commenced, and Taunton (seventy-six miles distant) will be the stopping place for the night. On the 27th inst. eighty-eight miles will be traversed, *via* Bristol to Marlborough, and on the Friday London will be the destination.

Conference of Chief Constables.

IN consequence of the endeavours to be made in May next to secure the education of county councillors and others with regard to automobilism a conference of chief constables with the committee of the Automobile Club is proposed. Already several chief constables, including those of Surrey, Bedford, Cornwall, Durham, Essex, Yorkshire, Sussex, Kent, Buckingham, and Dorset have promised to attend. Major Bower, the chief constable of the North Riding of Yorkshire, is sanguine as to the value of the proposed conference, "as there are large numbers of people throughout the country who do not understand the extraordinary control which the driver of a motor-car has over his vehicle." Lieut.-Colonel H. M. A. Warde, the chief constable of Kent, expresses himself in favour of the numbering of motor-vehicles.

Drivers' Certificates.

SEEING that some motorists have declined to stop when asked to do so by the police several chief constables have suggested that as an alternative to the numbering of cars—to which every automobilist is strongly opposed—certificates of competency should be regarded as necessary for drivers. It is suggested that the certificate should be issued by a central authority on which the Club should be fairly represented, and motorists failing to stop when desired by the police or by drivers of restive horses should be liable to a suspension of their certificates with the consequent loss of the right to drive a motor-vehicle.

A New Tire Trouble.

THOSE who exhibited motor-cars fitted with Michelin tires at the recent shows in London have been served with writs restraining them from selling, offering for sale, using, or exhibiting such tires in this country. We believe that injunctions have been granted against fourteen firms. Last Saturday several amusing conversations took place at both shows in consequence of these legal developments, and at the National Show tireless motor-cars were exhibited on several stands; whether as a result of the writs or in order to lower the height of the vehicle we do not know, and did not stay to inquire.

Tolls.

DURING the last fortnight or so the writer has been a dozen or more times on his car to the Crystal Palace, but rather than pay toll has gone a couple of miles out of his way on the villainous roads which, we should imagine, are only to be found around the Crystal Palace. Only on one occasion

when with a party of friends from the Automobile Club, did we venture through the toll gate in order to save time. We had been told previously that the toll was only 4d. The night was dark, the gate was shut, no light was shown, and it was only the extreme care of the driver that prevented an accident. The lady in charge wanted 1s.; we handed 6d. and demanded change, but were informed we could well afford the shilling. After some palaver the gate was opened; no change or ticket was given, and we passed through. Another excessive toll is that on the Great Western main road at Maidenhead. The Berks and Bucks County Councils and the various local authorities are taking action in regard to the freeing of the bridges at Cookham and Maidenhead. One of the suggestions made is that the toll should be continued for twenty-five years, so as to extinguish the capital liabilities of the county authorities.

A Novel Contest.

TO-DAY, when the future of automobile racing in France is obscured by threatening clouds, motor men are turning their thoughts towards the organisation of automobile events, which, while avoiding any conflicts with the authorities, shall yet prove interesting alike to the public and to the competitors. The promotion of a competition upon really new lines calls for considerable ingenuity, for already a hundred and one different schemes have been employed, many of which by their complexity have bewildered both competitors and officials. To steer clear of intricate regulations while presenting entirely new features is no light task for the organiser, and he should therefore welcome the recent wager between two Belgian motorists as giving him an idea for a novel contest. Simplicity itself, the scheme might with but little alteration form the basis of an excellent and instructive automobile event. The idea originated at the A.C.B.'s club-house in the course of a discussion between two members as to the reliability of their respective cars. To arrive at a decisive conclusion the two gentlemen, M. Fentaure and M. de Reus, agreed to drive their vehicles from Brussels to Marseilles and back, noting *en route* all breakdowns and incidents. In case either competitor suffered a "panne" lasting more than six hours he was to be disqualified, and the wager of £40 was to go to his rival. I may add that the vehicles engaged were a Germain Panhard and a Gobron-Brillié. There should be no great difficulty in following such instructions, and a competition on similar lines should prove of great interest.

Horses' Hoofs on the Roads.

AUTOMOBILISTS should urge upon county councillors and members of public bodies responsible for maintenance of highways the economy of motor-cars as compared with horse-drawn vehicles so far as the condition of the roads is concerned. In a paper contributed to the Society of Arts by Mr. Howard Humphreys, A.M.I.C.E., he says that the substitution of automobile "for horse traffic will result in a vast annual saving in road wear, as, from experiments made a few years since, the hammering action of the horses' hoofs was proved to have been responsible for some 45 per cent. of the total road destruction, while atmospheric changes brought about 20 per cent. and wheels 35 per cent."

A Berlin-Vienna Event.

IT is extremely probable that following upon the Paris-Berlin event of next year there will take place a race from Berlin to Vienna, for already the Austrian Automobile Club is in communication with the French and German clubs as to the practicabilities of the scheme. The distance between the two capitals, *via* Reichenberg, is rather less than 600 kilometres (375 miles), and the idea at present is to run the event off in a single stage, that is, so far as the racing category is concerned. Any touring division would certainly require to make a couple of stages of the journey, as for them the jaunt would prove somewhat long. The idea seems a capital one, and if decided three or four days after the Paris-Berlin event, no lack of entries should be forthcoming.

If carried out, the race would take place about June next, but more definite news is likely to be soon made known, and all particulars will be duly registered in the columns of the *Motor-Car Journal*.

The Gordon-Bennett Race of 1901.

OWNERS of racing vehicles will be interested to know that entries of British vehicles for the Gordon-Bennett Race of 1901 must be made by the Automobile Club of Great Britain and Ireland before the end of the present month, and that gentlemen who intend to enter vehicles are requested to communicate with the secretary without delay. Count Zborowski, the Hon. C. S. Rolls, Mr. Mark Mayhew, and Mr. S. F. Edge have already signified their intention to enter vehicles—in each case a 50 h.p. Napier car. As only three vehicles may run in the race to represent the United Kingdom, there will be an eliminating race. This will probably be the Paris-Bordeaux Race.

London Traffic.

COULD country motorists see the streets of London at the present time they would extend sympathy to their brethren in the metropolis. The *Financial News* gives a list of twenty-seven thoroughfares, portions of which are "up." These include Eastcheap, Fenchurch Street, Cornhill, Cheapside, Newgate Street, Ludgate Hill, Farringdon Street, Fleet Street, Holborn, Cannon Street, and Queen Victoria Street, so that it will be seen that nearly all the important streets are being dealt with. We do not complain of the necessary work that has to be done, but the leisurely way in which it is said to progress is annoying, irritating, and troublesome in the extreme.

From Motors to Horses.

THE natural tendency is for the automobile world to recruit from the ranks of horse owners, and dozens of instances may be cited of devotees of the noble steed developing into enthusiastic motor men. Cases of an inverse evolution are infinitely rarer, and for that reason the *début* of Charron last year as a racehorse owner caused quite a sensation in the Parisian sporting world. And now another famous *chauffeur* has entered the horsey arena, and the name of Antony must be added to the list of owners. It was at Auteuil on Sunday last, in a steeplechase event, that the representative of the Mors champion competed, and if not rejoicing in the powers of endurance of the 32 h.p., he at any rate showed greater ability in the matter of jumps. From cycling to automobilism and from automobilism to horse racing, Mr. Debray, to give Antony his real name, would appear desirous to taste the pleasures of every form of racing.

Opening in India.

THERE is likely to be a good market for automobiles in India, and we have an idea that the medical profession of our great Dependency will shortly be as interested in motor-cars as are the doctors in many English places. Confirmation of this comes in a letter just received from a subscriber in Simla. He is an Indian medical man with a fairly large practice, and has felt the inconvenience and uncertainty of horse-traction so much that he is on the look-out for a reliable light motor-vehicle. Hence his interest in the columns of the *Motor-Car Journal*. Probably in our full reports of the shows in London he will find something which may lead him to make direct inquiry to some of our makers of motor-vehicles.

Necessity for Knowledge.

A VISITOR to one of the stands at the National Show was so impressed with the ease with which a certain voiturette was started and made to canter round the North Terrace Gardens, that he nearly ordered a machine on the spot—regarding it as having a relation to the kodak's way of doing things, "You

press the button, etc." It should be the endeavour of motorists to dispel that notion of the simplicity of motor-car driving, as it is an incontrovertible fact that it is absolutely necessary, if the driver is to get out of his vehicle the amount of pleasure that it is capable of giving, that he should have a thorough and comprehensive knowledge of its working. To acquire this is no small task, but it is worth all the trouble; for to be stranded on a lonely country lane or in a busy street with a stubborn motor-car is no delightful experience.

The Big Event of 1901.

LAST week we gave the suggested itinerary of the event with which it is proposed to inaugurate the new century. Starting on the Monday following the August Bank Holiday, the route will be *via* Shaftesbury to Plymouth, and thence by way of Taunton to the destination of the first day's run last year, viz., Bristol. Through Shrewsbury and Warrington the party will get upon the road to Carlisle going through Lancaster and Kendal and over Shap Fell. On August 19th, the automobilists are timed to reach Glasgow, where a week's stay will give manufacturers a good opportunity to interest the many wealthy people in that part of Scotland in motor-cars. A return visit will be paid to Carlisle, and the route will then be to York, *via* Penrith and Boroughbridge. Leaving the cathedral city, Doncaster will be passed through on the way to Norwich and Lincoln, with speed trials at Welbeck. On through Sleaford and Lynn to Norwich, the journey will be continued to Bury St. Edmunds, Newmarket, Hertford, and Barnet, to London. The total distance to be traversed is 1,289 miles, and there will be twelve running days in the three weeks over which the Trial will extend.

Horses v. Automobiles.

ONE advantage of the automobile as compared with horses is that the former can be used without the bother of always taking a man—an advantage that is frequently appreciated by residents in the country. This remark cannot fail to strike thousands of men who dislike the fuss, irrespective of expense, of keeping horses, and in country life, for instance, it is already a common sight to see an automobile on the grass plot standing alone in front of the house just like a bicycle, while its owner is inside fulfilling his errand and giving no thought of the possibility of flies and small boys making his silent steed restless.

The Kaiser's New Cars.

THE automobile carriage delivered to the Emperor of Germany has evidently given complete satisfaction to its royal owner, for from Potsdam comes the interesting news that two additional vehicles have just arrived at the New Palace—one of these cars is a baggage wagon; so the practical, as well as the pleasurable side of automobilism, is to receive its tests at the hands of the Emperor William. What an enormous fillip to the industry in Germany will this royal patronage give, and how grateful should constructors be to the Emperor, to whose personal interest in the movement German automobilism owes so much. Throughout the Empire appreciation of the possibilities of the self-propelled vehicle is now awakened, and the future of the industry is particularly bright. The proposed races, too, will do much to increase the interest, and it is not impossible that in a few years time Germany will be seriously menacing the position of France as the leading country in automobilism.

The Cost of Horses.

COMMENT is being made on the fact that the price of horses of almost every kind has gone up. That, of course, is largely due to the war; but if motor-cars had made more advance the rise would not have been to anything like the extent it is. For example, an omnibus horse now costs 50 per cent. more than it did eighteen months ago, and it is clear that this should help our industry. It may be said that motor-

omnibuses cost a great deal of money to build, and that they cannot be turned out quickly; but it is equally true that you cannot hasten the growth of a horse, and a considerable time must elapse before the present tightness of the market can be relieved. In these circumstances the wonder is that, alike for the carriage of goods and of passengers, no general attempt has been made to use the new power for conveyance by road. The advance in the value of horseflesh is not an advance which, once met, is done with. Omnibus horses last only a very few years, and it is unlikely that the prices will have come down to their old level before fresh animals have to be bought to replace those now stocked. Indeed, there is a constant sale going on. No doubt the companies in London made a nice little sum by the sale of horses for the war; but they have more than lost that advantage since.

The Prince of Wales' New Motor-Cars.

EARLY in August last we were able to announce that as a result of his experience with the 6 h.p. phaeton delivered in June last, H.R.H. the Prince of Wales had placed orders with the Daimler Motor Company for two additional cars—a 12 h.p. wagonette with seating accommodation for eight persons, and a fifteen-seated car of special design for the use of gamekeepers, gun loaders and other servants on the Sandringham estate. Both cars have now been delivered, and this week we are able to publish an illustration of the fifteen-seated wagonette. It is fitted with a 12 h.p. engine, located, as will be seen, under the front seat which is sufficiently wide to accommodate two persons in addition to the driver. Horizontal wheel steering and solid rubber tired wheels are fitted. A feature of the vehicle is that the wagonette seats can be readily detached and the car quickly converted into a luggage wagon. The canopy is carried on telescopic standards, so that when the car is used for the last named purposes, the canopy can be lowered, thus forming a protection in bad weather, etc., to the luggage. The carriage work has been executed by Messrs. Hooper and Co., Limited, St. James Street, W., and it is needless to add that they have carried out the same in an eminently satisfactory manner.

Through Crowded Traffic.

PILOTING a motor-car through the traffic of a crowded thoroughfare is an art which, to be most successfully attained, should be very gradually attempted. Long after the novitiate stage has been passed the average owner of a motor-vehicle frequently lacks such complete mastery over it as renders the art of controlling or the action of steering so impersonal a matter as is the great problem of progression, which, when afoot, solves itself at every step; and until he is conscious of this sense of absolute control of his car, any attempt to traverse crowded thoroughfares merely should be delayed. Even when the attempt is made, the ordinary rules of the road of vehicles should be adhered to. It is most necessary, above all things, to keep perfectly cool and collected. The traffic at the rear will look after itself, so that his watchword should be, in the words of a popular and prudent periodical, "Forward, but not too fast."

MR. FRANK G. CUNDY, 161, Great Portland Street, W., has facilities for storing motors and making repairs.

THE distance from the milestone at the bottom of Dashwood Hill to the danger board at the top is 1,180 yards. The average ascent is 1 in 16, including 352 yards of 1 in 10.9.

SUBSCRIPTIONS to the testimonial to the courteous steward of the Automobile Club are now being received by Mr. H. Edmunds. As the list will be closed on the 15th inst., contributions should be sent without delay. At present the fund amounts to £14 12s.

MR. J. E. HUTTON intends to go to Cannes by motor-car next month, and will be glad to hear from members of the Automobile Club who would like to join him on their cars. The charge for storing an automobile at the *garage* at Cannes is, including cleaning, two francs per day.

HEAVY MOTOR TRAFFIC IN FRANCE.

UNDER the auspices of the Liverpool Self-Propelled Traffic Association, Mons. Forestier, the engineer-in-chief to the Department of Roads and Bridges in France, read a paper on the above subject on Monday in the small concert room of the St. George's Hall, Liverpool. Mr. A. L. Jones, chairman of the council, occupied the chair, and there was a distinguished gathering, including the Earl of Derby (president) and most of the officials of the Association.

The chairman said they were very much indebted to M. Forestier for coming to speak to them. There was no doubt great changes were taking place in this motor question in these days. They had only to see the electric cars which were running through Liverpool to have some idea of what they might expect in the future. He would not go further at present than to anticipate the use of motor-vehicles for work within a short radius of Liverpool—the delivery of coal from Wigan or St. Helens. He would not yet deal with bales and goods from Manchester. It would be better for the present to confine themselves to goods which would not cause much inconvenience if there was a breakdown. From a railway point of view this development was likely to be one of the most valuable that they had ever had. The great difficulty in this country was the cheap transport of agricultural produce. If this could be supplied quickly and cheaply by means of these motor-vehicles there would be a great demand for it, and the cost would be reduced by more than one-half.

M. Forestier then read his paper, which we propose to publish *in extenso*, the first portion appearing on page 686 of the present issue. Upon the conclusion of the paper

The Lord Mayor (Councillor Arthur Crosthwaite) proposed a vote of thanks to M. Forestier for his address on a subject about which so little was at present known in this country, and which would be of the greatest important benefit in the future. They could not afford to neglect any subject that in any way affected commerce. The importance of their relations with France was shown by the increase in their trade. For instance, the growth of imports and exports had been as under since 1861, when they were:—Imports 18 millions, exports 17 millions; 1870, imports 38 millions, exports 22 millions; 1880, imports 42 millions, exports 28 millions; 1890, imports 45 millions, exports 25 millions; 1899, imports 53 millions, exports 22 millions.

Mr. A. G. Lyster, M.Inst.C.E., seconded. He said that Liverpool had to deal with an enormous import and export trade—many millions of tons in the year. Sooner or later that traffic had to be dealt with by the railways, but for the most part it had only to traverse a short distance owing to the favourable position Liverpool occupied in regard to the manufacturing districts she served. Probably the transit of the greater part of the goods did not amount to fifty miles. Whatever might be the reason, the cost by railway was very high. For instance, the cost of carrying a ton of goods to Manchester was about 7s. 6d. Sir Geo. Finlay, the late manager of the L. and N.W. Railway, explained the cause to a Parliamentary Committee by saying that the actual haulage was only about one halfpenny per ton per mile, so that the 35 miles should cost under 1s. 6d. per ton. The difference between this and 7s. 6d. was accounted for by the terminal charges. If they compared this 6s. with the fifteen pence M. Forestier spoke of they would see one strong reason why automotor wagons might succeed in Liverpool, though it might not be the same in France. But 7s. 6d. was not the whole of the charge, for there was something like 10s. per ton removal from the quay to the warehouses in Manchester, or *vice versa*. If they applied the costs of motors given by M. Forestier they would see the entire charge between the Liverpool quays and Manchester warehouses should be something less than 6s. per ton. Therefore what M. Forestier had to tell them should be matter for encouragement for the association, and should promise success for the heavy motor-wagon in Liverpool and its neighbourhood. The question of the roads was a great bogie to many. M. Forestier practically said that macadamised roads would not stand heavy motor-wagons. Why not, therefore, pave the roads? The cost of paving the road to Manchester, ten

yards wide, would be half a million, and the interest on that capital at 4 per cent. would be repaid by a tax of 6d. per ton or less on a million tons of traffic a year. This did not look as if the question of the roads was a serious one. But it would be unnecessary to pave the whole of the road. It would be quite ample to pave wide wing tracks, which could be done at one-third the cost, he maintained. Therefore he was glad to see that the cost of the roads was not likely to be a serious addition to the outlay for running a motor service between Liverpool and Manchester. He thought that after the trials next year the Association would practically, if not absolutely, cease to exist, and then he would hope to see a great development in practical auto-motor work. It was a matter of the highest congratulation to them that the closing scenes of the existence of the Association were marked by the highest praise and sympathy from one of the most distinguished Continental engineers.

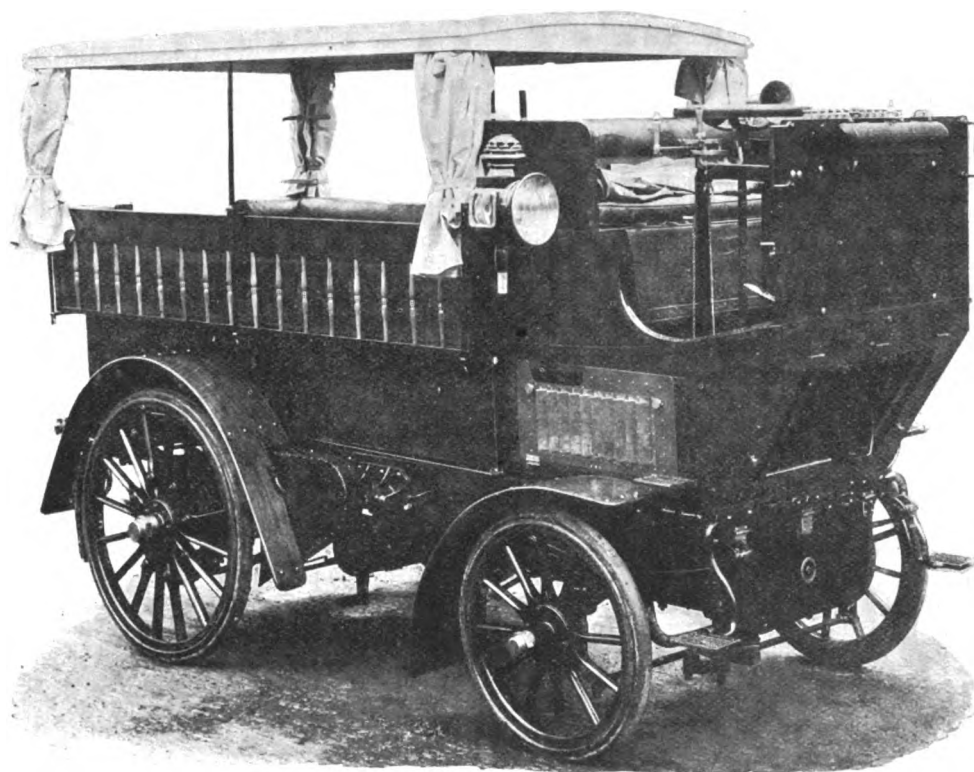
Professor Strong supported the motion conveying a high appreciation of the paper in a graceful and amusing way. The resolution was heartily approved, and M. Forestier briefly responded.

Several cinematographs were then exhibited on the screen showing the working of automobiles, both self-propelled and worked with a trolley, and other views of motors were also shown.

On Tuesday, M. Forestier was entertained at luncheon at the Town Hall. The toasts of "The Queen" and "The President of the French Republic" were proposed by the Lord Mayor, and pledged with musical honours. To the latter the consul for France at Liverpool responded.

The Lord Mayor said it was his good fortune to occupy the post of Chief Magistrate at a time when the Liverpool Self-Propelled Traffic Association were being honoured with a visit from their illustrious guest, Mons. Forestier.

Mr. Alderman Stolterfoht, who spoke in French, proposed the health of Mons. Forestier. He said he desired to take advantage of that occasion to renew the thanks of his fellow citizens to Mons. Forestier for his kindness in accepting the invitation to come to Liverpool, and for his having given them so much useful information on the automobile. We had much to learn from France on this subject, as the French had made great advances in the construction and management of these machines.



H. R. H. THE PRINCE OF WALES'S NEW DAIMLER CAR FOR SERVICE AT SANDRINGHAM (see opposite page.)

Photo by]

[Crosby, Robey, and Co.

The Chairman, having referred to the assistance always given to the council by Professor Hele-Shaw, said that that gentleman's wife had greatly helped them by translating M. Forestier's address, and he had pleasure in presenting her with a souvenir of the occasion.

Professor Hele-Shaw briefly expressed thanks on behalf of his wife and himself.

Lord Derby proposed a hearty vote of thanks to the chairman, and said Mr. Jones had taken this matter in hand from a practical point of view, and, as in other matters, he would follow it up. He said what the Association saw to be wanted in Lancashire was the greater diffusion of traffic when it had passed over the main lines. Terminal charges formed too great a burden on short distance traffic. He hoped Lancashire would flatter France by imitation on the automobile question.

The Chairman said that Liverpool had scarcely any railways alongside its quays, and it had a very large manufacturing centre close at hand; if they connected the two they would greatly strengthen the port of Liverpool.

The lecture which Mons. Forestier had the goodness to give them on the previous evening was extremely interesting, and would be extremely useful. As the Lord Mayor said at the lecture, they welcomed all these occasions where the two countries could enter into friendly rivalry in the paths of commerce, inventions, and arts. They believed that the more France and Britain learned to know each other, the more closely would they draw together in ties of eternal friendship.

M. Forestier thanked the Lord Mayor and the company for their very kind reception, and also the Self-Propelled Traffic Association for their invitation to Liverpool. With reference to heavy motor traffic, he remarked that our macadamised roads seemed fairly good, but he was afraid that heavy traffic would be likely to make a considerable impression on them. He was very pleased to revisit Liverpool after an interval of a good many years. He visited the city as a young man, and he had been gratified to see the magnificent progress the great seaport had made since then.

Mr. Alfred L. Jones proposed the health of the Lord Mayor, and on behalf of the company thanked him for his hospitality.

The Lord Mayor, in reply, said he felt honoured by the presence of so distinguished a visitor, and he would only add that on every occasion when he could in any way be of service to commercial associations interested in the trade of Liverpool he would only be too pleased to do his duty as host.

The proceedings then terminated.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

The "Chauffeurs- Mecaniciens."

A GOODLY number of automobilists have probably never heard of La Société Amicale des Chauffeurs-Mécaniciens, but nevertheless it is an existing, nay, flourishing institution, with offices in the Avenue de la Grande Armée, right in the heart of automobile Paris. It is to this society that one should write when in need of an engineer, for the man recommended is sure to be perfectly competent and can be engaged with every confidence. Founded some twelve months ago, over 150 names stand upon the books as members, and it is to be sincerely hoped that the institution will rapidly increase until it is a power in the land, for with its aid the existing difficulties with regard to procuring competent engineers and drivers should largely, if not entirely, disappear. Saturday evening last saw the young society *en fete*, and with the Count H. de la Valette presiding, a very excellent dinner was done full justice to by a gathering of some eighty members. The work of the society, and the lines on which it is being carried out, received full recognition from the various speakers, and it is evident that the great society, the Automobile Club of France itself, realises the importance of the movements by the *chauffeurs-mecaniciens*.

A Thieving Motor.

LAST week I related in these columns the history of the purloiner of automobiles, and to-day I regret to have to record the performance of a thieving motor. Fuel is scarce, and consequently dear in Paris this winter, and M. Jean Callenet, of Charenton, was cold, very cold. So he called to his aid a client's voiturette, which he had under repair, and with that innocent little machine he hatched a diabolical plot. Together they went to the Boulevard Menilmontant, stealthy and by night, and they just helped themselves from a quantity of wooden blocks intended for the paving of the Boulevard. But, unfortunately for the success of their plan, the only policeman who was not guarding "Oom Paul" at the Hôtel Scribe happened to be at Menilmontant, and moreover was sufficiently awake to perceive the theft and arrest the thieves. The voiturette was sent home to her owners, and poor Mr. Jean was packed off to the *dépôt*.

Motors in a Lottery.

THERE are but few visitors in Paris at the present time, and the wretched weather now prevalent probably prevents the majority of these from indulging in many walks on the Boulevards. Those, however, who are courageous enough to brave the rain may frequently see a somewhat curious little automobile procession. First of all there comes a De Dion motor-cycle, then a Georges-Richard voiturette, and finally a 6 h.p. Panhard phaeton. Each vehicle carries a banner, and, following one another in the order named, they would appear to pass the entire day in driving through all the better-class districts of Paris. All three form part of a multitude of prizes, totalling up to a value of £2,000, which *Le Journal* offers in a lottery to its subscribers for the ensuing year, and although the prices with which the three autos are labelled exaggerate somewhat their actual cost, still one would be heartily content to win any one of them. The new 6 h.p. Panhard, with carriage work by Rothschild, may still total up to £600, but one cannot attach such a value to any but the most recent models. One would hardly consider such a means of attracting subscribers as a sign

of a journal's prosperity, but some of the dailies here have ideas of so extraordinary a nature that *Le Journal's* scheme seems to excite no great surprise.

A Professor's Experiment.

AMONG the stands in the Champ de Mars section of the Paris Exhibition which attracted considerable attention was that of Professor Nernst, of Göttingen, for it was there that samples were shown of the Nernst wire which becomes incandescent in the atmosphere, and yet requires but a third of the electric energy utilised by the ordinary wire placed in a vacuum. The professor would now appear to be experimenting in automobiles, and recently has had an adventure which might well have resulted seriously. Whilst driving a motor-vehicle the indifferent running of the engine caused him to dismount, and he had just commenced an inspection when the carburettor exploded, and in spite of all his efforts the car was entirely burnt. This is what the pioneers of a new movement have to put up with, and the professor's car is by no means the first which has come to an untimely end.

At Achères.

IN order to revive the interest in automobile races, now somewhat flagging by reason of the Government's attitude with regard to the organisation of "courses," the Moto Club of France has hit upon the capital idea of reopening, if possible, the famous route in the Park of Achères, and it is not anticipated that the authorities will raise any objection to the proposed step. For those English readers who do not know this track-like road I may state that it is nearly three kilometres in length, and runs through the agricultural park of Achères in a straight line. Its surface is wonderfully good; indeed, it is altogether an ideal route for speed trials. The most sensational performances ever achieved there were undoubtedly those in connection with the match between the Comte de Chasseloup-Laubat and M. Jenatzy, in the spring of 1899. This series of attacks upon the record eventually culminated in M. Jenatzy's extraordinary performance of April 29th, 1899, when, mounted on his electric torpedo—for the car was nothing else—he covered a kilometre from a flying start in thirty four and one-fifth seconds, which represents a speed of 105 kilometres (sixty-five and five-eighths miles) per hour. The motor cyclists, too, greatly favoured Achères until the park was formally closed for speed trials, and once opened again the Béconnais, Marcellins and Rigals will quickly avail themselves of that marvellous stretch of road upon which to make existing records sing small. The park was closed to would-be record breakers in the late spring of last year, just at the time, indeed, when the anti-automobile agitation was in full swing; but with the almost entire disappearance of public feeling upon the matter it is not likely that the authorities will stand in the way of a renewal of the speed trials. Racing is obviously dangerous under any conditions, but upon the track at Achères the risks are reduced to a minimum, and unless the authorities are determined to entirely stamp out speed trials they cannot refuse the request of the Moto Club. And I cannot believe that total suppression is intended, for racing has done so much in the past for French automobilism that the Government cannot be blind to the advantages offered by its continuance. So, then, we may safely count upon again seeing many exciting attacks upon record at Achères, and with the new and more powerful vehicles the majority of existing figures must inevitably fall.

A Sequel to the Consumption Competition.

SATURDAY last witnessed an interesting sequel to the "consumption competition" which was decided a month ago. It may be remembered that during that competition the two vehicles entered by MM. Gillet-Forest et Cie made the best records in their respective categories, but that neither received official mention by reason of some slight irregularity in connection with the operation of filling their petrol tanks. The organisers of the event, frankly recognising the unfortunate character of

the affair, agreed to afford the constructors an opportunity of publicly demonstrating the capacities of the two competing cars, and accordingly an exact repetition of the original event was carried out last Saturday. The weather was anything but favourable for the demonstration of an automobile, while the recent heavy rains had rendered the roads in a pitiable condition. However, MM. Gillet-Forest were not disturbed by these circumstances, and the two vehicles, having been duly weighed at the Water Company's works at Suresnes, were despatched upon their journey shortly after two o'clock in the afternoon. M. Gentilhomme, secretary to the technical committee of the Automobile Club, and M. Georges Prade accompanied the competing cars as "commissaires," and after an uneventful run the party returned to the Chalets des Cycles. There the tanks were refilled, and the following is the complete return of the test:—Small voiturette—Weight (empty), 541 kilogrammes; weight in complete running order, 685 kilogrammes. Time for distance of seventy kilometres, 3 hours 1 minute; consumption, 4 litres 160. Voiturette—Weight (empty), 710 kilogrammes; weight in complete running order, 873 kilogrammes. Time for distance of 70 kilometres, 3 hours 27 minutes; consumption, 4 litres 850; the consumption per ton kilométrique was therefore for the small voiturette 0 litre 0867, and for the larger vehicle 0 litre 0793, truly excellent records, and sufficient to place both cars at the head of their respective categories. Both automobiles were provided with similar motors, developing 5 h.p. at 800 revolutions per minute. The diameter of the cylinder of this engine is 115 mm. and the piston stroke 140 mm. These tests entirely confirm the results obtained in the competition proper, and have drawn considerable attention to MM. Gillet-Forest and Co.'s production.

Count Potocki.

No one who has passed through that superb Parisian thoroughfare, the Avenue Friedland, can have failed to notice the magnificent residence of Count Potocki, which is situated on the left hand side of the avenue as one mounts towards the Place de l'Etoile. The Count, who is of Polish nationality, is an enthusiast of the new sport, and one frequently sees one or another type of automobile passing through the gateway of his beautiful *hôtel*. In other capitals of Europe, too, the name of Potocki is well-known in automobile circles, and quite recently Count J. Potocki made a tour from Vienna to St. Petersburg and back by way Kiew, Warsaw, and Moscow. The nine horse-power car upon which the Count and Countess made the journey acquitted itself so well, in spite of the heavy going, that a number of vehicles of similar construction are likely to be put to work at the great sugar manufactories owned by the Count in Russia. So once again does automobilism find its way into an industrial sphere through a sporting introduction.

A COMPANY has just been formed in Brussels with a capital of £12,000, to be known as La Société L'Automobile D'Incendie.

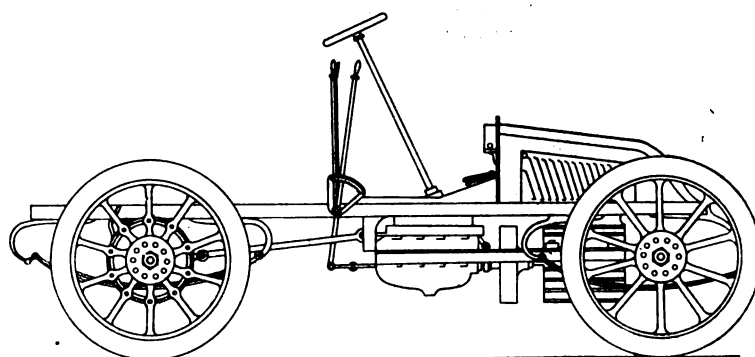
THE Roadway Autocar Company, Ltd., 44, Berners Street, Oxford Street, W.C., have on view a new type of Mors voiturette with its 5 h.p. located under a bonnet in the fore part of the frame. With its *tonneau* body, the car has an attractive appearance.

MR. PERCY HUNTER and Mr. W. J. Elliott have arrived at Melbourne with motor-cycles to convey a despatch from the Lieutenant-Governor to Lord Beauchamp. The object of the trial was not only to test the motor-cycle as a despatch-carrier in time of war, but to give these machines a really honest trial over Australian roads.

AT the recent Automobile Show in New York the De Dion-Bouton Motorette Co. exhibited what they term their physician's model. The frame design, speed changing gear, levers for operating, etc., are similar to the well-known De Dion Voiturette, but, in addition to the advantages possessed by that carriage, the doctor's coupé affords complete protection from storms, etc. It has a box of neat design, mounted in front, which affords a large storage space.

THE KNOWLES-CHAIN VOITURETTE.

WE give an illustration of a new voiturette which is being introduced by Messrs. Knowles-Chain, of No. 10 bis, Avenue de la Grande Armée, Paris, for the 1901 season. The motive power is supplied by a Buchet double-cylindred motor of either 8 or 12 h.p., whilst the approximate weight of the car complete is 400 kilos. Three speeds and reverse are fitted, and with the 8 h.p. motor sixty kilometres can be accomplished in the hour. The Panhard system of transmission is adopted and the gear is enclosed in an aluminium case. There is but one side lever for the various speeds; powerful brakes are fitted, and the artillery type road wheels are shod with 80 mm. pneumatic tires. The car is solidly built throughout, and its exceptionally long wheel base ensures stability on the road. A high-powered voiturette at a reasonable price is an article for which the public has long been waiting, and whose advent will be hailed with alacrity in a variety of quarters, for, excellent as are the voiturettes on the market, many are deficient in hill-climbing power. Several forms of bodies can be fitted to the car, from the favourite *tonneau*, which gives it a very smart appearance, to the useful delivery van. Later on we look



forward to an extended trial of the Knowles-Chain voiturette, and entertain no doubt but what it will successfully fulfil all the claims made for it.

PROOF was led in the Sheriff Court, Forfar, last week, in an action for damages for alleged injuries caused through a motor-car accident, the defendant being Dr. French, of Forfar. The case was adjourned.

MR. MARK MAYHEW, L.C.C., has been elected to the committee of the Automobile Club. Twenty-eight gentlemen have just been elected to membership, among them being the Hon. Ivor C. Guest, M.P.

MESSRS JOSEPH LUCAS, LTD., of Birmingham, have been appointed sole agents for the United Kingdom for the motor lubricants made by the Henry Wells Oil Company of the Imperial Oil Works, Deansgate, Manchester. They will be sold under the name of the "Wells-Lucas" specialities, and a full range of samples may be seen at the London office of Messrs. Joseph Lucas, Ltd., 1, Dyer's Buildings, Holborn, E.C.

THE Simms Manufacturing Company, Limited, has been registered with a capital of £25,000 to adopt agreements (1) with F. R. Simms, and (2) with Bryan Donkin and Clinch, Limited, and to carry on the business of motor, motor and other carriages, van, wagon, boat, launch, and flying machine builders etc., The first directors are Mr. F. R. Simms and Mr. E. B. Donkin, or other nominee of Bryan Donkin and Clinch, Limited.

THE Holden Motor Patents Syndicate, Limited, has been registered with a capital of £10,000 to carry on the business of omnibus, van, carriage, launch, boat, and vehicle builders, cycle, motor-car, and flying machine manufacturers, etc. The first directors are Lieut.-Colonel C. E. McDonald, Lieut.-Colonel C. M. Davidson, E. P. Favarger, and G. L. Hillier. The Motor Traction Company, Ltd., and Major H. C. L. Holden have certain rights of nominating directors.

CORRESPONDENCE.

THE HEATING OF MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In replying to "Heated" respecting his Benz car, let him see if the water in the tank is hot after running the car for a short period. If it is not, let him look to the joints connected to the water jacket, as there must be a stoppage somewhere, preventing circulation. If he finds that the water in the tank does get hot, let the quality of lubricant used be enquired into, and also the speed of engine, which should not exceed 500 revolutions per minute.

Yours truly,

Manchester, Dec. 3rd, 1900.

S. S.

MOTOR CYCLES WITH FREE MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am sorry to see that there are not more motor-cycles on the market fitted with free motors. It seems to me that a motor-cycle should have a clutch, applied in such a way that it cannot possibly cause an accident by acting of itself, and so placed that the motor can be started by the pedals in preference to key-starting.

I have hitherto found the difficulty of obtaining a friction clutch a great hindrance to purchasing a motor-cycle, as many of the roads in this neighbourhood are too narrow to allow of running back and turning round in case of a stoppage halfway up a hill.

Yours truly,

Windermere, Harpenden, Herts,
Dec. 4, 1900.

CECIL JACKSON.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in your last issue another letter from Mr. A. L. Bennett, speaking highly of the Werner motor-bicycle. In his former letter I think Mr. Bennett mentioned a long ride over Devonshire roads, at an average speed of seventeen miles an hour.

I also have a Werner, and, although I think well of the little machine in many respects, I have not found its average over a hilly country anything remarkable.

If Mr. Bennett is likely to bring his machine to Devonshire again, I should be very pleased to have a trial with him, my mount to be nothing more formidable than a standard 2½ De Dion tricycle of medium gear, the distance to be 20 or 30 miles over high roads, and the conditions that neither rider pedals except to restart in case of accidental stoppage; stakes or no stakes, as desired.

We constantly hear the Werner men say they can beat any tricycle; I want to see it done. I say nothing against the Werner. It is a handy little machine, of elegant design, very fast on the level; the ignition is capital, and I do not find sideslips frequent. The belt is a nuisance, and the carburation troublesome. As to amateur adjustments being detrimental, I cannot agree. My machine when sent me used to backfire at any speed less than ten miles an hour, and could not be started up a hill. Now that I have altered the cam, I can start anywhere and run at three miles an hour if desired.

Yours truly,

W. E. TESCHEMAKER.

Ringmore, Teignmouth.
Dec. 3rd, 1900.

THE RECENT ELECTRICAL CAR TRIALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. Opperman's letter which appeared in your issue of the 1st inst. calls for a few remarks. As a body, I think the owners of the cars would repudiate the suggestion that the trials were too severe, or that the constant running under the difficult conditions ruined or tended to ruin the batteries. It appears that such a suggestion is far more calculated to injure the growing industry than the trials themselves. It is well known that one firm ran their car upon the Southsea tour with the same batteries that had been used throughout the trials, and it may be

interesting to say that the identical set of batteries has now been sold for lighting purposes. This does not seem to indicate that they were damaged by the severe conditions of the trials.

It is quite true that some dissatisfaction was felt by the manufacturers engaged. These points will no doubt be remedied in future trials of electromobiles which the Automobile Club may conduct.

The matters which chiefly affected the owners were:—

(a) The trials being only suitable for certain classes of vehicles. It is well known that light electromobiles are constructed for town use and for light work. On such cars powerful motors are unnecessary, and they are not provided. The trials all took place under the same severe conditions, thus excluding several types of carriage. Manufacturers, not being consulted as to the trials, were consequently quite in the dark as to what class of car they should enter. It was naturally presumed that the trials would be varied. As a matter of fact, it was a prolonged hill-climbing test.

(b) No decent arrangements were made to enable carriages to be attended to; expensive cars were housed in broken-down sheds of the most filthy description; there were inches of liquid mud on the floors; rain came through the roof; the sheds were doorless and the cars and attendants were nightly exposed to the full force of wind and rain. On the first night two cars had to stand in the open. It rained the whole night! No information being given as to where the trials were to be held, no arrangements could be made for the lodging of the attendants. One company which had entered several cars found that the hotels near the charging station were already occupied. As a result, their staff had to be divided between two hotels, each more than a mile from the charging station and over two miles from each other. As all charging of cars took place at night, the inconvenience and expense of this arrangement was considerable.

(c) Those who had entered cars were treated as competitors instead of as manufacturers with one object in view, namely, the progress of electromobilism. Most stringent and unprecedented rules were enforced with the utmost severity, and the conditions generally were not calculated to bring out the advantages of electrical self-propelled traction. In spite of these restrictions the following is the unbiased view of one of the leading electrical papers: "The results obtained under great disadvantages must be accepted as proving the practicability of electrical propulsion on common roads. The trials in every way established the commercial utility of the electromobile once for all in this country. The long-distance run on rough roads and through hilly districts on one charge, the ease of control, their reliability, smoothness in running, absence of vibration, and economy of electric energy, make the electrically-propelled carriage an assured success."

It is necessary to add that the officials at the charging station did everything in their power to assist those engaged on the trials, and their courtesy was the redeeming feature of the week. It is, however, to be hoped that much more efficient charging arrangements will be made on any future occasion.

Yours truly,

4, Bloomsbury Place, W.C.,
December 5, 1900.

THEODORE G. CHAMBERS.

ELECTRIC IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to a paragraph on page 631 of your last issue, of the 24th ult. in writing about motor-vehicles, you suggest that those carriages fitted with electric ignition run a certain risk in wet weather of short circuiting. I am afraid that electric ignition has acquired this reputation not through the experience of people who have used it on cars, but through its use on tricycles in absolutely exposed positions. On any modern car the induction coil is set on the foot-board and the high tension wire has only a few inches to run from the coil to the sparking plug, and as it is inside the motor bonnet, where the warmth of the engine keeps everything perfectly dry, I do not think you could put high tension electric wires under better conditions, and no amount of external wet or rain can affect them. The low tension wires are also brought over comparatively speaking short

distances, but in their case even if they were carried right through water it would not cause short circuiting.

After a very lengthy experience of both lamp and electric ignition, I unhesitatingly state that electric ignition is infinitely more reliable than tube ignition under all conditions of use and weather. Its one drawback is that to fit it properly on large carriages it is rather costly, costing many more pounds to fit than tube ignition.

Yours truly,
S. F. EDGE.

14, Regent Street, London, S.W.,
November 29th, 1900.

ALCOHOL VERSUS PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Concerning the performances of the Gobron-Brillié alcohol-driven motors referred to in your issue of the 24th ult., it would be of greatest interest if any of your readers could afford information as to the quantity and quality of alcohol consumed by these cars, with a comparison as to the amount of petrol consumed by the same or similar cars.

Yours truly,
JOHN ABBOTT.

Mirasol, Granville Road, Eastbourne,
1st December, 1900.

COMPARATIVE RUNNING COST OF OIL AND STEAM MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of the 24th November one of your correspondents gives a very interesting account of his steam-car's work. As he evidently has had considerable experience with oil-driven cars, will he state what quantity of fuel, and its kind, he finds from experience is used in the two cases per unit? This information from actual experience will, I feel sure, interest many of your readers.

Yours truly,
Rugby, December 3, 1900. CUSH.

THE ESTCOURT INDUCTION VALVE FOR DAIMLER MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the description of the above in your issue of Oct. 27th, I have had my valves converted, at the most reasonable cost of 4s. each, and can endorse all the claims made for the device—my car pulls double, so to say. Excepting some very steep hills, of which we have only too many, I take all rising ground on second speed where it was hard work for first speed formerly.

Yours truly,
JOHN G. KIRSTEN.

Southborough, Tunbridge Wells,
Nov. 30th, 1900.

THE 1,000-MILE NON-STOP RUN OF THE DECAUVILLE CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read the note on above, and am much surprised at same, as many more must be. Now it is generally understood that motors generate heat, but here we find frost—Is it a skit or actual truth? If the latter, surely the owners have been using a refrigerator or ice-cream affair to keep their coppers (cylinders) cool. Now, if this is so, it is hardly fair for the public, as no such ice-makers are included in the specification of the 5 h.p. car, but probably they were only used in the 8 h.p., and the 5 h.p. was not ice-cooled.

The 5 h.p. cars have lever steering, wire wheels, no aluminium gear covers and no reverse, so are not very much up to date, but probably refrigerator manufacturers and such make up for these in the price. Evidently

there is no snowstorm manufactory provided, or the driver would have switched it on and put out the fire; probably he was too petrified to do so.

I hope we shall have an explanation of this frost; how it came about, and what was frozen; it might benefit your correspondent "Heated," and others.

Yours,
Scarborough, December 4, 1900. AMATEUR.

CARBURETTORS FOR MOTOR-TRICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a constant reader of your paper and an enthusiastic motor-tricycle rider, I was not a little surprised to see in the current issue those remarks (re the dangerous character of the surface carburettor) which appeared in the article on motor-tricycles. Having recently purchased a machine with carburettor of this kind, I am bound to say it has aroused a considerable degree of uneasiness in my mind, as I have not the slightest desire to leave earth just yet. I think that the statement in question is calculated to cause no small amount of alarm to tricycle riders. What have your numerous readers to say on the matter? I shall look forward to replies with much interest.

Yours truly,
Birmingham, December 5, 1900. ALARMED.

MOTOR-CARS FOR MEDICAL MEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The letter of "M.R.C.S.," in your last week's issue, really speaks from the voice of scores of medical men who I know are all anxiously waiting to find out what motor-car will suit their requirements.

I for one feel afraid to purchase, in case I should find that in use it did not suit my purposes; therefore, in my humble mind, it behoves makers to study clients' requirements, and more particularly medical men, for in that profession there is, and will be, a very great demand.

What is required is a machine to hold two persons, high power, covered in from the weather, and nice looking. Speed is not of such great importance; power is important, so that we country men may push through mud and stony roads. Pneumatic tires are a great trouble. I had them (Dunlops) on my trap, and they were most troublesome and expensive, therefore solids are to be preferred.

Personally, I think no car should be purchased that does not reverse, and if possible it ought to be started from the seat, that turning the wheel from the back is so undignified.

A friend of mine has lately bought a "Hurtu." It holds two, with a small seat in front for a third person, if required; it is well hooded and has a glass front for wet weather (I believe the Marshall is a copy of it). It appears to me to be the most suitable car for a medical man that I have seen yet, for it has plenty of power (5 or 6 h.p.), does not make more than the average noise, and climbs hills, but I hear it is often stopping and being towed home by a pony.

Fancy a poor country medical man, getting ten miles from home at night and his motor jibs! The air would be "blue" for miles. I am most anxious to purchase a car, but I must be satisfied it will go in all weathers and not jib with me when far from home.

I shall carefully take your journal, study it, and watch until I can see the thing to suit me, and trust in the meantime you will allow letters to be written by medical men stating their failures as well as their successes, so that the poor parish surgeon may not be advised to buy a machine that will fail him in the critical moment.

Yours truly,
Romford, December 3rd, 1900. M. D.

By reading papers at local literary societies, etc., those interested in automobilism may do much to popularise the motor-car. Mr. H. Edmunds has recently performed such service before the Streatham and Tulse Hill Literary Society, and we notice in a syllabus of a Wandsworth literary society that a paper is being prepared on "Twentieth Century Travelling," by a well-known contributor to the automobile press.

Motor-Cars at the Cycle Shows.



IN our last issue we described many of the stands of interest to automobilists at the two cycle shows then in progress at the Crystal Palace and the Agricultural Hall respectively. Considerations of space prevented the completion of our report; hence the further pages devoted to the subject in our current number. The reports appearing during the two weeks present the fullest account of the motor and accessories exhibits that has been published, and will doubtless be of interest to the public and of value to the trade.

THE NATIONAL SHOW.

The Orient Express Car Syndicate, of Balderton Street, Oxford Street, W., had on view a number of Orient Express cars, including a

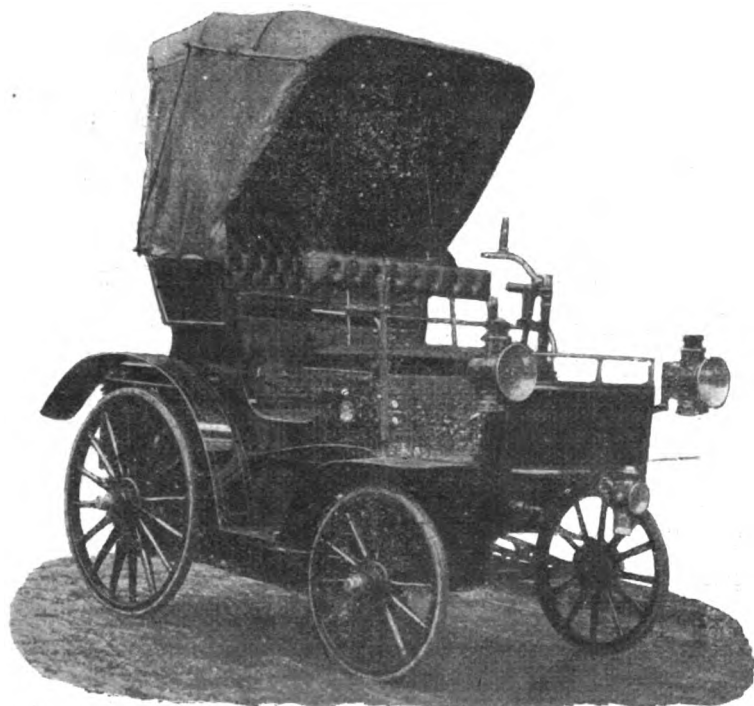


FIG. 1.—THE ORIENT EXPRESS 6-H.P. PHAETON.

duc, a *vis-a-vis* dog-cart, and a four-seated hooded phaeton. Of the latter we are able to give an illustration in Fig. 1. It is fitted with a 6 h.p. horizontal single cylinder motor. The ignition is magneto-electrical, the cylinders are water-cooled, and the transmission is by means of belts with jockey tighteners. The "Orient Express" cars, which are of German construction, are exceedingly elegant in design, and by reason of their relatively low cost should become very popular. Three forward speeds and one reverse motion are available, belt transmission being adopted. The speeds are actuated by a jockey pulley, which is pulled down on to the belts by a lever worked by hand. The car is easily driven, the whole of the lever, etc., being close to hand. It is fitted with artillery wood wheels, shod with either pneumatic or solid rubber tires as desired. The belt pulleys are made of aluminium, and, although no pump is usually fitted, provision is made so that one can readily be affixed. The engine is lubricated by a central oiler, actuated from the seat, while a useful feature is that the motor and gearing are protected from dirt and wet by a detachable guard. A pedal controls a hand brake on the countershaft. The pedal has two positions; if the countershaft brake is not sufficient to pull up the car, the further depression of the pedal put on the double acting brakes (also operated by a hand lever) on the rear wheel hubs slackens the driving belt. The car weighs about 14 cwt., and can attain a speed of from twenty to twenty-five miles per hour. In addition to the "Orient Express" cars, the company were showing their new "Bergmann" magneto-electric ignition apparatus, which has the advantage over the ordinary magneto that it is rotary. We hope to illustrate and describe this in a later issue.

The *tonneau*, or four-seated wagonette, has so rapidly sprung into popularity that it was not surprising to find a De Dion voiturette fitted with a body of this type forming a prominent feature on the stand of the De Dion-Bouton British and Colonial Syndicate, Limited. It is driven by a 4½ h.p. water-cooled De Dion motor fitted with electric ignition and an exhaust valve lifter; the engine is located in the rear part of a tubular frame. Two speeds—six and twenty-five miles per hour—are

provided, the power being transmitted to the rear axle by a special gear. The differential gear runs on ball bearings, and is mounted on supports fixed upon the frame. The two axles driven by it have two steel sleeves in each end, in which are fitted the extremities of the universally-jointed axles. The opposite extremities of these axles fit in the same manner in the sleeves which complete the spindle. The ends of these axles are solid, with square joints, which serve to drive the hubs of the rear wheels. The carriage body is constructed with all the sides in sheet aluminium, so that the total weight of the voiturette does not exceed 800 lbs. It is made to carry four persons comfortably seated. The four wheels are all 26 in. diameter, fitted with 3 in. Dunlop pneumatic tires. The length of the carriage over all is 8 ft., and the width is 4 ft. 4 in. There are two brakes—one acting upon the drum on differential gear, and one on the brake drums on the two back wheels. The petrol tank contains about two gallons of spirit, and this quantity is said to be sufficient to run the car from fifty to seventy miles, according to the weather and state of the roads. The water circulation is maintained by a pump, a radiating coil being also fitted in the fore-part of the frame. The Victoria voiturette displayed was arranged to seat four persons, all persons facing forward. This car is identical with the *tonneau* as regards the motor and transmission, the body in this case being of English manufacture. A "Standard" voiturette of similar build, but with the seats arranged for the four passengers to sit *vis à vis*, was also to be seen. A machine which attracted considerable attention was the 8 h.p. De Dion tricycle on which Mr. C. Jarrott recently established a new hour record. An example of the 1901 model De Dion 2½ h.p. motor-tricycle was also on view. Numerous improvements have been recently effected in this machine, a rear view of which is given in Fig. 2. The most striking departure is the fitting of a clutch which permits of the motor being started by pedalling in the usual way, but of course much more easily than is usual, for the tricycle itself remains stationary. The clutch can be seen in the illustration at the right side of the gear case. It is a simple cone clutch, but the leather lining is placed on the male drum edgewise and crosswise in sections of about a quarter of an inch square and one and a half inches long. The drum is recessed on its outer face, and the pieces of leather are cemented into the recesses, but project above the metal face. To prevent any slipping round the drum of these leathers, pieces of metal, the same shape, but not so thick as the leathers, are pinned crosswise into the recess at intervals. The female portion of the clutch is all metal, and the gripping cone is kept up to its place by a number of spiral springs placed as near as possible to the outer circumference of the cone, and exerting an equal pressure all round. The clutch is worked in a simple manner. The front wheel brake is done away with, but the lever on the handle-bar remains, and this actuates a rod in connection with the clutch over the back axle. When the lever is down the friction clutch is engaged, and the tricycle moves forward in the usual manner. When the lever is slightly pulled towards the handle bar the clutch is disengaged and the engine runs free, the tri-

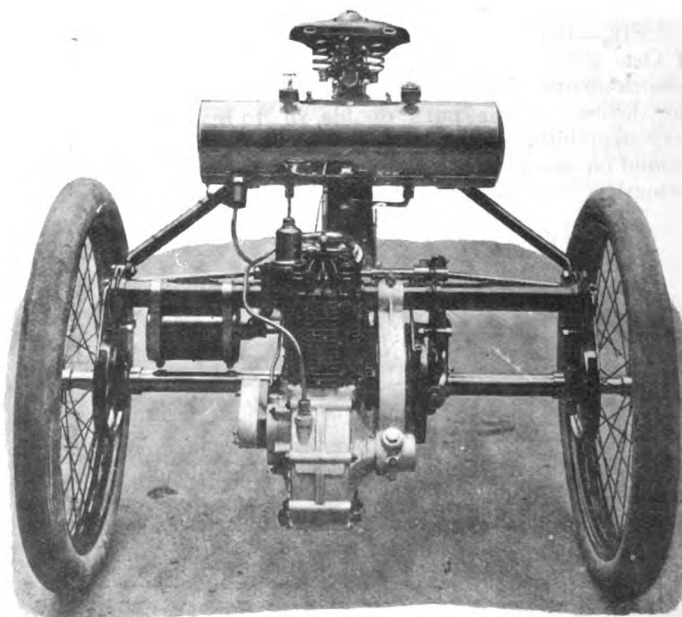


FIG. 2.—THE NEW DE DION TRICYCLE WITH FREE MOTOR.

cycle standing still on the road. Pulling the lever yet harder applies a brake on the back axle. This brake is an addition to other hand brakes placed near the driving wheels, so that although the front brake is abolished the brake power is really much greater than on an ordinary

motor-tricycle. The two side hand brakes are worked by the left-hand lever on the handle-bar. It should be mentioned that the normal position of the clutch is "in." It is only necessary to use the lever when it is desired to free the engine. Another change in the tricycle is that the induction coil has been removed from its old position under the axle bridge and is now fitted in the end of the tank, which is prolonged for the purpose, the vital high tension wire being thus protected from short circuiting. Hitherto in wet weather the water running along the high tension wire on the coil on the axle to the sparking plug has frequently caused short circuiting, but now the high tension wire to the coil is protected at the top by an inverted vulcanite cap, and, as this also covers the top terminal, that cannot get wet, so that surface connection between it and the plug cannot be made by heavy rain. The new De Dion lubricating pump is also fitted to the central division of the tank, whilst the right-hand side is devoted to the carriage of a reserve supply of petroleum spirit. It is interesting to note that Messrs. De Dion and Bouton are now making their own electrical dry batteries, and have fitted up a special department at their works at Puteaux for the purpose of dealing with the electrical part of their business.

It has been known for some time that the New Centaur Cycle Company, Ltd., of Coventry, have been making experiments with motor-vehicles, so that the car and frame they exhibited last week were inspected with keen interest by motorists. A complete car, as also a frame replete with motor and transmission gear, were staged. The vehicle (Fig. 3) takes the form of an attractive four-seated dog-cart mounted on an independent tubular frame, in the rear of which the engine is situated. The latter is of the horizontal petrol type and is of 4½ h.p.; it is fitted with electric ignition and a float-feed carburettor, while the water-circulation is on the thermo-siphon system, the water tank and a radiator being fitted in front. A special timing-lever is fitted, which is actuated by a lever placed conveniently beneath the steering wheel. The mixture lever is placed near the timing lever, and the electric switch is on the steering wheel in a position to be manipulated with the thumb of the right hand. The sparking plug is protected from injury by a metal case which surrounds it. As regards the transmission, this is on the Benz system—that is to say, it is effected by means of two belts working on fast and loose pulleys on to a counter-shaft, Renold roller chains conveying the power from the latter to the rear road wheels. Three speeds forward are available, the low hill-climbing speed being obtained by a Crypto gear controlled by a foot pedal; a reverse motion can be fitted if desired.

Inclined wheel steering is provided, and on the pillar are grouped the various controlling handles, the switch making and breaking the electrical circuit being mounted on the steering wheel. A foot pedal controls a band brake on the counter-shaft, while similar brakes, actuated by a hand lever, are fitted on drums attached to the hubs of the rear road wheels. A special feature of the hand brakes is that they are fitted with a compensating arrangement, which distributes the pressure equally upon both wheels, thus preventing the tendency to swerve. The engine is started by a detachable handle at the rear. The countershaft, which plays such an important part in the transmission of the power from the motor to the driving wheels, is mounted upon ball bearings of special construction. They are of the long barrel type, and similar to those used for the crank bearings of cycles. There are three of them—the two outside ones running upon two rows of balls, and the middle one upon a single row. They are disc-adjusting, with large oil-retaining chambers. These bearings are so mounted as to resist cross winding strains, and to admit of the countershaft being moved forward in perfect alignment. The car exhibited was fitted with cycle type wheels and Dunlop pneumatic tires, but the makers will also fit wood wheels if these are preferred by purchasers. Sufficient petroleum spirit can be carried for a run of 110 miles; the top speed available is about twenty-five miles per hour, while we may add that the car complete weighs about 10½ cwt. That much care has been devoted to the production of this car is evidenced by the workmanship of the various parts, such as engine cranks, steering gear, etc., examples of which were to be seen on the stand. In this connection, too, we may mention that a neat adjustment is provided for taking up any wear of the driving chains and that the chain wheels on the counter-shaft run on a double row of ball bearings. The car body is so constructed that ready access can be had to the engine and working parts.

The International Motor Company had two large stands, one of which was entirely devoted to the new "Charette" illustrated and

described in our issue of the 24th ult. Of these four complete cars were shown, one painted black with red lines, one gray with red lines, one red and black, and one blue and black. In order that visitors might inspect the working parts and workmanship of these vehicles, the company exhibited a frame, complete with motor and transmission, but minus the body. On the other stand, in addition to a light delivery van and three or four of their well-known International cars on Benz lines to seat two and three persons, the company shewed a frame fitted with motor and transmission gear complete of their 10 h.p. car. It has often been complained of by exhibition visitors that the working parts of automobiles are not exposed to view, but nothing could be said against the International Company on this score. The cars are now too well known to need a lengthy description at this time, so we devote the space at our disposal to a brief mention of the new frame, which bears the legend "Made in England." The engine is of the tandem type of 10 h.p., it is mounted on a channel steel frame. The motor has two cylinders, the pistons of which work on to a common crank shaft; the cranks work in an oil containing case. Three speeds, by means of belts working on fast and loose pulleys, are provided, as also a reverse motion. A new feature is the arrangement of the pedal controlling the hand brakes, the belts being all shipped on to the loose pulleys on the application of the brakes. The motor-cylinders are water-jacketed, two cooling coils being fitted—one at the front and one at the rear of the car. Steering is controlled by a hand-wheel, so placed that the driver may sit either on the right or left hand. Automatic lubrication is provided throughout; while another new feature is the employment of a double exhaust silencer. The car, which weighs complete about 12 cwt., has petrol and water storage capacity sufficient for a run of 120 miles. Another interesting vehicle was a 6 h.p. dogcart with hood. This is fitted with a two-cylinder

motor, three speeds forward and one reverse, pump, and two radiators. Considerable interest was shown in the International 3 h.p. dogcart which had been driven 9,982 miles. During this time there has been no accident, the total actual repairs being three cones to the ball bearings, costing a few shillings only. In addition, by fair wear and tear, a pair of chains and a pair of small sprockets have been worn out, and owing to the heavy district the car has been used, a new brake drum was necessary. We may state that the car has been run almost the entire distance by a doctor, who used it in his professional duties.

The novelty on the stand of the Hozier Engineering Company, Ltd., Hozier Street, Bridgeton, Glasgow, was the four-seated "Argyll" car, which was

exhibited for the first time. The frame is of tubular construction, in the fore part of which, under a light bonnet, is mounted a 5-h.p. vertical De Dion motor. It is of the water-jacketed type; no pump is employed, the circulation being on the thermo-siphon system. Only a relatively small quantity of water is carried, a radiating coil being fitted around the bonnet. In the transmission mechanism no chains or belts are employed; two forward speeds and a reverse motion are provided, and a maximum speed of thirty miles an hour can be obtained. The engine, which is set transversely in the frame, transmits its power through a friction clutch to a train of spur wheels meshing with a similar train on a parallel shaft, a bevel wheel on the rear end of the latter gearing with a bevel pinion on the rear live axle. The gears are all enclosed in oil-containing cases, and a feature of the variable-speed gear is that the wheels are always in mesh. The forward speeds are controlled by a hand lever at the side of the car; the reverse motion is obtained by a special device controlled by a foot pedal. Ample brakes are provided, there being a band brake on the countershaft and similar brakes on drums attached to the hubs of the rear wheels. Wheel steering is fitted, while the cycle-type road wheels are shod with pneumatic tires. The car body is neatly upholstered, and is painted red and black; the rear can be detached, thus giving ample room for luggage, in addition to two passengers. The vehicle complete weighs about 8 cwt. The Hozier Company also displayed a couple of their well-known two or three-seated "Argyll" voiturettes; these are fitted with 3 h.p. water-cooled De Dion motors; no pump is employed, but a Clarkson-Capel radiator is fitted in the front part of the car. The general arrangement is the same as in the 5 h.p. car; the motor is placed in front, the main shaft being at right angles to the axles. To the motor a friction clutch is fitted in conjunction with a band brake; by pressure on a foot pedal the motor runs free, and simultaneously the band brake pulls the car up. The variable gear is arranged to give approximately eighteen, twelve, and six miles per hour; also a slow reverse. The power is transmitted from the gear box to the differential gear on the back axle by means of bevel gear. The road wheels are of

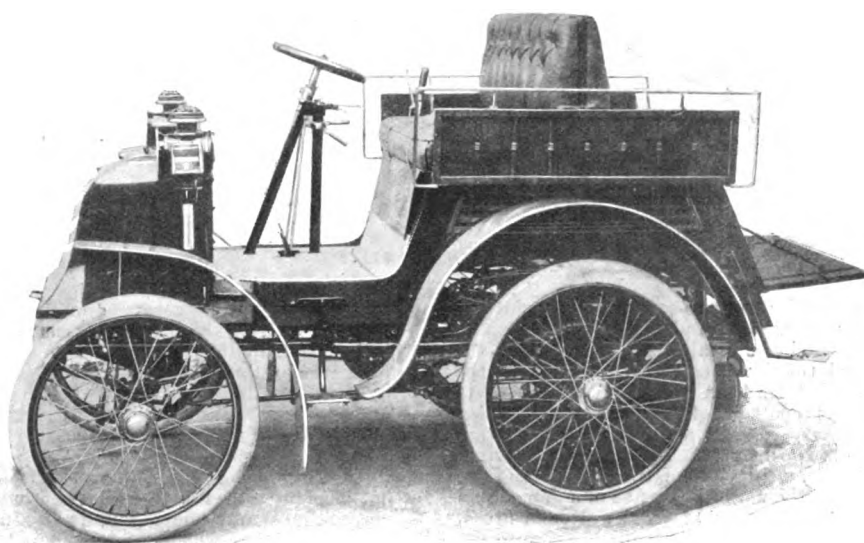


FIG. 3.—THE "CENTAUR" MOTOR-CAR.

the cycle type, 26 in. diameter at the front and 30 in. at the rear, all being shod with Clipper 2½ in. pneumatic tires. The two-seated cars weigh complete about 4½ cwt.

An exhibit which attracted considerable attention was the "Traveller" voiturette, displayed by the Alldays and Onions Pneumatic Engineering Company, Ltd., of Birmingham, and illustrated in Fig. 4. The well-known motor-quad serves as the basis of this vehicle, but an attempt has



FIG. 4.—ALLDAY'S "TRAVELLER" VOITURETTE.

been made to improve on the popular form of two-seater. The width of the car is the same as that of a "quad," but in place of a front seat and a rear saddle, it has two upholstered comfortable seats one behind the other. The frame is of the usual tubular construction, and under the rear seat is fitted a 2½ h.p. air-cooled De Dion motor. We are glad to learn that in future vehicles it is proposed to fit a 3 h.p. water-cooled engine of the same type. A two-speed gear and a friction clutch are provided, the motor being geared to the rear axle through spur gearing. No pedals or chains are provided, as, in view of the provision of the friction clutch, it is possible to start the motor by means of a detachable handle before mounting the car. A Longuemare carburettor is fitted, while a special primary battery, known as the Doe, is used in connection with the electric ignition. The driver occupies the rear seat, and steers the car by means of an inclined hand wheel; he also has at his command a foot pedal controlling a band brake on the rear axle, and a band brake, operated by a hand lever, on the counter-shaft. Clipper pneumatic tires are fitted to the cycle-type road wheels, while the two speeds provided are equal to about 4 and 18 miles per hour. The front seat, which is suspended on springs, can be easily detached, and a small sample-carrying box fitted in its place, rendering the machine very suitable for the use of commercial travellers.

Considerable interest was centred in the new motor-bicycle shown by Messrs. Burrow, Strutt, and Co., of 10, Basinghall Street, London, E.C. The machine, which is known as the "Minerva," is of German construction. The motor is of the air-cooled single-cylinder petrol type, and is of 1½ h.p. It is fixed with four screws below the tube extending from the ball-head to the bottom bracket of the main frame, and the box containing the carburettor and petrol tank is attached to the horizontal tube by two loops. The box also carries the battery and induction coil, the latter being thus protected against wind or rain. At ordinary speed the engine runs at 1,500 revolutions per minute, equal to about 20 miles an hour. By varying the sparking and mixture any speed from 5 miles up to 32 miles per hour may, however, be obtained. The motor shaft carries at its end a small pulley, which is connected by a strap to a light pulley attached to the rear wheel. The engine, petrol tank, and driving arrangement weighs complete about 40 lb., and can be fitted to any bicycle having a frame from 23 in. to 26 in. The "Minerva" motor-bicycle weighs complete 66 lb., and its low price (£35) is likely to cause it to be enquired into further.

Another exhibit of interest was to be found in a new three-seated car of German construction, fitted with what is known as the Balance motor. The frame of the car is of tubular construction, and this is fitted with a body having accommodation for three persons. The engine is of the horizontal water-cooled type of 5 h.p. Two speeds are fitted, the transmission being effected by means of a single belt and spur gearing. The car, which weighs about 5 cwt., is provided with cycle type wheels, pneumatic tires, a water-cooling coil being fitted in front. A two-cylinder Balance motor of 9 h.p. was also shown separately, while on the same stand was a 2½ h.p. motor-tricycle of Belgian construction.

The Motor Fittings and Engineering Company, of Redhill, Surrey, had on view a light three-seated car, built from the Wilbury set of fittings they are supplying to the trade. The frame, which is of tubular construction, is fitted at the rear with an M.M.C. De Dion water-cooled motor of 5 h.p., provided with pump and radiator. Three speeds forward and a reverse motion are available. The motor is connected with the change of speed gears by friction clutches, which are controlled by a pedal lever on the floor of the car opposite the driver's seat, by which the car is put into motion or instantly stopped, acting as it does at the same time on the band brake on the differential. The change of speed is regulated by a circular lever on the steering column under the steering wheel. The gears are fixed on the differential axle, being supported by a second parallel tube forming the frame, upon which is also fixed the motor, the whole being absolutely rigid and in perfect alignment

and of very strong construction. The motor is started either from the seat or from the back of the car. There are two brakes, one on the differential, applied simultaneously by the right pedal lever and by the lever controlling the friction clutch on the steering column. There is one band brake on each of the rear hubs, applied by the left pedal lever. This brake can be kept on permanently if desired, or, by pressing a small button with the foot, can be instantly released. Steering is controlled by an inclined hand-wheel, on the standard of which the various control levers are mounted. The body is entirely independent of the frame, while the front axle is carried in a special manner, so that it may compensate for any inequalities in the roads traversed. The car complete weighs between 6 and 7 cwt. In addition to the foregoing, a large range of motor fittings and component parts were shown.

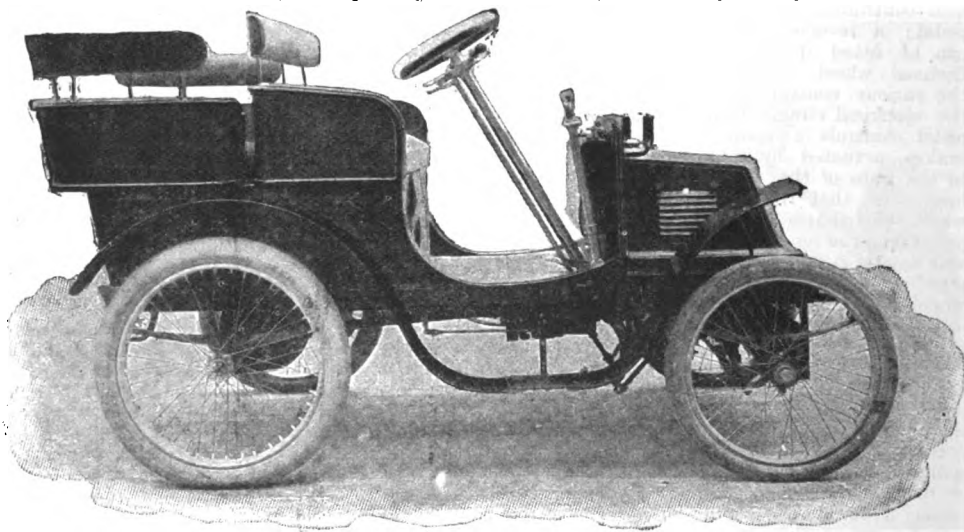


FIG. 5.—THE DARRACQ VOITURETTE WITH TONNEAU BODY.

Prominent among the tire displays was that of the North British Rubber Company, Ltd., Castle Mills, Edinburgh. Here were to be seen the Clincher pneumatic tires (Bartlett's patents) for motor-cycles and motor-cars. This company's tires are standing good tests in various parts of the kingdom, and among the specialties is a 2½ in. tire for light vehicles, as well as a solid rubber tire for heavier cars.

Naturally the stand of the Motor-Car Company, Ltd., of Shaftesbury Avenue, W.C., was visited by large numbers of people during the week, anxious to inspect the two Decauville cars—an 8 h.p. and a 5 h.p.—which were recently submitted to a long-distance trial on the Crystal Palace track. Both cars were to be seen, but as they have already been described in these columns, no lengthy reference is necessary on the present occasion. It may be mentioned, however, that both are provided with two-cylinder water-cooled motors, and in the case of the smaller car, the motor is started while the driver is actually seated. An attractive car exhibited was the Renault voiturette fitted with a red-painted *tonneau* body. This vehicle is similar to the usual Renault cars, with the exception that it is adapted to seat four persons. It is fitted with a 3½ h.p. water-cooled De Dion motor, three speeds forward and a reverse motion, the power of the engine being transmitted to the rear live axle by spur and bevel gearing. A 5 h.p. Soncin racing motor-tricycle—a machine on which many records have been made—completed the exhibit.

Messrs. R. M. Wright and Company, Mint Street, Lincoln, exhibited for the first time one of their "Stonebow" four-seated dogcarts (Fig. 6). The frame of this vehicle is of channel steel; at the rear it is fitted with a 5-h.p. horizontal motor of their own construction. The water circulation is maintained by a pump, and a radiator is provided in the fore part of the frame. In passing it may be noted that every effort has been made to render the parts easy of access, the induction and exhaust valves of the engine being fitted on the top of the cylinder end. The transmission is effected by means of three 2 inch belts working on fast and loose pulleys and a Crypto gear; three forward speeds—ranging from 4 to 18 miles per hour—are provided, as is also a reverse motion. From the countershaft a duplicate pair of sprocket wheels and roller chains transmit the power to the rear road wheels. Wheel steering is fitted, the various levers being mounted on the steering pillar. The road wheels are of the cycle type, fitted with Clincher pneumatic tires. The body, which is painted black and primrose, with polished birch concave sides, can be readily detached from the frame by removing four bolts. The petrol and water tanks are arranged under a false

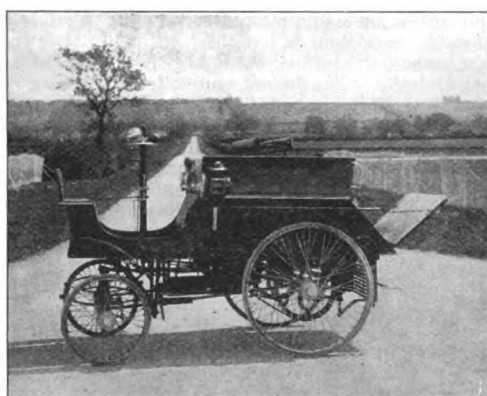


FIG. 6.—THE "STONEBOW" CAR.

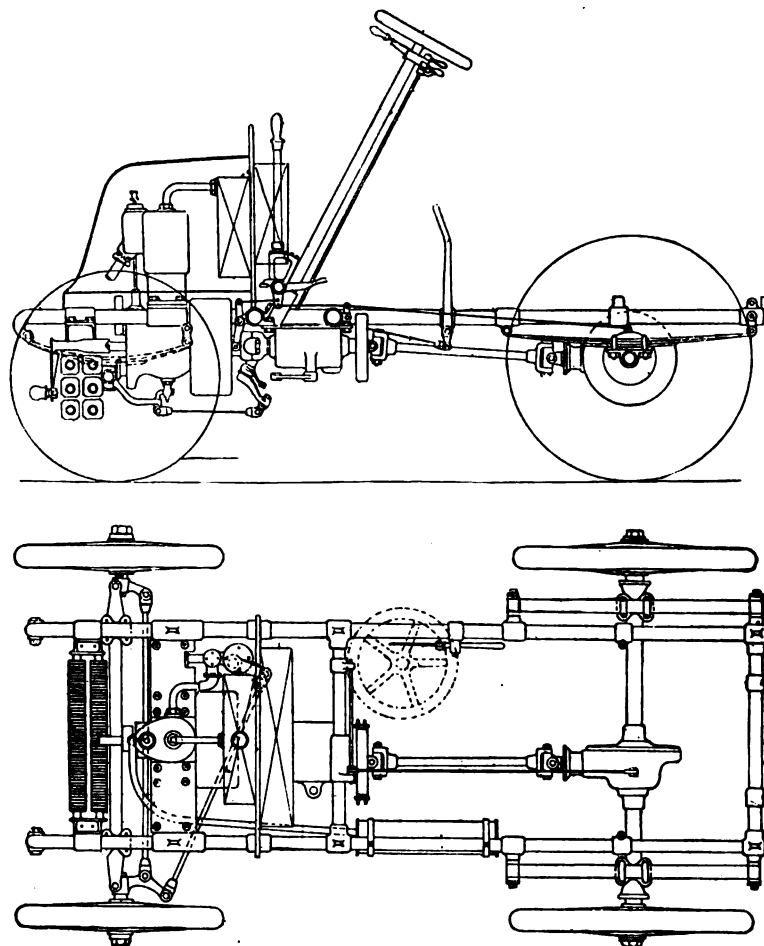
bonnet in the fore part of the frame; storage capacity sufficient for a run of 140 miles is provided. A band-brake on the countershaft, as also emergency shoe brakes on the tires, are provided. The car complete weighs about 12 cwt. While following somewhat on the lines of the Benz type, the "Stonebow" car is of English construction throughout, and a proof of its reliability is to be found in the fact that Messrs. Wright offer to take all intending purchasers a 100-miles trial trip.

The Yorkshire Motor-Car Manufacturing Company, Limited, Hipperholme, Bradford, Yorkshire, showed one of the Jackson doctor's cars. This is a two or four seated car with long wheel base. It is propelled by a 4½-h.p. two-cylinder horizontal petroleum-spirit motor, located in the fore part of the frame. The engine runs at a normal speed of 700 revolutions per minute, and is fitted with automatic governor and hand-lever accelerator, by means of which the engine speed can be varied up to 1,000 revolutions. The governor is arranged to actuate a valve on the inlet pipe, and is so arranged that when the speed becomes too great the inlet of vapour is closed and cold air drawn in instead. Three forward speeds are provided, the power being transmitted to a first counter-shaft by means of a belt, which can be tightened or slackened as desired by means of a jockey pulley, this device taking the place of a friction clutch. The pedal which actuates the jockey pulley also applies a band brake on the differential shaft. From the first counter-shaft the power is conveyed to a second shaft by two chains and one belt, any one of which can be brought in operation, according to the speed, by means of clutches controlled by a single lever. From this second counter-shaft chains and sprocket wheels transmit the power to the rear axle. The frame of the car is built up of channel steel, to which any type of body can be attached by means of four bolts. In addition to this car, the company are building a new vehicle, which they have named the Mytholm doctor's car; this is fitted with a 4½-h.p. single-cylinder horizontal engine located in the fore part of the frame. Three speeds and reverse motion are provided, only one chain and one belt being employed.

A neat three-seated motor-voiturette built by the Fabrique Nationale d'Armes de Guerre, of Herstal, near Liège, Belgium, was exhibited by Messrs. Treece and Funk, of Dashwood House, E.C. The

motor is located in the front portion of the car, under a bonnet, so as to be readily accessible. It is of the vertical petroleum-spirit type; it comprises two cylinders set side by side, and is stated to be capable of working up to 3½ h.p.; the cylinders are water-cooled, the circulation being maintained by means of a pump. The ignition is electrical, a special ratchet device being fitted on the steering pillar to advance or retard the sparking. Passing to the transmission mechanism, from the motor shaft to the intermediary shaft the power is transmitted by two belts, and from the intermediary to the rear road-wheel axle by means of the usual chains and sprocket wheels. Two mechanical forward speeds and a reverse motion are provided, the variable-speed gear being controlled by a single handle mounted on the steering-standard. It is claimed that by means of the variable-speed gear and the variation of the electrical ignition any speed from zero up to twenty-eight miles per hour can be obtained. The road wheels are of the cycle type, fitted with pneumatic tires. The steering hand-wheel and the speed control handle are mounted on a standard within convenient reach of the driver, provision being also made for the starting of the motor, and also for the tightening of the driving belts from the driver's seat.

Towards the end of last week the Automobile Manufacturing Company, Limited, added several cars to their stand, including a steam-vehicle and a handsome 7-h.p. Richard car with *tonneau* body, the latter coming from the Paris Exhibition. We gave some particulars last week



FIGS. 7 AND 8.—ELEVATION AND PLAN OF DARRACQ VOITURETTE.

of the Darracq 6-h.p. voiturette shown on this stand; we are now able to publish some illustrations (Figs. 5, 7, and 8) which show the general arrangement of the motor and transmission gear in this interesting vehicle.

Messrs. Grose, Limited, of Gold Street, Northampton, exhibited three cars on Benz lines, but fitted with neat and attractive dog-cart bodies. One of the vehicles was fitted with a 5-h.p. horizontal water-cooled engine, provided with pump and radiator. The power of the engine is transmitted by belts working on fast and loose pulleys on to a counter-shaft, and from the latter to the rear road wheels by the usual sprocket wheels and chains. Three speeds forward, ranging up to 16 miles per hour, as also a reverse motion, are available. Dunlop pneumatic tires are fitted to the road wheels, the car altogether having a taking appearance. One of the other cars was on similar lines, but was provided with a 3½-h.p. Benz engine, two speeds being obtained by belts and a hill-climbing speed by means of a Crypto gear. The form of carriage body appears to afford not only comfortable accommodation for the passengers, but also room for a fair quantity of luggage. The water and petrol tanks are placed one above the other, and are of cylindrical form. They are carried immediately in front of

the splashboard, and are enclosed in a bonnet, which gives the vehicle the appearance of a car having a motor in front.

Messrs. Marshall and Company, of the Belsize Works, Clayton, Manchester, were present with a couple of their well-known Marshall phaetons. They are fitted with a 5-h.p. horizontal petroleum spirit motor, with electric ignition and water jacket. The circulation is

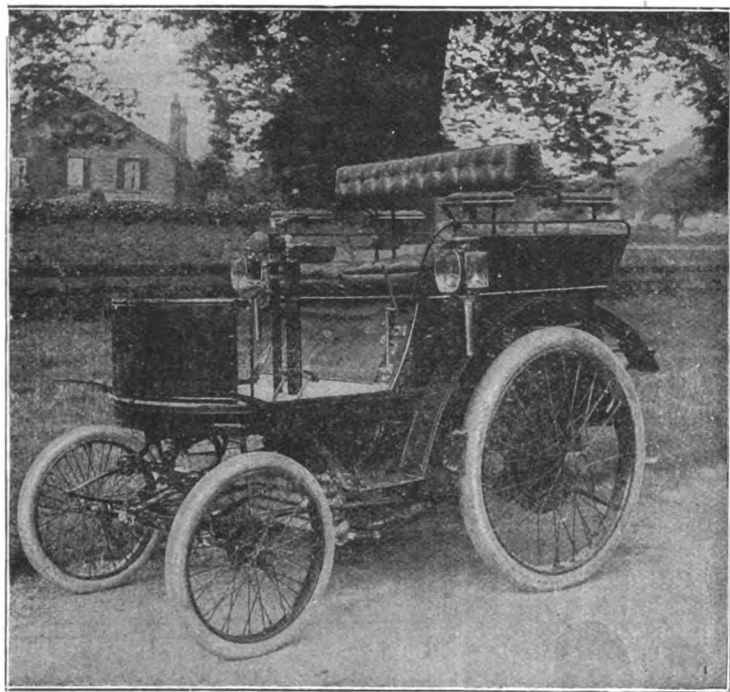


FIG. 9.—THE MARSHALL 6 H.P. DOG-CART.

maintained by a small pump, radiating coils being now fitted to all cars. Three speeds forward and reverse motion are available, the transmission being effected by belts working on fast and loose pulleys. A neat car is the Marshall four-seated dogcart (Fig. 9). This is fitted with a 6 h.p. motor, radiating coil in front; three speeds forward and reverse, etc. The water circulation is maintained by a special pump in which the spindle is fitted with bearings on both sides. Another feature is that the water tank is so arranged that should the pump go wrong the circulation can be maintained by gravity. The car is equipped with a petrol tank of a capacity permitting of a run of 200 miles; it is fitted with cycle-type wheels and pneumatic tires. The top speed is about thirty miles per hour, while gradients of one in ten can, we are informed, be taken at ten miles per hour. An interesting machine shown by Messrs. Marshall was the first English-built Renarx motor-tricycle. As we described this machine at length some time ago, it is only necessary to briefly refer to it now. The machine differs from those of the De Dion type in that it is provided with a horizontal motor. It is stated to be capable of working up to 3½ h.p. at a normal speed of 1,200 revolutions per minute. It is located between the bottom bracket and the rear axle, its horizontal position being claimed to greatly reduce the amount of vibration experienced in motor-tricycles. There are a number of special features in the motor, one of which is that the piston rod is connected by means of a satellite pinion to two toothed wheels which form the differential. The motor is started in the usual way by the pedals, a clutch mechanism being provided to the bottom-bracket chain wheel. It may here be mentioned that a Renaux quadricycle was the winner in its section in the recent hill-climbing competition at Gaillon, France.

A novel two-seated tricycle was to be found on the stand of Messrs. Frank H. Parkyn, Limited, Granville Street, Wolverhampton. The frame is of rectangular tubular construction; the motor—a 2½ h.p. air-cooled De Dion—which is located about the centre, drives the rear axle by chain gearing. A feature of the machine is that no pedals are provided; at the rear hub a special hand brake free-wheel device is provided. This is operated by the left-hand foot rest, which is also connected by a hand lever. By means of this device the engine can be instantly put out of gear with the single rear road wheel, thus enabling hills to be "coasted." To start the motor, the hand brake of the drum is applied, the electrical current switched on, and the machine pushed a short distance; immediately the motor is in operation, the hand brake is released, thus allowing the engine to run free until the driver is ready to start. After mounting, the left foot pedal is pressed down, applying the hand brake device at the rear, and completing the connection between the motor and the rear wheel. A second hand brake is provided on the opposite side of the rear hub. Steering is controlled by a bar. The machine is purposely only speeded up to about fifteen miles per hour, but the makers claim that it will

maintain this speed even up ordinary hills. The weight of the machine is about 2½ cwt. In place of the front seat a parcels delivery chest can be fitted if desired.

Only one car was shown by Messrs. Lewis and Lewis, of Tow-mead Road, Fulham, S.W. This car, which is being introduced into this country under the name "Diana," follows, generally speaking, the lines adopted in the Benz cars. The engine, a horizontal one of 4 h.p., is located in the rear of the frame. The cylinder is water-jacketed, the circulation being on the thermo-siphon system; a radiating coil is provided. Three speeds forward, ranging from 4 to 20 miles per hour, are available. The power of the engine is transmitted by two belts, working on fast and loose pulleys, to a countershaft, from which it is conveyed to the rear axle by a duplicate set of sprocket wheels and Brampton chains; the low speed is obtained by means of a Crypto gear. The car, which has seating accommodation, is fitted with special hand-brakes to the hubs of the rear wheels, they acting equally well whether the car is running in a forward or backward direction. The vehicle, which is fitted with wood wheels and pneumatic tires, weighs about 11 cwt., and can attain a speed of 20 miles per hour.

Two attractive cars were shown by the Farringdon Motor Company, 15, Charles Street, Farringdon Road, E.C., agents for the Pfälzischen Nähmaschinen und Fahrradfabrik Gesellschaft (vorm. Gebrüder Kayser) Kaiserslautern, Germany. The Kayser Primus car (Fig. 10) is adapted to carry three persons. It has a tubular frame, on which is mounted at the front a Kayser vertical petrol engine of 4 h.p. under a perforated metal bonnet. The ignition of the explosive charge is effected electrically, the company employing a system of their own for which they claim several advantages. The motor is water-cooled, the circulation of the water being maintained by a pump, a cooling coil being also fitted. Coming now to the transmission gear, this is a combination of belting, spur wheels, and chains. Three speeds and are verse motion are available. The motor transmits its power by a single belt to a countershaft. On the latter is a train of cog-wheels, any one of which can be made to mesh with similar wheels on the differential shaft, which is connected to the rear axle by the usual duplicate set of chains and chain-wheels. The steering is controlled by a small hand-wheel on a vertical standard, on which the variable-speed control handles are mounted. There are both hand and foot brakes, the former acting on the tires and the latter on the differential shaft. The levers controlling the foot brake are so arranged that when it is applied the driving belt is at the same time slipped on to the loose pulley, thus throwing the engine out of gear from the transmission mechanism. The crank shaft of the engine and the variable-speed gear work in oil-containing cases, while the road wheels, which are of the cycle type, shod with pneumatic tires, are mounted on ball-bearings. A light 4-h.p. two-seated racing car built by the same company was also staged. This followed the same lines as regards the engine and transmission as the car above described, the striking feature

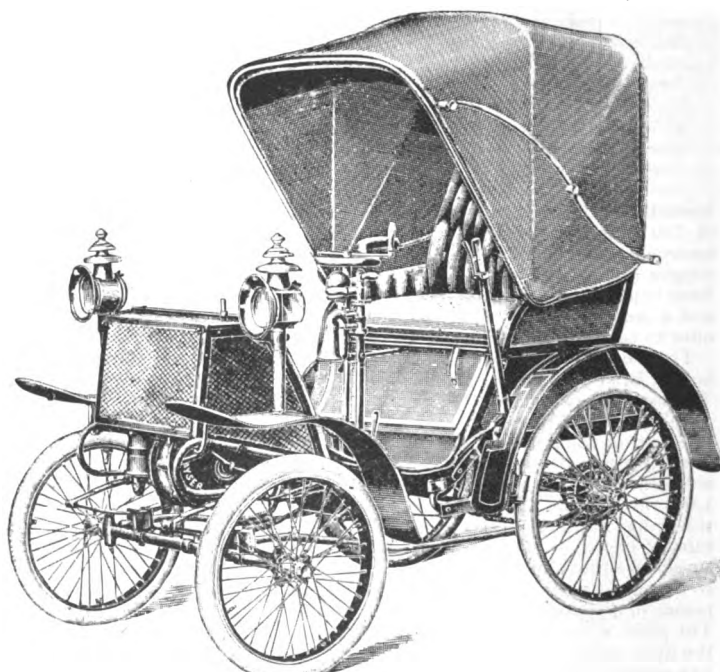


FIG. 10.—THE KAYSER PRIMUS CAR.

being the raky-looking bonnet in the front of the car. An example of the Kayser motor-tricycle with detachable trailing delivery van was also on view.

Motor-tricycles or quadricycles were shown on several stands occupied by cycle-makers, and the presence of even a solitary specimen adds to the interest of the particular firm's display. Mr. J. F. Jones, Sydenham Road, S.E., had a motor-quadricycle surrounded by his "Royal Roebuck" cycles, and at a neighbouring stand Messrs. H. F. Copland and Company, 108 and 110 Stanstead Road, Forest Hill, S.E., had a "Grand

National" quad. This is fitted with a 2½ h.p. De Dion engine, and has an extra stout axle. There is a double seat in front, which may, however, be removed if necessary. The Rothwell motor-tricycle was shown by the Eclipse Machine Company, Ltd., of Oldham. It is fitted with the company's own 2½ h.p. motor, and is well finished. A "Royal Riley" motor-tricycle on the stand of the Riley Cycle Company, Ltd., City Cycle Works, Coventry, was a good example of the firm's work. The engine is a 2½ h.p. De Dion.

The Chinnock Davis Manufacturing Company, Ltd., Penge, S.E., exhibited a 2½ h.p. De Dion motor-tricycle, as also a couple of New Orleans 3½ h.p. voiturettes, one adapted for two persons and one for three passengers.

The General Agencies Syndicate, of Dashwood House, New Broad Street, E.C., had an exhibit which appealed more particularly to builders of motor-cars, consisting as it does of a display of frames, wheels, axles, springs, etc., of all kinds. Several samples of wheels and axles were shown suitable for use on voiturettes as well as on heavy motor-wagons. Steering gears, car bodies, and differential gears are all shown, while mention may be made of a special hub fitted with both balls and rollers.

Prominent in the display made by Hans Renold, of Manchester, was a range of new motor-roller chains, shown publicly for the first time. The chains are made in various widths, and in pitches ranging from ½ in. up to 1½ in. The special features of these chains to which attention is drawn are the specially durable wearing surfaces, the bushes, rollers, and rivets being all made of hardened steel. Of the Renold silent chain two types were shown, each being made in a variety of pitches. The bushed silent chain, which is being largely used by builders of heavy motor-wagons, is an improvement on the old pattern: hardened steel bushes are now interposed between the rivets and the link holes, the life of the chain being thereby greatly increased. Another new departure is the block silent chain, the inner links in this case being replaced by a solid block. Small sprockets for both the roller and silent chains, and also cutters for milling the same completed an interesting stand.

Patent grease cups were the special feature of interest to automobilists on the stand of Messrs. Rotherham and Sons, Coventry. These are made to lock in such a way that they cannot be jarred off, however great is the vibration to which they are subjected. The feed of grease is also regulated by means of a spring in the top. Motor roller chains are shown by the Coventry Chain Company, of Dale Street, Coventry. The roller is of half-inch width with a 1½ in. pitch, and is said to have a breaking strain of 5680 lbs. These chains are made in all sizes from special crucible steel. The Angular Hole Machine Company, Ltd., Dashwood House, New Broad Street, E.C., had a wide collection of spanners of every variety, including special box spanners for motor-cars. These are blued by a special process. Spokes and nipples for motor-vehicles were to be found on the stand occupied by Messrs. Teale and Company, 150, Edmund Street, Birmingham. Light trailing cars suitable for motor-cycles were shown by Messrs. John Marston, Limited, Wolverhampton Mills, and Fulford, Crown Works, Coventry.

La Société des Usines Delin, of Louvain, Belgium, had intended to show a new voiturette, and also motor bicycles and tricycles, but at the time we visited the stand only a collection of motor parts, such as axles, hubs, etc., was on view.

The "King" Motor-Car Company, 83, Rye Lane, Peckham, S.E., attempted to give realism to their exhibit of leather clothing by the presence of a Benz victoria whereon was mounted a driver snugly attired in a calf motoring suit. The various leather garments on this stand were well finished and had a good appearance, being smart as well as serviceable. As protection for the ordinary clothes worn beneath, many motorists prefer leather garments, and they doubtless found many points of interest at this stand. The firm's "dominoes" (silk and glass) for protecting the eyes and face from dust, etc., were also shown.

A neat show-case contained the exhibit of Mr. Frank Bevan, 3, Bayer Street, Golden Lane, Barbican, E.C. This included a careful selection of garments for automobilists, jackets, gloves, and leggings being the main features of the display. These are all made in leather, and have a good appearance.

Saddles for motor-tricycles and small motor tool bags were the exhibits of most interest to motorists on the stand occupied by Messrs. J. B. Brooks and Company, Ltd., Great Charles Street, Birmingham. The slant of the saddle in some types is as much the cause of constant leaning as the unevenness of the road, and the B 80 pattern has been designed specially to counteract that tendency. B 90 is another good design. It will not sag in the centre, but, yielding along the entire length, gives an easy and resilient seat. Fitted with a three-coil spring, these saddles appear well adapted for motor-cycles. The firm's motor tool bags are in two styles, consisting of a long leather strip about 12 in. wide, fitted with three pockets, which can be folded into a small compass. The other consists of a single compartment.

Mr. H. G. Turner, Eldon Grove, Manchester, had a good assortment of carriers for luggage, etc., including a special type made for fitting to an Ariel quadricycle. He also makes carriers to fit to any other motor-tricycle.

An anti-vibratory handle-bar and seat-pillar arrangement was shown by Mr. Fred Sadler, 15, Gray's Inn Road, W.C., which, fitted to motor-cycles, is claimed to render them free from vibration.

Messrs. W. and A. Bates, St. Mary's Mills, Leicester, showed a good range of outer covers, wearing treads, and inner tubes for motor-vehicle work. Their wearing tread for fixing on the outside of the cover of motor-car tires is made in three weights:—(1) Special light; (2) light; (3) heavy. Messrs. Bates are prepared to go fully into the subject of

automobile tires, making every size from that for a motor-tricycle to those for large cars.

Solid rubber tires for motor-vehicles were shown on the stands of the Tubeless Pneumatic Tire Company and Capon Heaton, Ltd., Moor Street, Birmingham.

At the stand of the Self-Sealing Air Chamber Company, Ltd., Hinkley Street, Birmingham, the leading feature was naturally that indicated in the title of the concern. Where the tube of the tire comes in actual contact with the road surface it is lined with compressed rubber, which is vulcanised on to the tube while the latter is fully stretched. Thus the slit caused by a puncture closes at once, minimising to a considerable degree the annoyances caused by surfaces which may be strewn with undesirable substances.

The Self-Inflating Tire Company, Ltd., 31, King William Street, E.C., gave daily demonstrations of their self-inflating tires applied to cycles. This is on a principle which, we are informed, is applicable to motor-cars. Solid and rubber tires formed the main features of the display made by the Avon India-Rubber Company, Ltd., of Melksham, Wilts. which makes a large variety of rubber goods. Rubbers and tubes for motor-car tires were shown by Messrs. David Moseley and Sons, Ardwick, Manchester, who do a large trade in these goods with French automobile firms.

The New Premier Cycle Company, Limited, Coventry, had booked space for a display of motor-cars, but they inform us that they could not get the vehicle ready in time. Messrs. Allard and Co., of Coventry, were also in a similar position.

THE STANLEY SHOW.

Mr. Louis Bernstein, 78, Milton Street, E.C., showed the "Presto" car of Messrs. Günther and Co., Chemnitz (Fig. 11). This is fitted at the rear with the maker's own 5½ h.p. water-cooled motor, and has seating accommodation for four people. Direct cog-wheel gearing has been adopted, and there are two speeds of 6 and 30 miles per hour. Foot

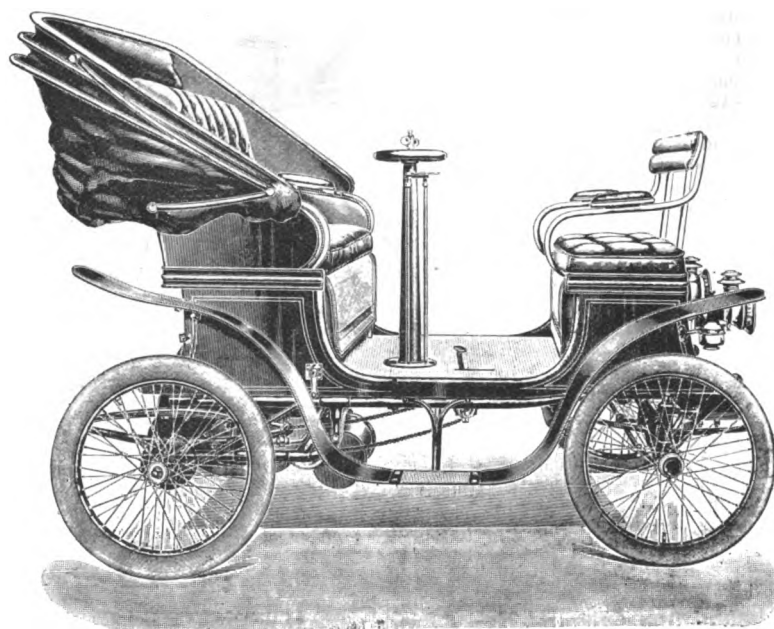


FIG. 11.—THE PRESTO MOTOR-CAR.

brakes have been provided, and all the controlling levers are grouped around the steering column. The oil tanks are below the seat, which can be raised to obtain access to them. The car is also made fitted with 3½ h.p. or 4½ h.p. motors. Cycle type road wheels are fitted, these being shod with pneumatic tires.

The Simms Manufacturing Company, Limited, 55, Southwark Park Road, Bermondsey, made a big display of the Simms 3-b.h.p. air-cooled vertical, 2½ b.h.p. air-cooled horizontal, and 3½ b.h.p. water-cooled vertical petrol motors. All were fitted with the Simms-Bosch magneto-electric ignition and with Simms's timing gear, by which the time of the ignition can be advanced or retarded, thus enabling the speed of the motor to be altered at will, the maximum being about 2,200 and the minimum about 200 revolutions per minute. By means of a constant level float-feed attached to the engine the supply of petrol is rendered entirely automatic, no regulation of mixing valves being necessary. It may be noted here that the cylinder and head of these engines are cast in one piece; the valves are arranged one above the other, the induction valve being self-contained, and so fitted that it can be readily removed. Prominent on the stand was a neat two-seated voiturette, in the fore part of which, under a bonnet, is fitted a Simms 3½ h.p. water-cooled engine, equipped with pump and radiator. Three speeds forward, ranging up to twenty miles per hour, and a

verse motion are provided, the power being transmitted through a friction clutch and a variable speed gear on Panhard lines to a countershaft, the latter being connected to the rear axle by a single centrally located driving chain. Provision is made for the starting of the engine from the driver's seat; steering is controlled by an inclined hand wheel, while a foot pedal actuates a band brake on the gear shaft, and a hand lever one on the differential. Wooden wheels shod with Clipper pneumatic tyres are provided, the weight of the car complete being about 6½ cwt.

One of the novelties of the show was the Lawson motor-bicycle, to be seen on the stand of the Crypto Works Company, Limited, Clerkenwell Road, E.C. The machine has been altered since it was first introduced, in that its 1½-h.p. air-cooled motor is connected to the front wheel instead of to the rear one. The engine is suspended on one side of the wheel, the fly-wheel being, for balancing purposes, on the opposite side, the engine shaft passing through the hub. The machine is strengthened by an auxiliary head, in which the combination petrol tank and carburettor, which has a capacity sufficient for a run of 75 miles, is located. The engine drives the front wheel by means of epicyclic gearing connected up to the inside of the hub by a clutch. To take up any vibration which may arise from the motor, a spring handle-bar is fitted. The machine complete weighs 80lbs., and on a brief trial has covered a mile in 1½ min.

The British and Colonial Motor Car Company, Limited, of 38, Snow Hill, E.C., and Baker Street, W., showed a 16 h.p. Canello-Durkopp car and two and three-seated Pieper voiturettes among their exhibits. The motor in the Pieper voiturette (Fig. 12) is of the 4 h.p. single cylinder vertical water-cooled type. A supply of water sufficient for a 230-mile run is carried in the water tank which is placed inside the carriage body.

From there the water is pumped through the water jacket of the motor to the radiator, a centrifugal type of pump being employed and driven direct from the motor. Belt transmission has been adopted, and also inclined wheel steering. A single wide belt connects the pulley on the motor shaft to three pulleys arranged on a countershaft. This belt is moved on to any one of the three pulleys—two fast and one loose—by means of a speed handle placed to the left hand of the steering post. The belt can be tightened or loosened by means of a detachable key fitted to the front of the car. By rotating this key the motor is moved backward or forward, thus

loosening or tightening the belt. The two outer pulleys each have connected to them spur wheels meshing with corresponding pinions on the rear axle. Two brakes are provided, and the speeds arranged for are from ten miles and twenty-two miles per hour; these may be varied largely by the ignition timing device. At this stand was the Schwanemeyer voiturette, and also a sectional model of the engine, illustrated and described in our columns on May 26th. This is being introduced by the Bassett Motor Syndicate. The car is fitted with a 3½ h.p. water-cooled motor. This, with the transmission gear and main axle balance gear, are formed in one set of mechanism, all contained inside one aluminium oil chamber. Two speeds are fitted, these being operated by levers governed by the left foot. Two band brakes are fitted to the hubs of the driving wheels, and are applied by a lever under the right foot. Two persons can be accommodated on the front seat, and a tiger seat is also provided if desired. An excellent tool outfit for carrying on motor-vehicles was also shown on the stand.

Two stands were occupied by Messrs. Benetfink and Co., 107 and 108, Cheapside, E.C., on one of which were an Ariel quadricycle and an Ariel motor-tricycle, the other being occupied by a complete selection of motor lamps, motor horns and bells in great variety, petrol tanks, inflators, odometers, etc.

Messrs. Perry and Co., Limited, Lancaster Street, Birmingham, had a motor-tricycle with a 2½ h.p. De Dion engine. It is fitted with the company's own fittings, specimens of which were also on the stand. A special feature is just now being made of a motor chain.

A large show of motor-tricycles and accessories was made by Messrs. Manning and Son, Limited, 8, Bevis Marks, E.C. Their selection included a 2½ h.p. Eadie quadricycle and a 2½ h.p. Progress motor-tricycle.

De Dion engines, one by the Motor Manufacturing Company, and a variety of accessories made up a very complete exhibit.

The Bowden Brake Co. showed how their brake wire and conduit can be applied to lifting the exhaust valve of motor tricycles and quadricycles. This takes the form of a shaped bar, which can be easily attached to any existing De Dion engine.

Water cooled heads for the De Dion motor were exhibited among accessories on the stand of Messrs. Gianoli and Lacoste, 26, Boulevard Magenta, Paris. Here were to be seen the well known Leclanché batteries, and also some good types of induction coils, including some in which the contacts are covered in to prevent the wet getting to them.

The Meyra Electric Company, Ltd., 78, York Road, King's Cross, N., had a large display of the "Meyra" dry batteries for use in connection with the electric ignition of the explosive charge in petroleum spirit motors, either on tricycles or cars. These batteries are manufactured in England, and among their merits are high efficiency, voltage, and ampère, combined with low internal resistance. With a steady discharge and no local action long life is attained; the life for a sparking set on a motor-cycle being between three to four hundred working hours. A set of "Meyra" dry batteries will not only give a constant ignition spark for several months, but will also supply current to light a 5-volt portable reflector lamp used to examine the machinery of the motor at night. At the stand of the Meyra Company was also exhibited the Preston petrol motor, which, although only 86 lbs. in weight, is said to give an efficiency of 6½ h.p. The engine, which is being manufactured by Messrs. Bridgwater and Co., 78, York Road, King's Cross, N., is of a four-stroke cycle type with two vertical cylinders which are air-cooled. The ignition is electric by means of a double induction coil and primary batteries or accumulators, and the consumption of petrol calculated at about 11 oz. per horse power per hour.

Accumulators and ignition specialities were shown at the stand of Mr. H. W. Van Raden, 7, Ellys Road, Coventry. Special attention was drawn to the patent woven glass accumulators for voiturettes, and also to the controllers for electric cars. A combined volt and ampere meter was shown. This is specially designed for use on electric cars, and is in an aluminium case. The face is covered by ground glass, and is divided to order, the standard pattern being 60 to 120 volts for 60 amp.

Le Carbone (late Lacombe and Cie), of Levallois-Perret, Paris, and 36, Lime Street, London, E.C. had an interesting

display of electric accessories for use in connection with motor-carriages. Chief among them may be mentioned the "Sanspareil" dry battery for use with the ignition apparatus of petroleum spirit motors on carriages, yachts, tricycles, bicycles, etc. It is claimed for these cells that they give the maximum output for the minimum of weight and dimensions. The cells offered for tricycles, with suitable coils, will last between 300 and 500 working hours, according to the conditions in which they are employed. A specially light set of batteries for use on racing tricycles is now being marketed by this concern. The batteries are made up in sets of five, and are much lighter than usual. Le Carbone Company also makes a speciality of carbon brushes.

Acetylene lamps specially intended for use on motor-vehicles were displayed on several stands. Good types were to be seen at the stall of Mr. C. Lohmann, 36, Aldersgate Street, E.C. Here, too, were shown motor-bells to be operated by the foot. Messrs. Powell and Hammer, Chester Street, Birmingham, had a lamp particularly designed for carrying on a quadricycle. It gives a splendid light ahead with a side ruby light and a smaller one at the back. Acetylene lamps and candle lamps for motor-carriages were displayed by Mr. Frank Albert, 48, Redcross Street, E.C., who had also a hand bell which can be conveniently fixed to any car. Lamps formed the main feature of the display of Mr. Otto Scharlach, of Nuremberg.

A good lamp is one of the prime necessities in connection with motor-cars, and visitors to the exhibition were attracted to the stand of Messrs. Salisbury and Son, of Green Street, Blackfriars, S.E., who make a special feature of light-giving articles. The firm are the British agents for the Dietz paraffin lamps, and were showing samples of the latest

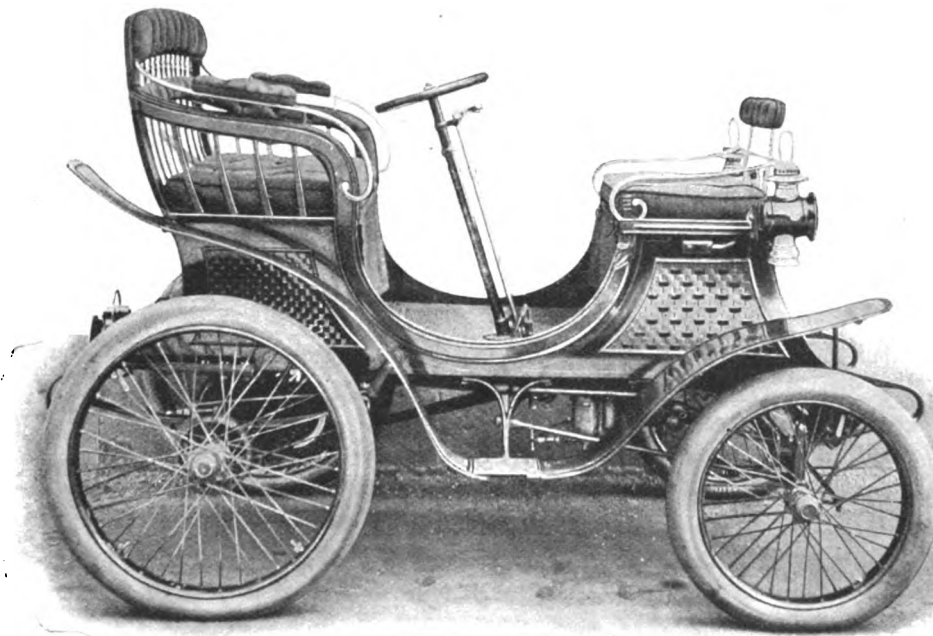


FIG. 12.—THE PIEPER VOITURETTE.

improved patterns. For those who prefer an acetylene lamp the firm are introducing a novelty in an acetylene candle, which will fit into an ordinary carriage lamp. Among other exhibits were the new model motor-car lamp, the Salisbury motor-cycle lamp, the Invincible motor-cycle lamp, the Sun Ray acetylene motor-cycle lamp, and an acetylene generator attachment for motor lamps. The firm are also introducing a new system of acetylene gas lighting for omnibuses and public vehicles. Two lamps are employed, each giving a 30-candle power light, a total of 60-candle power as against 10 obtainable with the present methods of lighting public vehicles. The lamps are arranged upon a new principle, which secures equal diffusion of light in every part of the vehicle. The front lamp throws an exceptionally brilliant light ahead, but at the same time not of such a dazzling nature as to cause any inconvenience to traffic coming in the reverse direction. The rear lamp throws a light which fully illuminates the stairway of the omnibus, the conductor's stand, the step of the omnibus, &c., so that it is impossible for accidents to happen to passengers from lack of light. An automatic governing apparatus is used in connection with the generator, which ensures the light always being maintained at a uniform power. When the gas is turned off the ordinary pressure of the atmosphere is brought into operation in the generator to prevent the further generation of gas. One charge of the special carbide preparation is stated to be sufficient for three nights' supply of light.

An interesting display was made by Messrs. Joseph Lucas, Limited, Great King Street, Birmingham, who had a good show of lamps, horns, bells, etc., for use on motor-cars. A pump for motor-cycles was a feature of special interest, having a metal delivery pipe from the bottom to the top of the barrel, from whence a short length of flexible tubing reaches the wheel. Oil and grease for motor-vehicles generally were also included in this exhibit.

A capital tire designed for use on motor-vehicles was shown by the Radax Pneumatic Tire Company, Limited, 51, Fountain Street, Manchester, and 32, Bread Street, London, E.C. It has been fully tested, and has given very satisfactory results. Hence the confidence with which an inspection of this company's stand may be made. The "Radax" tire possesses a patent canvas so woven that the sides of the outer cover fit closely in the rim and form a sound principle of attachment. Being woven in a circle it is possible to secure the threads being small at the edges or smallest circumference of the tire, and to gradually increase in size as the circumference becomes larger. In this way the tire is made to perfectly fit the rim and so obviate any possibility of rolling friction. There are thus no wires, hooks, bands, or thick edges in connection with the "Radax" tire. Whilst in use, it cannot be forced from the rim—even if it is punctured or but slightly inflated. Despite its tenacity when in actual service, there is no difficulty in connection with taking the tire off or putting it on, while the fact that it is made to fit all kinds of rims now in use should lead to its adoption by many who have not yet found a tire to their liking. When used on motor-vehicles the "Radax" motor tires have been proved to be speedy and reliable. The fact that the strain is not on the edges but is distributed over the whole surface of the tire secures elasticity and easy running and has the additional advantage of greater durability. On this stand was shown the wheel of a quad on which the "Radax" tire has been in use since February, 1900, and which has by the strength of the fabric turned a two-inch nail and prevented puncture. A carriage wheel which has been in use for six months was also shown.

The Collier Twin Tire Company, Limited, Camp Road, St. Albans, exhibited their tire for motor-vehicles. This consists of a combination of the pneumatic and solid tire, the pneumatic being between the wheel and the solid rubber, but both the pneumatic tube and the solid rubber tire are contained in one piece of fabric, or outer cover, by which great strength and durability are stated to be obtained. The advantages claimed for the tire are freedom from puncture, as the pneumatic tube is kept well off the ground, and narrow tread, the twin tire being deep without being broad. These tires have been specially designed for automobiles, and have been designated "twin tires" because the resilient solid rubber and an "air-tube" are enclosed in the one cover. The "fastening" of these tires enables them to hold securely to any flanged rim, while they are also easily adjustable by the user. The Collier twin tire is vulcanised throughout, the usual joints of the tubes being thus practically done away with.

Naturally enough makers of tires are giving increased attention to the demands of the automobile industry, and the Continental Caoutchouc and Gutta Percha Company, 64 and 65, Holborn Viaduct, E.C., made a good display in this line. The Swain motor tire was on the stand of the Swain Patents Syndicate, Ltd., of Horwich. This has been prepared for motor-tricycles, quadricycles, and light cars, and it is claimed that by the longitudinal strands of the fabric great strength is ensured. The tires require no wires, nor have they thickened edges to secure being held to the rim. Remarkably easy to put on and off, the tires are also fast and resilient. The Midland Rubber Company, Ltd., 89, Ryland Street, Birmingham, had also some good types of motor-car tires.

Tires vulcanised by the Prague Rubber Company were shown by Messrs. C. H. Lucas and Co., 75, Red Lion Street, Holborn, W.C. On the stand of Messrs. Grimes Bros., Limited, 22, Long Lane, Aldersgate, S.E., was a collection of air tubes and covers.

The Clifton Rubber Company, of Crouch End, showed raw hide belting for motor-cars and also covers for tires.

Saddles for motor tricycles promise to add another branch of activity to several firms, and among the makers of cycle saddles who exhibited saddles specially adapted for motor-cyclists were Messrs. E. and A. Noirit, Walsall, and the Leatheries, Limited, Henstead Street, Brooms-

grove Street, Birmingham. Messrs. Lycett, Limited, of High Street, Deritend, Birmingham, had a motor-tricycle saddle on five coils and fitted with a patent back rest. This is being adopted by some of the leading makers, and is calculated to add to the comfort of riding. At Messrs. Lamplugh and Co.'s (Garfield Road, Coventry) stand were motor-tricycle saddles with the firm's patent tensioned webbing base that has been familiar in connection with cycles.

Some very useful motor-car accessories were to be found at the stand of Messrs. Alfred Dunhill and Company, of 145 and 147, Euston Road, N.W., in the way of rubber mats, rugs, and gloves, all necessary articles, especially now that the winter season is upon us. Mr. Dunhill's products in this direction are now too well known in the automobile world to need any lengthy mention in connection with the present show, but we may add that he is also making a speciality of outfits for the repair of punctured pneumatic tires of motor cycles and cars. The repair of a tire on the roadside is anything but a pleasant task, but it is better to be equipped for emergencies than to be stranded on the roadside, miles from a railway station. Gauntlet gloves are another speciality, and he has also a large collection of rubber mats of excellent quality and appearance. Among the mats we specially noticed those made from Imperial fibre, which are having good sale. The "pure white" indiarubber footboard mats are excellent. Some capital water and dust-proof covers for motor-cars were also to be seen on this stand.

Most complete, so far as the motorist's personal equipment is concerned, was the stand occupied by Messrs. A. W. Gamage, Limited, of Holborn, upon which were shown some fashionable designs in motor clothing, including black and brown leather suits, overcoats, riding breeches, etc. Among the novelties is a tweed coat of the latest pattern with sanitary wool fittings and deer-skin lining. For those who prefer a more expensive coat there is a jacket of French kid, which has a remarkably good appearance, and should become popular among Society votaries of the motor-car. In addition to a very complete selection of clothing for automobilists, there was a capital display of motor caps, gloves, and leggings, while several specialities in gauntlets seemed to attract general attention. A special novelty was a combination rug and garment. This is made of leather, and can be thrown over the knees, while by an ingenious system of overlapping and buttoning it can be converted into a pair of trousers with good capacious pockets; it is a capital idea for the motorist in wet and dirty weather. Another speciality was a cover to be placed on the front seat of a quad. It is so devised that the lady's feet receive full protection, being practically enclosed in a fur muff. Among the sundries exhibited by Messrs. Gamage were motor-bells and horns. One of the latter has a gauze cover to prevent, as far as possible, dust getting to the reed, and another is fitted with a long tube so that it can be placed anywhere on the car, according to the wish of the driver.

Eye protectors and goggles were matters of motor interest at the stand of the "Rex" Patents, Limited, 3, The Exchange, Clapham High Street, S.W. This company showed the "Rex" goggles of the original French pattern, which being made to fold up into a very small case have the advantage of easily going into the pocket. The "Rex" eye protectors fitted with side flanges to prevent draught also deserve passing notice, being evidently well made. Among the miscellaneous goods here shown was a chain lubricant for motor-vehicles.

Mr. John Piggott, of Cheapside, E.C., had a varied show in the gallery, and among his display of clothing we noticed several good types of garments suitable for motorists. A speciality is made of leather goods, all of which are well and warmly lined. In addition to these Irish friezes are also being utilised, and a good assortment of head-gear was conspicuous on this stand. Adjoining the clothing department was the firm's motor accessories branch, where petrol cans, etc., were to be seen as well as a motor horn worked by means of a bellows placed in the floor of the car and operated by the foot.

Neat liveries for the servants of automobilists were on view at the stand of Mr. Charles R. Base, 310, High Holborn, W.C. One of these was in black or brown leather cut to fasten at the front with hooks, and faced with box-cloth of any colour desired. Breeches are generally worn with these, made of the same leather as the coat, and boots or gaiters. The cap can have a peak to match the facings of the jacket, and, nicely braided, makes a very effective livery. Double-breasted leather Chesterfields with Melton collars and wool lined were another exhibit, the whole being completed with a good selection of leather-lined tweed coats, breeches, etc.

The "Autocoat" was shown by Messrs. Hoare and Sons, of High Holborn, and attracted considerable attention. This is made of a rain proof cloth and lined with all-wool material and interlined with "antiletheret"—a speciality of the firm's, which is said to be absolutely wind and rain proof. Across the back and sleeves a yoke is given, ensuring extra warmth, and the style of buttoning secures ample protection for the chest, while the provision of wind-proof cuffs and special map pockets shows that no detail has been omitted in the endeavour to provide a really serviceable coat. In addition to Autocoats and Autosuits—the latter made in the same serviceable way as the Autocoat—Messrs. Hoare and Sons gave a conspicuous place to the "Aquatecta" waterproof cloth overcoat, a garment combining the warmth of the overcoat with the rain-repelling qualities of the waterproof.

Foot-gear is an important item in connection with the motorist's outings, and to meet a difficulty that has hitherto been felt, Mr. George Norris, 55 and 56, Bishopsgate Street Within, E.C., has introduced a new design in boots specially intended for the use of automobilists. This is a neat leather boot with a flap that overlaps and is

buckled in two places, thus securing thorough protection to the foot and providing a hoot that is easily put on and quickly taken off.

The "Compound" foot pump shown by Messrs. Hattersley and Davidson, 139, Norfolk Street, Sheffield, is specially intended for the rapid inflation of pneumatic tires, and should prove of great convenience to motorists. There are two barrels $1\frac{1}{2}$ in. and 2 in. diameter which are connected at the top by a cross air channel. Two plungers fitted with collapsible leather valves working in opposite directions are connected to the double handle. The up-stroke compresses the air of the larger barrel into the smaller one, while the down-stroke expels the compressed air. At the same time the pump feeds itself through the larger barrel. The result is that a pressure of 150 lbs is obtained with ease and a 28 in. tire can, it is claimed, be inflated in three strokes. From Sheffield also came Mr. Ernest H. Hill, of Broomhall Street, with several good accessories for motor-cars, one of the most useful being a pump so jointed that it will lie flat in the car.

The stand occupied by Messrs. Benton and Stone, Bracebridge Street, Birmingham, was of interest to motorists generally, two or three excellent specialties being shown. One was a motor-car tire pump of good design with a detachable rubber tube and a detachable lever handle. In the same category may be placed a pump with a large cross handle and specially intended for workshop or depot use. In motor-car reservoirs Messrs. Benton and Stone have a tank with lubricating pump and filler feed. This has a steel barrel and bands, and the pump is provided with double valves to prevent the return of the oil to the tank. There are several adjustable clips and the connecting tube is twenty-two inches long. Weighing, complete, 10½ lbs., the reservoir has a capacity of eight pints of petrol and two pints of lubricating oil. At this stand was also to be seen a lubricating reservoir of oval design for attaching to the splash board.

Lubricants for motor-cars formed the feature of the display made by Messrs. Stern Bros., 57, Gracechurch Street, E.C. Among the specialties shown were Sternoline paste for the chains, Fram lubricants for axle bearings and gear boxes, Sternoline motor-car oil, Sternoline cylinder oil, Sternoline rust preventive, etc. The Sternoline paste must be applied in a liquid state to chains and cogs. It cools rapidly, and forms a strong, smooth surface which neither comes off nor blisters. The makers claim that the use of this elastic paste diminishes wear and avoids all direct friction. Dust will not mix with it, so that the cogs are kept perfectly clean, and although quite dry in appearance they are well lubricated. As the paste is entirely free from acids and all impurities, its elasticity is easily preserved and it will not harden. Another speciality at this stand was Stern's adhesive belting brick, which is made in a very compact and handy form, and is very clean. It prevents the belts from slipping or coming off the pulleys, keeping them pliable and counteracting the looseness produced by stretching. Attention may also be directed to Stern's commutator paste for preserving the brushes and commutators of electric motors and preventing sparking, etc.

Among exhibitors of lubricants for motor chains, motor grease, etc., were to be found the Elephant Chemical Company, Neate Street, Camberwell, S.E., who also showed their rubber solution; the Ferrubron Manufacturing Company, 143, Queen Victoria Street, E.C., who make a feature of the Garton motor chain lubricant; the High Level Brand Company, 6, Prudhoe Street, Newcastle-on-Tyne, and Messrs. Moebius and Son, Lion Works, Homerton, N.E.

Motor-car cylinder oil and motor-car lubricating oil were shown by Messrs. Pilchers, Limited, Morgan's Lane, Tooley Street, S.E. These oils have a high flash point and great viscosity at high temperatures; consequently dependence may be placed upon their ability to work clean and free without clogging the various parts to which they are applied.

Solutions for repairing pneumatic tires found a place on the stand of Messrs. Stanley, Feast and Co., Limited, 9, Farringdon Road, E.C., and on that of Messrs. Tomcox, Limited, 50, Loveday Street Birmingham, was a selection of oil cans, inflators, etc.

Specimens of enamelling, lining, and embellishments in artistic designs and good colours were shown by Messrs. F. Attwood and Co., 141 and 142, Great Saffron Hill, W.C. Special attention is being directed to the suitability of close plating for motor-car work, as great durability is thereby secured. The firm also undertake the engraving of wheel caps, etc.

Among the miscellaneous exhibits were the celluloid mud-guards for motor-cycles displayed by Messrs. Bluemel and Bros., Globe Road, E., who are prepared to make similar guards for motor-vehicles of every description. The Cable Rim Brake Company, 146, Brixton Hill, S.W., had a cycle brake on the principle indicated in their title, and this is being applied to motor-cycles.

Spokes and nipples of the "Anchor Brand" for motor-cars and motor-cycles were shown by Messrs. D. F. Taylor and Company, Ltd., New Hall Works, Birmingham—a firm that is prepared to make such parts in every size. Messrs. Ross, Courtney and Company, Ltd., Ashbrook Road, Upper Holloway, N., had a spoke-cutting machine, and also showed their valves, nipples, etc. Dies for motor-car spokes were also shown by Mr. Joseph Bradbury, of New Street Works, Baintree. From the same town came Messrs. Lake and Elliot, of the Albion Works, with tools for cutting motor-spokes. They make dies for every size from the motor-tricycle to the largest car made in this country. Mr. H. Friedenham, 16 20, Farringdon Avenue, E.C., had a collection of fittings, etc., including spokes, nipples, etc., for motor-cars.

Motor horns and bells for motor-cars formed an increasingly interesting section of the show, and their constant demonstrations added a new trial to tired exhibitors. At the stand of Messrs. Markt and Company,

25 and 26, Shoe Lane, E.C., several varieties of bells were shown including those with a double stroke and electric bells, very penetrating in their results. Odometers, etc., and pumps for motor-cars were also displayed by Messrs. Markt and Company. Another good motor bell as well as horns of various patterns were exhibited by Messrs. O'Halloran Bros. and Co., of 184, Clerkenwell Road, E.C., special attention being drawn to a bell for fixing on the footboard, from whence it is operated. Bells and similar motor accessories found a conspicuous place on the stands occupied by Mr. Louis Bernstein, 78, Milton Street, E.C., and Messrs. Steiner and Co., 141, Houndsditch, E.C.

HEAVY MOTOR TRAFFIC IN FRANCE.*

By M. GEORGES FORESTIER, Inspector-General of Roads and Bridges in France.

The Council of your Association has decided that the opening address of your fifth session should turn on the state of the question of *Poids Lourds* in France, in order to furnish you with food for comparison regarding the progress made in this direction on either side of the Channel. The French term *Poids Lourds* is perfectly translated by "Heavy Motor Traffic," but does not apply to the same vehicles on both sides of the Channel. On your side, "Heavy Motor Traffic" seems to me to apply to vehicles employed in the transit of heavy merchandise, two tons being the minimum load. On our side, *Poids Lourds* comprises all vehicles adapted for a quick service for passengers or the slower transport of heavy merchandise, the minima being either ten travellers with their baggage or one ton of goods. The expression *Poids Lourds* also implies, with us, the idea of a regular service, in which the itinerary is always the same. The hours of departure and arrival and the time spent on the journey are fixed; hence the supplies for the motors can be always ready in advance at certain points arranged beforehand. This allows every source of energy to be used for the motor, such as even electricity or compressed air, as well as petrol and solid fuel.

An Historical Retrospect.—A letter, dated July 2nd, 1771, from Grébaud, the great reorganiser of French artillery, which is preserved in the archives of St. Thomas d'Aquin, informs us that in 1769—"M. Cugnot had orders from M. le Duc de Choiseul to make a model of his machine at the expense of the king. This carriage ran last year, 1770, in the presence of M. de Choiseul. It carried four people and ran at the rate of two miles an hour, but the feed pumps were too large for the boiler's capacity. It could not run for more than twelve or fifteen minutes, and was obliged to stand an equal time for the steam to recover its original pressure. The grate and flue were badly designed, and allowed the heat to be wasted. The boiler appeared, also, to be too weak for some of the pressures obtained." It was judged from this trial that a carriage built the proper size and better proportioned might succeed, and Cugnot received orders to construct a new one to carry a load of four to five tons, and run regularly at the rate of a little over two miles an hour.

This carriage was built, and on July 2nd, 1771, Grébaud informed the Marquis of Monteynard, then Minister of War, that the "fire carriage" was at the Paris Arsenal ready to undergo the trials, subject to eight days' notice being given to the inventor. The Marquis of Monteynard replied, on July 7th, that he was afraid he would not have the time to make any trials before leaving for his country seat. No official account of the proceedings has been found, but there is a legend that the carriage was thrown against a wall as it was leaving the manufactory, an accident which put an end to the trial.

In a recent article in the *Revue d'Artillerie* (October, 1900), M. le Commandant Ferrus refers to this legend, and shows that the vehicle never was experimented on. This "fire carriage" of Cugnot is now in the Conservatoire des Arts et Métiers. It is seen from a photograph that it is a three-wheeled vehicle, in which the front wheel combines both the steering and driving functions.

Ever since the first attempt of this "fire carriage" it has been recognised—

- (a) That it is necessary to have a boiler with ample evaporative power, and one easily fed.
- (b) That the steering gear must act truly and promptly.
- (c) That it is very difficult to dispose the driven wheel or wheels so as to retain full mobility in turning.

This first "fire machine" was a self-propelled lorry or motor-wagon.

From 1771 to 1828 several other trials of carriages of this type were made in France. They are, however, of more interest as a study of the steam engine than of the development of the steam vehicle. On the other hand, in the drawings of the carriage designed in 1828 by Onésiphore Pecqueur, Chief of the Laboratories des Arts et Métiers, one finds, at least in the germ, all the essentials which have to-day assured the success of automobile vehicles.

The wagon of Pecqueur was, like that of Cugnot, an auto-motor lorry or truck, but it had four wheels. The front wheels were the guiding, the back the driving ones. Chain transmission was adopted between the engine shaft and the driving axle. In order that each driving wheel, when turning, should roll tangentially to the radius of its curve, the axle on which they were keyed was in two parts, joined together by a satellite gear. As to the steering, it was controlled, through an arrangement of pinions and toothed wheels, by two rods fastened to the frames in which the wheels were fixed.

* Opening Address of Fifth Session of the Liverpool Self-Propelled Traffic Association, being the local centre of the Automobile Club of Great Britain and Ireland, December 3rd, 1900.

This system was suggested in 1817 by Langensperger, of Munich, and was brought to England in 1818 by Akermann. It had one serious drawback. In their displacements, owing to the straight arms, the wheels travelled parallel instead of taking positions which would enable the projected axles of all the four to meet at the point of the centre of rotation of the system. One thus sees that the Pecqueur wagon contained, at least in the germ, all the parts necessary for a perfect auto-motor wagon. Through not knowing them, many inventors have since wasted their time in useless researches.

From 1828 to 1835 we have not, it seems to me, had attempts worthy of being mentioned. On February 10th, 1835, an English automobile carriage, built by Maceroni, and brought over by Asda, traversed the road from Paris to Versailles and back in four and a half hours, with a stop of forty-two minutes at Versailles, a distance of twenty-seven miles. On March 15th, the same carriage accomplished in four hours and twenty-nine minutes the journey from Paris to St. Germain and back, inclusive of a sixty-two minutes' rest at St. Germain and stops at Nanterre (both going and coming) in order to renew the water. The boiler pressure rose to eleven atmospheres. The engine was 14 i.h.p. The weight of the carriage when fully loaded was four and a-half tons. No accident whatever occurred in these journeys, and the *Constitutionnel* after having given an account of the experiment, adds:—"What is certain is that in a short time one or more regular services will be established from Paris to St. Germain and Versailles."

The French inventors seem to have abandoned the auto-motor or self-propelled vehicle for tractors. To illustrate this one may cite Dietz, who, in 1835, took out a patent for a steam locomotive to travel on common roads. The first type had three wheels, but, different from the Cugnot lorry, the two back wheels were the drivers. The carriages constructed afterwards by Dietz had three pairs of carrying wheels fixed in horn plates, which permitted them to follow the windings of the road. Dietz merits special mention because he seems to have been the first person who tried to build wheels with elastic tires. He tried to realise this desideratum by interposing either a layer of tarred cloth or of cork, or finally of india-rubber, maintained between the felloe and the tire by side plates bolted on to the felloe. Dietz also attempted to replace the wooded nave by a metal one. On September 26th, 1835, one of Dietz vehicles made the journey from Paris to St. Germain, a distance of thirteen miles, in one and a half hours. This run included the steep hill at Peq, the ascent of which occupied only five minutes. This performance aroused the enthusiasm of a commission, including such men as Poncelet, Savary, Gainby, with Baron Séguier as secretary, appointed by the Institute to follow these trials. This enthusiasm lasted long enough for Charles Olivier, Professor of the Central School, to declare in 1840, in a report read at a meeting of the National Society of Encouragement experiments, that the problem of steam locomotion on roads had been solved.

In 1835 two other French constructors, Caby-Cazalat and C. Muyaude, tried to introduce another steam vehicle of their own invention. From 1835 one must jump to 1856 before finding a practical steam vehicle. It was, in fact, at this epoch that the firm of Lotz, of Nantes, acquired its reputation through an agricultural road locomotive, which was destined to fill a double rôle, viz., either to be a steam ploughing or thrashing machine, or a traction engine for conveying these different machines from one farm to another. In the first type the fore part of the carriage with two wheels was manipulated by a chain and drum, controlled by a hand-wheel placed conveniently for the driver at the back, as in road rollers.

In 1865, in order to render these road locomotives specially useful for towing boats, M. Lotz adopted a means of steering through a single front wheel placed in the centre of a horizontal toothed ring. This was moved by a pinion carried at the bottom of a vertical shaft, at the top of which was fixed a helical wheel gearing into an endless screw on the steering spindle. Only one of the back wheels was fast on the axle. The other could run loose on curves.

M. Lotz, whilst specially devoting himself to tractors, constructed a steam carriage for passengers steered by the front wheel. The carriage, as a whole, presented the features which have eventually prevailed. The vertical boiler and the engine were placed in front in a kind of half-circular fore part, which was supported by the steering wheel. The driver, seated between the control levers and the compartment occupied by the passengers, had under his own hand all that was necessary for guiding the carriage as well as managing the boiler and the engine. Chain transmission was used, but one of the driving wheels had, in this carriage also, to be thrown out of gear to avoid skidding and scraping in turning corners.

It was in order to avoid this inconvenience that, in 1866, Baron Séguier strongly urged the employment of a separate engine for each driving wheel, and proposed to have a special valve between the two cylinders in order to supply steam to each in the proportions necessary for their trajectory differences. An arrangement of this kind was adopted by M. Bollée, in 1873, on his first steam carriage, "L'Obéissante."

This carriage of M. A. Bollée merits special mention, for it was the first in France that was provided with two guiding wheels so arranged that the axes converged towards the centre point of the back axle. In this first attempt each of the front wheels was movable, as in the Pecqueur car, round a vertical spindle, carrying a cap fixed on the end of the axle-box. These two pivots had rims which were connected by chains to two elliptical plates, set one over the other and controlled by a lever.

In 1878 M. A. Bollée constructed another carriage, "La Mancelle," in which a single motor drove on to a differential gear, and from that, by pinions and chains, to the driving wheels, which were loose on the back

axle. In this carriage the steering was altered. The wheels were moveable round pivots fixed to the extremities of the fore-axle. The short axles fixed to these pivots were connected by two rods, forming a V, and given the necessary movement by suitable gearing. This new carriage of M. Bollée was thus provided with all the necessary parts for an automobile carriage. In 1882 M. Jeantaud patented an improvement of the Akermann steering, the two arms being inclined forward, in opposite directions, instead of being straight. This principle has been adopted in the greater number of the steering arrangements in France.

From about the same period date the first applications of the De Dion boiler to automobile carriages, which finally developed into the tractor which, on July 19th, 1894, arrived first in the race for "carriages without horses" between Paris and Rouen, organised by *Le Petit Journal*, and which really inaugurated the era of automobilism. The runs of 1895, Paris to Bordeaux and back, and of 1896, Paris to Marseilles and back, drew the attention of the public more closely to the advantages of the new mode of locomotion, not only for touring excursions but also for the purposes of industrial transport.

In 1897, the Automobile Club of France, which had been founded by the organisers of the run from Paris to Bordeaux, arranged at Versailles the trials for *Poids Lourds* which have succeeded so well. In the steam section, there was a De Dion and Bouton tractor, an omnibus belonging to the same firm, a Scotte omnibus, and a lorry by the same maker; in the explosion engine section, an omnibus for ten passengers built by Messrs. Panhard and Levassor, and a De Dietrich car. The success of these trials was such that, in the Financial Budget of 1898, the French Parliament voted article 86, which authorised the Government to grant subsidies to regular public transport services for passengers and goods, by means of automobile vehicles, under the same rules as for tramways or light railways.

In 1898, the second *Poids Lourds* saw presented for trial.

STEAM.

- | | |
|---|-------------------------|
| (1) Heated by coke—De Dion and Bouton omnibus | ... with 20 seats. |
| " " " " " " " " " " " " | " " " " " " " " " " " " |
| " " " " " " " " " " " " | " " " " " " " " " " " " |
| (2) " " petrol—Leyland sporting car | ... " 15 cwt. |
| (3) " " heavy oil—Serpellet omnibus | ... " 12 seats. |

EXPLOSIVE ENGINES.

- | | |
|---|-----------------|
| Panhard and Levassor parcel delivery carriage | ... with 1 ton. |
| Roger-Mazurier omnibus with compound motor | ... " 12 seats. |
| De Dietrich lorry | ... " 1½ tons. |
| " " brake | ... " 10 seats. |

ACCUMULATORS.

- | | |
|--|-----------------|
| Society of Electromobiles—Parcel delivery carriage | .. with 15 cwt. |
| Krieger System | ... " 10 " |
| Janatzky | ... " 25 " |

In 1899, the *Poids Lourds* was as brilliant. To the systems represented at the previous competitions was a new steam motor—a lorry built by Messrs. Purrey, of Bordeaux, which carried 3 tons.

In 1900, the fourth Congress took place at the Vincennes Annexe, and at this meeting we have to add to the competitors already mentioned the following:—

STEAM.

- | | |
|--------------------------------------|--------------------|
| Le Blant tractor, hauling an omnibus | ... with 30 seats. |
| The Turgan van | ... " 1 ton. |

EXPLOSIVE ENGINES.

- | | |
|---|------------------|
| Panhard and Levassor lorry (solid rubber tires on steering wheels)... | ... with 2 tons. |
| Peugeot lorry (compound rubber and metal tires) | ... " 1 ton. |

ACCUMULATORS.

- | | |
|----------------------------|-----------------|
| Rike parcel delivery van | ... with 1 ton. |
| Say's sugar refinery lorry | ... " 10 tons. |

Moreover, at the competition for urban parcel delivery vehicles, which took place in August, a steam motor participated which was provided with a Chaboche boiler heated with coal. Finally, in the Vincennes Annexe, the conveyance of passengers by electric omnibus has been proved a success by one carrying twenty-four people, and provided with an electric motor and a self-propelling trolley.

With so many types of *Poids Lourds* it is impossible for me to give you even a brief description of any of them. Besides, it would be inadmissible in an address calling for a general review of the principles which are revealed by the study of the results obtained since 1897. Let us deal first, then, with the steam motors employed for passenger services.

One is struck by the ever-increasing power of the motor compared with the number of horses which have to be employed for similar omnibuses. Thus in 1897 the power of the engines was:—

- | |
|--|
| 25 h.p. for an omnibus for sixteen people (De Dion). |
| 35 " " a "Pauline" for thirty-five people (De Dion). |
| 14 " " an omnibus for twelve people (Scotte). |

In 1898.

- | |
|--|
| 30 h.p. for an omnibus with twenty seats (De Dion). |
| 30 " " a "Pauline" with twenty-four seats (De Dion). |
| 15 " " an omnibus with fourteen seats (Serpellet). |

In 1899.

- | |
|---|
| 30 h.p. for an omnibus with twenty seats (De Dion). |
|---|

In 1900.

- | |
|---|
| 35 h.p. for an omnibus for twenty people (De Dion). |
| 50 " " a tractor for twenty passengers (Le Blant). |
| 40 " " a roulotte for ten passengers (Turgan). |

This tendency, which is displayed in all the De Dion omnibuses that have taken part in our meetings, arises from a double cause:—First.—The outlay per passenger is largely due to the wages of the mechanic

and stoker. In order to reduce this, it is necessary to increase the number of passengers carried each journey, which means an increase of the total moving weight. Second—Interest and sinking fund charges call for an increase in the number of journeys made each day, and this means that the commercial speed must be augmented.

An increase of power follows, and, unfortunately, this greatly increases the weight of the vehicle. For example, the omnibus of De Dion and Bouton at the 1897 trials weighed five tons empty, and 6·7 tons when fully loaded. Its commercial speed was 8·6 miles per hour. That at the 1900 trials weighed 6·6 tons empty, and 8·6 tons when fully loaded. Its commercial speed was 11·2 miles per hour.

The estimated cost per traveller per mile with luggage, ten persons being reckoned to the ton, has fallen as follows:—

In 1897	... ..	0·48d.
" 1898	... ..	0·24d.
" 1899	... ..	0·23d.

But in these calculations no allowance has been made for damage done to the roads, for in France, at least on public roads, no tolls are levied upon the transport companies for damage. If this side of the question were taken into account the expenses would probably be much increased, and the constructors would doubtless be obliged to study the reduction of the total weight of their high-speed public service vehicles to that of the former diligences, viz., to about four tons when ready for the road. It is desirable, therefore, to inquire as to which part of the actual vehicles could be lessened in weight without damaging the efficiency of the whole.

(To be continued.)

FURIOUS DRIVING CASE.

MR. C. A. SMITH, of the White Lion Hotel, Cobham, was fined £5 at Kingston-on-Thames on Thursday, last week, for driving a motor-tricycle on the highway at Esher, on November 20, at a greater speed than was reasonable, having regard to the traffic. A police-constable stated that defendant was travelling at the rate of eighteen miles an hour. Notice of appeal was given.

DRIVING WITHOUT A LICENCE.

HENRY NEWMAN was summoned at the Merthyr Police Court, last week, for driving a motor-car without being licensed as a driver on 22nd ult. Mr. J. T. Vaughan prosecuted on behalf of the Urban District Council, and quoted the Town's Police Clauses Act. P.C. Venn, and Mr. J. E. Biddle, assistant clerk to the Council, having proved what was necessary, defendant was called upon for his defence, and he pleaded that he had expected the car owner, Mr. Jenkins, to take out his licence. A fine of 40s. and costs was imposed.

REFUSING TO STOP.

AT the Hove Petty Sessions, on Monday, William Griffiths, of Beauchief, Harrington-villas, Brighton, was summoned for, that being in charge of a light locomotive upon the highway, he did not stop on the request of George Henry Lake, of 19, Chesham-road, Kemp Town, having charge of a restive horse, upon his putting up his hand for the purpose of causing such light locomotive to stop, and to remain stationary so long as was reasonably necessary in Lower Shoreham-road, on November 28th.—Complainant said he was riding a high-spirited horse in Lower Shoreham-road about noon, when he heard a motor-car coming behind him. As the horse became restive, witness signalled to the driver to slow down when the car was about sixty yards off. Defendant took no notice, but drove straight on. Witness was able to keep the animal under control. In reply to the defendant witness said the horse was going at a walking pace, and the motor was travelling very fast.—Defendant said when he saw complainant put his hand up he passed the horse as far as he could on the opposite side of the road. The animal took no notice whatever, but after witness got about twelve yards in front of it complainant trotted it close up to the car, and said he would summons the defendant.—A fine of £2 and 8s. costs was imposed.

MOTOR CAR AND CAB HORSE.

At the Sheffield County Court on Monday, his Honour Judge Waddy, Q. C., heard an action which was a sequel to a nasty cab smash which occurred in Fitzalan Square on 14th October. The plaintiff was George Hobson, cab proprietor, 75, Milton Street, Sheffield, and the defendant Fredrick Rodgers, of the Royal Viagraph Company, who was at the time in question staying at the Green Dragon Hotel, Fargate, Sheffield. The action was brought to recover £40 damages for injury to a cab caused by the negligence of the defendant, who had charge of a motor-car in Fitzalan Square, on the afternoon named. Mr. Walpole Hiller was for the plaintiff, and Mr. Arthur Neal for the defendant. The case for the plaintiff was that about half-past four several cabs and hansoms were standing on the Fitzalan Square cab stand, including Hobson's vehicle. Defendant came up Commercial Street on a motor-cycle, which he was testing for Mr. Jasper Redfern, and as he proceeded along Fitzalan Square something went wrong with the machine. The cycle slowed up, and eventually stopped, and defendant got off and tried to put it in order.

All at once it went off with a big noise. Some of the witnesses said the noise was like an explosion, and others said it was like a small cannon going off! Hobson's horse was startled, and made off. The cab was so badly smashed that it was rendered useless. The evidence for the defence was that Rodgers had been to Attercliffe, his object being to test the machine. Coming up Commercial Street, the power was not sufficient to carry him, and he had to work the pedals. Instead of going up High Street he turned into Fitzalan Square, intending to leave the machine there with a cabman or someone else, and send for it later. While he was wiping his hands with a piece of waste—he was not doing anything at the machine—defendant noticed one cab horse trying to get the food out of the nose-bag of the plaintiff's horse. The latter became restive, and threw itself back. The jerk caused the cab door to fly open, and it crashed against another cab. The noise startled the horse, and it made off, and was stopped near the Post Office. There was no noise from the cycle, and this, therefore, could not have been the cause of the accident. After the mishap he proceeded up High Street, pedalling the machine for some distance. The first time he heard that he was suspected of being the cause of the mishaps, he went and saw the police at the Central Police Offices. Mrs. Bolt, who lives in Fitzalan Square, said she saw the accident, and did not think the defendant was to blame at all. His Honour found for the plaintiff for £15 and costs.

SOME trials with a light motor-car have lately been made in the neighbourhood of Berne by the Swiss military authorities.

THE Mayor of Portsmouth has suggested a floral decoration procession, in connection with the motor-car run to Southsea next summer.

IT is proposed to organise a club for motorists in Glasgow and the West of Scotland, and a meeting will shortly be called to consider the project.

AMONG the lady members of Washington's diplomatic circle who have taken to automobilism are Miss Marguerite Cassini, the niece of the Russian Envoy, and Madame Wilde, the wife of the Minister for the Argentine Republic.

FOR the motor as against the horse the following eight points of superiority readily suggest themselves: Economy in working; increased possibilities in speed; greater safety; infinitely greater radius of action; humanity; economy in road repairs; cleanliness in streets, and increased volume of traffic over a not increased street surface.

THE current issue of Automobile Club's Notes and Notices gives a list of sixteen cars that started for Southsea, but did not arrive there on the occasion of the Club's recent tour. Broken bearings, broken crank-shaft, mis-firing, faulty differential, and broken steering arm were the causes of trouble. One driver was "believed to have given up at Petersfield," and another went by train from that place to Portsmouth.

MESSRS. ALLARD AND CO., LTD., of Coventry, have sent us a copy of their 1901 catalogue of motors and cycles. The first fourteen pages are devoted to illustrations and descriptions of the company's motors and automobiles, these including a 3½ h.p. vertical water-cooled motor, air-cooled vertical engine, 4½ h.p. horizontal water-cooled motor, the Express 4½ h.p. dog-cart, the Rapid 3½ h.p. two-seated voiturette, and the Allard motor-tricycle.

REFERRING to the Hurtu voiturette, illustrated in our issue of the 24th ult., we may mention that the United Motor Industries, Limited, are British agents for this car, and that they will shortly have some over here. The standard body, however, will be somewhat different to the illustration we published, a *tonneau* body being adopted. The steering pillar will be raked, while a De Dion-Bouton 4½ h.p. water-cooled motor, with pump circulation and radiators, will be fitted.

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THE Motor-Car Journal.


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COMMENTS.



WE have already referred to the steps about to be taken by the Automobile Club to secure something like reasonable regard for the future of the motor car industry, now seriously menaced by the threatening attitude of many county councils—to say nothing of lesser and equally irritant bodies. The letter to county councillors on the subject has just been sent out, and is, we are inclined to think, well calculated to prove of educational value. It is a lengthy document of twenty-six foolscap pages, an excellent index, and a careful division of subjects, securing easy reference and facilitating study of the report. The arguments which are given and the facts presented are aimed at proving two things; firstly, that the reduction of the speed to ten miles an hour would be an injurious procedure and cannot be justified by any unprejudiced person, and secondly, that the compulsory numbering of motor-vehicles would cripple, if not destroy, an important industry.

For Automobiles.

THE contents of the memorial are divided into sections. The first deals with the importance of the motor-vehicle from the standpoint of the general public, and it is urged that “unless further restrictions again kill the industry in this country there is reason to believe that, owing to the excellence of English workmanship and material, English made carriages ere long will be sold abroad.” Then the question of speed is dealt with, and it is pointed out that it is inability to stop within a required distance which is dangerous. Reference is made to the speeds of stage coaches of 1830, and the Club Committee submit that any alteration in the law affecting motor-vehicles, should place them on the same basis as other vehicles, viz., that they should not be driven to the “common danger.” With regard to the proposed compulsory numbering of motor-carriages the repugnance of gentlemen owning private cars to be numbered is rightly insisted on; and further that, as motor-vehicles pay the Inland Revenue Tax required of other vehicles, their owners have a right to claim the same privacy in respect of their automobiles as is permitted in the case of other vehicles.

Opposition to Railways.

THE serious and official character of the letter to county councillors is relieved by some capital instances of the opposition to railways. In opposing in the House of Commons the Liverpool and Manchester Railway Bill Sir Isaac Coffin asked if the House was “aware of the smoke and noise, the hiss and whirl which locomotive engines passing at the rate of ten or twelve miles an hour would occasion.” At the time of the Stephenson period of railways it was asserted, in the evidence before the Parliamentary Committee, that “if railways became general a million of horses would be thrown out of service, to the deterioration of the breed, and it would mean the abandonment of the 8,100,000 acres of land required to grow oats for the animals.”

These and other fantastic statements made against railways, and resembling in many aspects the objections urged against motor-cars, are amusing and instructive. The letter is concluded with some extracts from recent speeches and articles on mechanical road locomotion, and should do much to educate county councillors, or, at least, prepare them for the practical demonstrations which will be afforded them in the early spring.

To Chief Constables.

IN addition to the letter to councillors and the warning to motor-car drivers, the Automobile Club has sent a letter to all the chief constables in which they are asked to inform the club of any cases of refusing to stop which come to their notice. It is suggested that the proper form of the inquiry to police authorities would be to ask whether the number of accidents caused by motor-vehicles to other users of the road is such as to demand that the numbering of motor-vehicles should be compulsory. It is suggested that in answering such a question accidents caused by shying horses should be excluded, as they are a temporary evil incidental to the introduction of every new method of locomotion, but already disappearing in the case of automobiles.

The Gordon-Bennett Race of 1901.

ALTHOUGH nothing has as yet been made public of what is being done by French competitors in regard to next year's Gordon-Bennett Cup race, it is freely reported that the leading builders across the Channel are not overlooking the enterprise of English motorists, and are determined to retain the trophy. With this in view, we hear that some very “dark horses” are in preparation. Germany, too, does not mean to be behindhand in next year's race, for we learn that the German Automobile Club have already received entries from three firms, the Daimler Motoren Gesellschaft, of Cannstatt, having entered two cars, and Messrs. Benz and Co., of Mannheim, and the Canello-Durkopp Company, of Bielefeld, one each. No particulars of these vehicles have as yet been made public, but it is more than probable that the Cannstatt-Daimler cars will be fitted with the new 40-h.p. “Mercedes” motor, illustrated in the present issue. As already announced, four entries have been received by the A.C.G.B., the car in each case being a 50-h.p. Napier.

Warning to Drivers.

As the fact that some motorists have failed to stop when properly required to do so is urged as the reason for the proposed numbering, the Automobile Club is prepared to assist the police by expelling any known delinquents from the Club. And in our advertisement columns this week will be found an indication of the serious view which is entertained of the matter. For the Committee “give warning to members of the Club that if any member be proved, to their satisfaction, to be guilty of failing to stop when called upon to do so by a person in charge of a restive horse, or by a police constable, he shall be liable to be expelled. If any other motorist be similarly proved guilty of

this offence, he will be liable to be prevented from taking part in any trials, competitions, tours, or meets held under the auspices of the Club, and from becoming a visitor to, or a member of, the Club. As regards speed, the Club Committee beg motorists to avoid the employment of excessive speeds, and to drive very slowly through towns and villages, and in approaching corners and cross roads. Provided that the offence of failing to stop when required to do so is eradicated, the police will, without assistance from the Club, be able to deal with those who are guilty of dangerous driving." In connection with this, attention is drawn to the suggestion that no person should be allowed to drive a motor-vehicle until he has obtained a certificate as to his capability to do so. The Automobile Club would be prepared to organise a scheme by means of which persons would be able to acquire the requisite knowledge for the driving of motor-vehicles to enable them to obtain certificates of competence.

The Prince of Wales's New Motor-Car.

SINCE we illustrated the Prince of Wales's new Daimler car for service at Sandringham, we have obtained a few additional particulars of the vehicle, which is known as the Loaders' car. It is geared up to only twelve miles per hour, and is used to convey the gun-loaders to the place where the royal shooting parties are to commence operations and to take the loaders and keepers back again in the afternoon. The vehicle is also employed in conveying servants and luggage to and from the railway station, and so far has given every satisfaction, notwithstanding some bad roads and lanes in the Sandringham district. The other new Royal car is a 12 h.p. Lonsdale wagonette, and is employed for the conveyance of His Royal Highness's guests. Among the first to enjoy a trip on the new car was Mr. Balfour, who, accompanied by Lady Alice Stanley, was one day last week driven from Sandringham to Brancaster golf links, a distance of seventeen miles, while on Sunday last Mr. Joseph Chamberlain was conveyed from Sandringham to Lynn railway station in the Royal automobile.

Cycle Traders and Motor-Cars.

"SHOULD Cycle Traders Take Up the Sale of Motor Cycles, Cars, and Fittings?" was the title of a paper read by Mr. F. D. Nawell before the members of the Manchester and District Cycle Traders' Association last week. Considering the question of the sale of motor cycles and cars as a side line to the legitimate business, Mr. Nawell replied in the negative to his self-set question. The sale of motor-cycles must, the author stated, run concurrently with the ordinary cycle business, and as cycle traders need all the time and energies for their legitimate and staple trade of cycles and accessories, he did not think that the average agent would make a success of any branch of the motor business. On the other hand, he considered that for any practical man with capital the opening of a depot in suitable or large centres exclusively for the sale of motor-cycles, cars, fittings, accessories, and motor spirit would be one of the best investments he could think of, as the automobile is one of the coming things. A discussion followed, the general feeling being that the motor business ran concurrent with the cycle industry, but that it was a separate branch, which needed extra capital and special attention to secure success.

The Belgian Tour.

THE "Tour of Belgium," which is being organised for next year by the Belgian Automobile Club, is attracting considerable attention, and already a provisional programme has been sketched out. This provides for a seven days' excursion, the daily runs being sufficiently short to permit of exhibitions being given upon the completion of each stage. The tour is intended to serve three purposes in particular. Firstly, it will demonstrate to the general public that automobiles are to-day being built capable of performing, daily and continuously, runs over considerable distances. Then, by means of the exhibitions, the propaganda of evolution will be made more

widely known, and many unbelievers will be forced to recognise the fact that in numerous directions the horse's services will be superseded by those of the motor. Finally, the tour will afford the best of opportunities to the participants of visiting and studying some of the most interesting and ancient towns of Belgium. The seven days' programme, as at present prepared, is as follows:—First day: Brussels to Charleroi; exhibition and visits to principal works in the locality. Second day: Charleroi to Namur; exhibition and visit to local places of interest. Third day: Namur to Spa; exhibition and excursions in neighbourhood. Fourth day: Spa to Liège; exhibition and inspection of various manufactories. Fifth day: Liège to Antwerp; visits to ports and local works. Sixth day: Antwerp to Ghent; exhibition. Seventh day: Ghent to Ostend *via* Bruges; exhibition at Bruges and at Ostend; automobile sports and public sale of vehicles having participated in the tour. This programme is distinctly attractive and when elaborated will assuredly meet with universal approval. The exact date is not yet decided.

Mr. Pennington in Court again.

IN the Westminster County Court on Tuesday Mr. Egerton claimed the sum of £463 from Mr. Pennington, who has lately been residing at the Hotel Metropole, London, and who, it was said, had patented about eighty things appertaining to motor-vehicles. He had banking accounts in America, and represented the Anglo-American Rapid Vehicle Co. For the defendant it was said he owed £16,000. Some shares had been offered to the plaintiff, who had returned them. "It is clear," said Judge Lumley Smith, "that this gentleman's affairs require the fostering care of the Bankruptcy Court." And an order was made accordingly.

Professionals and Automobilmism.

MRS. LANGTRY among actresses and Lafayette among performers at the music halls have proved themselves adepts in the art of motoring, and now we see that the leader of a troupe of well-known pantomime artistes has joined those of the "mechanical horse." He is often to be seen in the West End careering along on a motor-tricycle to which a trailer is attached. The passenger is generally a lady, and the way in which the machine is got through traffic testifies to the ability of the driver. We believe the tricycle and the trailer are "stabled" in Bloomsbury, and that the speciality of the artistes is "flying"—they being engaged in one of the leading pantomimes about to be seen in London.

Royal Automobilists.

THAT automobilism is attracting the notice of the highest in the land has been amply proved of late, and all the world is aware that the Prince of Wales, the Emperor of Germany, the King of the Belgians, and the Shah of Persia have already become ardent *chauffeurs*. But the list by no means ends there, for other royal personages are also showing a taste for the joys of the horseless vehicle. The Prince and Princess Albert of Belgium, together with the Princess Clementine, make frequent excursions *en automobile*, and it is reported that the heir to the Belgian throne will shortly acquire a dainty little voiturette. Prince George of Greece, who has been staying in Paris for some time, has also demonstrated a keen interest in the new means of locomotion, and has on several occasions been seen speeding along in an electric landau. Recently he, in company with Prince Waldemar of Denmark and the Count de Moltke Huitfeldt, visited the works of the Etablissement Hautier. There the royal party spent upwards of two hours in examining the productions of Monsieur Hautier, and manifested the liveliest interest in the various motors and parts exhibited to them. The new system of advancing the moment of ignition devised by M. Hautier proved of special interest to the royal visitors, and they finally left after being given a practical demonstration of one of the voiturettes constructed by the firm. It is evident that before long we shall

witness all the crowned heads of Europe indulging in the fascinating sport, and with their adhesion the industry will advance by leaps and bounds.

A Stubborn Traction Engine.

THERE was fun in Holborn on Wednesday. A traction engine bearing the name "Kate Webster" stood still at the end of Chancery Lane. The policeman moved from the front of the machine and gave the order for the giant automobile to "move on." But it didn't. The constable entered into explanations with the driver, assuring him that he meant the vehicle to depart. The driver acquiesced in the idea; but the engine didn't understand. Passing that way half an hour later, we found the affair had moved quite thirty yards, and was in front of the Avenue Hotel. Sand had been plentifully applied to its path, but even then the wheels did not seem to grip the greasy surface. The incident afforded a good illustration of the ease with which a great crowd can be gathered in London. An hour earlier the cumbrous vehicle had blocked the traffic at Holborn Circus, and in the evening rumours of its approach were current in the Charing Cross Road. And yet people complain of the speed of mechanical traction! Such examples, to say nothing of the South-Eastern Railway, should disprove many allegations.

Motor-Cars for Medical Men.

THIS is a subject which has been exciting considerable interest of late—judging from our correspondence columns—and in this week's issue are two or three diverse opinions. One gentleman calls our attention to a letter in the *Lancet* in which Mr. Harry Lupton, of Stratford-on-Avon, gives his experience of a motor-car. He says his bills for the maintenance of the car, as distinct from running it, have come to about £43 for the year, to which must be added at least 10 per cent. written off the value of the car. Seeing that his car has been laid up nearly as long as it has been in use, "the economy, as compared with horse-keep, is not remarkable." Curiously enough, by the same post we received a letter from the hon. secretary of the Reading Automobile Club which meets the situation very well. It is a question of obtaining the wrong car for a particular class of work. Fortunately experience on this point is being accumulated and the difficulties of intending purchasers are being surmounted. In this connection the letter of "L. R. C. P." is interesting.

Automobile Prospects in Ireland.

TRADE in Ireland shows promise of being very brisk for next season. A great many people are seriously enquiring into the merits and demerits of the various cars, and a fair proportion of them are likely purchasers. Owing to the meagre railway facilities in Ireland there is very fine scope for reliable motor-cars, as journeys have often to be accomplished which are quite too much for the average horse. But makers who intend to cultivate a trade there should strongly recommend purchasers to have the best and strongest grades of cars, as the conditions of roads and weather are often very trying. Rough roads and an almost perpetual dampness exert many adverse influences; and the result of a breakdown is very serious, owing to the scarcity of repair shops and the expensiveness of hauling a derelict back to some big town. Indeed, the experience may be so unpleasant as to turn the embryo motorist completely against the pastime, and most probably he will vent his disgust in condemning that particular brand of car all over the country. Thus, for the sake of their own reputation, it would be well for makers to give special attention to the cars they send to Ireland.

Lady Motorists.

IN order to write a paragraph in a morning paper some enterprising journalist has asked "What is the proper designation for ladies who drive their own motor-cars?" Engineeriste and motress are suggested in order to be shown to be impossible. We fail to see why the readers of

daily journals should be worried with such matters; meanwhile, let us be content with the term "lady motorist," and express the hope that there will be many of them.

Lecture at Ipswich.

AT Ipswich, Mr. E. Shrapnell Smith has been lecturing on Automobilmism Up to Date, and included in those who who attended the lecture were the Mayor (Mr. W. F. Paul), who presided, the Hon. C. S. Rolls, Mr. W. T. Pretty, Mr. C. Johnson, and Mr. Julius Harvey. The resolution of thanks to the lecturer was supported by Mr. Rolls, who said he regretted to see that Suffolk was one of the counties using the greatest exertion to block the successful progress of automobilism. In the course of his lecture, Mr. Shrapnell Smith displayed on the screen the picture of a traction engine exhibited at Liverpool in 1841. It was built by Messrs. Ransomes, Sims, and Jefferies, of Ipswich, and was the first of its kind shown in this country. He pointed out that traffic could be controlled more easily with motor-vehicles, as they did not take up so much room in the street as those drawn by horses; damage to the roads would be less than by the horses' hoofs; the effect upon existing interests would be practically nil; their use would be economical, for the cost of running from Ipswich to London would be about 5s. a ton of goods, including cartage and delivery. In conclusion, the lecturer dealt with the possibility of the use of the motor in warfare, and his final lantern slide was from an old plate published in the thirties, depicting the year 2000, showing motor-cars, a cast-iron parson preaching by steam, flying machines, houses on wheels, etc.

A New Heavy Oil-Motor for Launches and Motor-Cars.

OUR illustration shows a launch which is driven by a heavy-oil motor, built to the designs of Mr. John F. Walters, of Twickenham. Mr. Walters has been at work on the engine for over two years with the view of developing it for heavy motor-car work and we understand that it will shortly appear on the road. From



the experience gained he is convinced that the oil motor of the future will be one using heavy oil. The two figures in the stern are Mr. Van Toll and Mr. Walters.

French Automobile Clubs.

AT the present moment there are no fewer than twenty-two automobile societies in France, and this number is being steadily increased, for with the spread of the new sport its disciples find a need to band themselves together so that united excursions may be made and the thousand and one knotty points of motoring talked over. It is in Southern France especially that the clubs flourish, for the delightful climate is conducive to an out-door life, and surely no more pleasurable way of enjoying the fresh air than automobilism exists. No wonder then that the societies of the Midi thrive exceedingly. But here is the list: Automobile Club of France, Automobile Clubs of Auvergne, Béziers, Bordeaux, Dieppe, Dijon, Grenoble, Lons-le-Saunier, Lorraine, Marseilles,

Nantes, Nice, Pau, Périgueux, Rouen, Salon, Seine-et-Oise and Toulouse, Les Chauffeurs du Midi at Avignon, the Automobile and Bicycle Club of Lyons, the Moto Club of France and the Moto Club of Lyons. Then, too, Roubaix is shortly to have its club, and with the approaching season many others will be forthcoming. As regards members, the "A.C.F." naturally leads the way, for its roll-call exceeds 2,300. Then comes the Moto Club of France with some 750 members, followed by the A.C. of Nice.

Why Not Tolls?

Earlier in the century Mr. Gurney's steam carriage was charged £2 8s., and in some instances £3 8s. at the gates on the Liverpool and Prescott roads. Were they to advocate such a revival, county councillors could more effectually hinder the progress of the automobile industry.

No Half Measures.

SHOULD county councils secure the further reduction of the speed of motor-cars and be successful in their attempts at numbering such vehicles, they may become emboldened and revive toll-gates for the special annoyance of automobilists.

TOLLS are an acknowledged nuisance, and a survival of olden times; hence they should appeal very strongly to the councillors and others who would thwart all progress and prevent all advance.

When councils are playing the game of obstruction and restriction they should not stick at trifles, and should show their antipathy in its full force. There should be no half measures. As it is, the opposition to automobiles is of that character which half agrees with that which it is intended to throttle.

Despatch Carrying on Motor-Cycles in Australia.

EVIDENCES are not wanting that increasing attention is being devoted to the automobile movement in Australia. By the last mail particulars have come to hand of an attempt, which unfortunately did not altogether prove entirely successful,

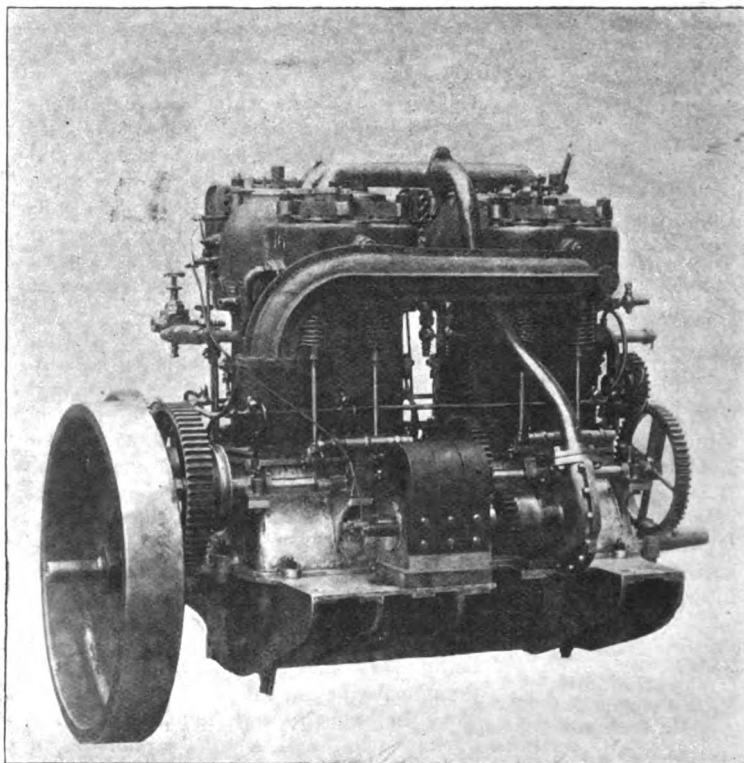
of carrying a despatch by motor-cycle from Sir John Madden in Melbourne to Earl Beauchamp in Sydney. Two enterprising motor-cyclists—Mr. J. C. Elliott and Mr. P. Hunter—left Melbourne on the morning of the 30th October mounted on De Dion motor-trikes. The party were due to arrive at Albury—159 miles—the same night, but that town was not reached until 10 a.m. on October 31st. The delay was owing to the riders missing the track between Wangaratta and Chiltern. Germanton was reached on November 1st, an accident to Mr. Hunter's motor having delayed the riders. While the machines were travelling at a great speed between Bowna and Mullengandra a turn and a sudden dip in the road disclosed a small creek. The tricycle dashed into the water, which turned out to be nearly 3ft. deep, with a soft bottom. The consequence was that the machine stuck and had to be hauled out. Mr. Elliott, profiting by experience, pulled up before entering the creek, and managed to get round over a shallow place. The water flooded the case containing the induction coil in Mr. Hunter's machine, and short circuited the current. The attempt came to an end at Tarcutta on November 2nd. While travelling on a fairly good road, between Kyamba and Tarcutta, one of the tricycles crashed into a small deep hole in a broken culvert. The frame was broken in two places, and the riders reached Tarcutta with difficulty. Temporary repairs were effected there, and Messrs. Hunter and Elliott left for Wagga to catch the express, a thirty miles journey over bad roads. In consequence of the accident the trip through Sydney had to be abandoned. Considerable interest was evinced in the plucky ride, and, in view of the bad roads, the wonder is that the riders managed to travel as far as they did.

THE Motorwagenfabrik, Rudolf, Nagen, and Co. is the name of a new concern which has just been formed in Cologne, with a nominal capital of £12,500.

THE "MERCEDES" PETROLEUM-SPIRIT MOTOR.



WE are this week able to give an illustration of the new motor which is being adopted by the Daimler Motoren Gesellschaft, of Cannstatt, Wurtemberg. The engine, which is known as the "Mercedes," comprises four cylinders and is rated at 35 h.p. but gives 40 h.p. on the brake at 900 revolutions per minute. It is provided with a governor and also a hand "accelerator" by means of which the speed can be regulated as desired between 500 and 1,300 revolutions per minute. A new departure is the adoption of an improved rotary magneto-electrical sparking arrangement devised by Herr Maybach, this being fitted with a timing device which enables the sparking to be advanced and retarded as desired. The cylinders and combustion chambers are cast in one piece; the governor is adapted to act on the inlet pipe, and is so arranged that one, two, or three cylinders may be entirely cut out. In connection with the engine a new form of carburettor and the Maybach water-cooler is fitted. Of these



Cliché de

[La France Automobile.

devices we hope to have more to say in a subsequent issue. In the meantime, we may mention that with the new cooler seven litres of water will, it is claimed, run the car thousands of miles without the temperature exceeding 50 to 60 deg. Centigrade. Including the fly wheel, the weight of the 40 h.p. motor is about 4 cwt.; the new engine is also being made in 11 and 20 h.p. sizes.

ON Tuesday morning, Mr. H. W. Egerton started from John O'Groats with the intention of journeying to Land's End on a Locomobile.

In the Italian province of Pavia a motor-omnibus for twenty persons, and with room for 12cwt. of luggage, has been placed on the road between Pavia, Abbiategrasso, Vigevano, and Belgiojoso for the service of passengers between those places. The car, which runs at an average rate of twelve miles an hour, is regarded as an important addition to the means of communication between the outlying districts in Lombardy which are not served by railway or tramway.

MOTOR-TRICYCLES.—SOME DEFECTS AND REMEDIES.

BY A. E. S. CRAIG.

(Continued from page 652.)

IT is very interesting, when travelling the same journey frequently, to check the petrol consumed over a stated distance with varying mixtures; the atmospheric conditions being, of course, practically the same.

Considering that the matter of lubrication is one of real importance in motors developing the amount of heat and running at the high speed that tricycle engines do, I think that much is left to be improved in this direction. The De Dion system of lubricating tricycle motors on the splash principle is very efficient if certain conditions are fulfilled. These are, first, that a bath of oil of a certain determinable measure is always present. Secondly, that there is no undue feed or leak of oil in channels where less would be beneficial. Thirdly, that the bath or measure of oil in the crank chamber should vary according to the quality and viscosity of the oil used. The present method in universal use in all motors of the De Dion type, to pour or pump a certain measure of oil (more often guessed at than not) every twenty miles, or according to the whim of the driver, is exceedingly faulty in theory and pernicious in practice. Granted that the motor is lucky enough to start away with a proper supply of oil, is it not obvious, even to a novice, that every revolution of the fly-wheels is reducing this quantity, and that by the time the overheated motor has accomplished, say, ten miles at a fast pace, the oil bath is very appreciably reduced, there is no longer the proper amount of oil to splash, and this at the very time when the piston is groaning for more, and some other part of the motor seriously considering whether it shall not go on strike and refuse to work another second?

Some fatuous motorists imagine that by being very generous in the way of oil, they overcome this difficulty. One individual of this type, who, by-the-way, is always having his induction valve "glued" up and his exhaust valve leaking like a sieve, always starts off with a cloud of white smoke pouring from his exhaust box, and repeats the dose at nearly every hill he comes to. This man's tricycle can be smelt afar off, and, with the best intentions in the world, his one little motor does more harm in prejudicing the "man in the street" than half a dozen full-fledged Daimlers. Another man I know is exactly his opposite, and his one boast is the number of miles he can run without stopping to oil his motor. Needless to say, he has benefited the railway companies on more than one expedition; his nearly red-hot motor has suddenly jibbed, and a funereal procession to the nearest station has resulted.

It is evident, therefore, that so long as the present happy-go-lucky method of lubricating motors of tricycles is in vogue, so long will troubles emanate therefrom. The man who uses too much oil has valve troubles, and is an unmitigated nuisance; the man who uses too little has the inevitable seizures; and the man who religiously carries out the maker's instructions, and pours or pumps at regular intervals, is lubricating his motor unequally. It is like being by the sad sea waves, high tide at one time, and pebbly beach the next.

The remedy is obvious. Motors lubricated on the oil-bath or splash principle must have a regular automatic feed of oil, that will keep a certain determinable measure always present in the crank chamber. Some motors are very wasteful of oil, and start dripping wherever they stop. This is entirely due to a leak, which can easily be remedied, and economy and cleanliness point to the advisability of doing so. Sometimes the leak is at the joint in the crank pit, but more often through the axle bearings, and also at some joint between the oil tank, pump, or pipe leading to the crank chamber. Leaks along axle spindles must be stopped with suitable washers, fitted tightly to resist the forcing of oil outwards on each compression in the crank pit; leaks in joints by remaking same with fresh packing. The joint down the centre of the crank pit should, however, require no packing.

The plug, or tap, at the bottom of the crank pit should

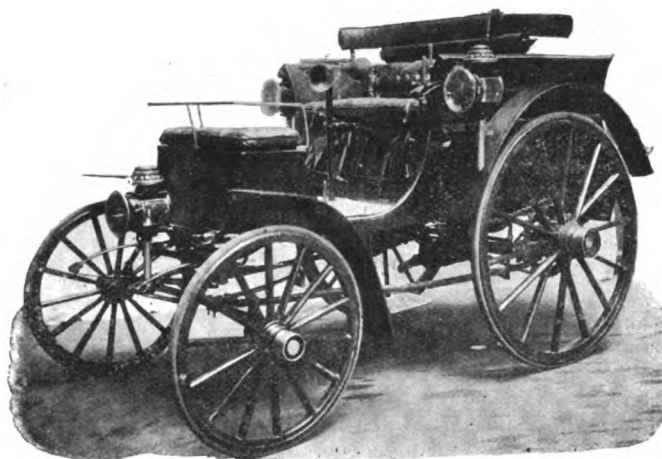
frequently be opened to drain out dirty oil, and occasionally paraffin should be squirted in to wash it out more thoroughly. Needless to say, the paraffin must also be all drained out, and a correct measure of motor oil poured in afterwards. The ordinary ball bearings throughout the tricycle, of course, merely require the same oil and attention that those on an ordinary cycle should have, although the axle bearings should, I think, be oiled more often than they usually are, especially those warmed by the motor.

For the pinions in the aluminium box I find nothing better than pure flaked graphite, with occasionally a little oil or grease, but there is always a certain amount of oil working through from the engine, which in itself renders the powder into a paste. And I am sure that a stiff paste reduces wear and noise more than one which is more like a liquid, and it certainly is less likely to leak out and make a black mess of all the parts adjacent. The chain is best cleaned and lubricated with a stiff brush, vigorously worked into the links with paraffin and graphite. On no account oil the valve spindles of motor, merely clean with paraffin or petrol.

(To be continued.)

THE "LIVER" MOTOR-CARS.

FRONTING the main entrance to the beautiful Birkenhead Park, Birkenhead, and within ten minutes' ride of the centre of Liverpool, is situated the "Liver" Motor-Car Works, owned by Mr. Wm. Lea, an enthusiastic motorist. Some idea of the extent of the premises may be gleaned from the fact that it is possible to manipulate fifty cars at one time round the track inside the building. In addition to being district agent



for the Benz cars, Mr. Lea manufactures two types of "Liver" cars. These are fitted with genuine Benz motors, but all other parts are of English make, including the body, frame, chains, etc. The smaller of the two cars is capable of carrying four persons at a speed from one up to eighteen miles an hour, and is claimed capable of transporting persons up a gradient of one in four. The engine fitted to the car develops 3 b.h.p. at a speed of 650 revolutions per minute. The larger car, of which we give an illustration, is driven by a 6 b.h.p. motor, and has a speed ratio of from one to thirty miles an hour. It takes the form of a dogcart, and owing to a special system of springing, even with solid rubber tires, very little vibration is transmitted to the passengers. The speed-changing levers are placed very conveniently within reach of the left hand side, and are very simple in manipulation. In the smaller car one handle works both medium and high speeds, while a separate lifting-up handle in front actuates the Crypto or hill-climbing gear. In the larger car, one handle actuates the medium, Crypto and reverse gears, while the other is entirely devoted to the high-speed gear.

Mr. J. H. KNIGHT, of Farnham, has been giving his two years' experience of a Benz car in one of the county papers.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

The "A. C. F." Fete.

THE Automobile Club of France announces its intention to hold a great *fête* on the evening of Thursday, December 20th, at which members of the club will be permitted to introduce ladies in accordance with the society's governing regulations. A most elaborate programme is in course of preparation, and the services of several leading Parisian artists have been already secured. Immediately after the *soirée* held in honour of the exhibition commissioners the club's theatre was again given over to the contractors to complete the installation, but the work is now finished, and the 20th instant will witness this beautiful *salle* looking its very best. It is undoubtedly the feature of the Hôtel Pastoret, and is a marvel of decorative art. The "A. C. F." has indeed good reason to be grateful to M. Rives for making 6, Place de la Concorde, such a beautiful club-house as it is.

The "Auto-Velo's" Hill-Climbing Contest.

THE *Auto-Velo's* hill-climbing contest, the approaching organisation of which I spoke the other day in these columns, is not likely to be held until the weather prospects are more favourable than at present. The new daily has notified the automobile world to this effect, and the resolution is a wise one, for under existing atmospheric conditions but few motor men would care to compete in, or even assist at, a race held so far afield as that proposed by the *Auto-Velo*. The big hill at Reims is a good long run from the French capital, and as I look out to-day upon the drizzling rain and dark, gloomy sky, the prospect of such a journey, even upon an automobile, has no charms for me. Leave the event over, then, for two or three months, when with fine weather it is certain to secure a success.

Exhibition at Hamburg.

THERE will certainly be no lack of automobile exhibitions in Germany during the forthcoming year, for in addition to those already announced, Hamburg proposes to have its show of horseless vehicles, and that, too, during a period of three weeks. It is the Syndicate of Cycle Manufacturers of Northern Germany who are moving in the matter, and the well-known Herr Löffler is acting as president of the organising committee. The show will be held from April 1st to the 20th, the selected spot being the Rotherbaum cycle track. The large expensive car has so far found but little favour in Germany, but for some time past a steadily increasing demand for the more comfortable type of *voiturette* has existed, and English constructors of this style of vehicle might do worse than send specimens to next year's Hamburg Show. German makers will doubtless exhibit extensively, and many French firms will also send their productions to the free town.

Beconnais' Appeal.

BECONNAIS' appeal against the judgment of the police-court, by which he was condemned to one day's imprisonment and mulcted in a fine of sixteen francs, came before the higher tribunal at Lille last week, and the result was altogether unfavourable to the motor-cyclist. The previous sentence was confirmed, and the court expressed some strong opinions as to the rights and responsibilities of *chauffeurs*. Although Béconnais has never, to the best of my knowledge, been the cause of an accident, I cannot agree that this fact should be put forward as the strongest of reasons for his acquittal, and neither do I consider the sentence a heavy one. Racing men, as indeed all motorists who mount fast-speeded machines, must learn to drive at a rational pace through towns and villages, whatever they may do on deserted stretches of road, and all automobilists who have the welfare of the industry really at heart will assist the authori-

ties in their endeavours to put a stop to the dangerous practice of driving through inhabited spots at lightning speed. Unfortunately there are only too many motor men who seem to find a malicious delight in terrifying pedestrians, and if one could weed these individuals out the whole automobile movement would benefit largely, and would secure a higher place in public esteem than it holds to-day.

A Public Service in Belgium.

ADVOCATES of steam as the ideal motive power of self-propelled vehicles will learn with interest that a service of steam omnibuses has recently been inaugurated between the Belgian villages of Malonne and Fosses, the route followed being by way of Florefte, Sart-Saint-Lambert, and Saint-Laurent. This is the first public automobile service in the Sambre-et-Meuse district. The vehicles employed each carry twenty passengers, and although for this class of work steam almost invariably secures the preference, I fancy that petrol cars would do the work equally efficiently. None of the large steam omnibuses which I have ever seen at work have impressed me very favourably, for they appear clumsy, unwieldy vehicles. Apparently, however, they give satisfaction from a purely commercial point of view, for one hears of certain Spanish automobile transport companies paying dividends of 20 per cent. It would be extremely interesting to obtain the exact returns of some of these prosperous concerns, for at the present moment there exists profound ignorance as to the possibilities of public automobile services. Reliable figures would be of immense service to those transport contractors at present hesitating as to the practicability of substituting automobiles for the horse-drawn vehicles now in use.

To-morrow at Achères.

TO-MORROW we shall have a little sport to brighten up the terrible monotony of the dead season. No long journey into the country, oh! no; the weather is too unsettled to look forward with any pleasure to such an expedition, but just a run out to Achères, where on the famous route of the agricultural park we shall see the fastest cars and cycles at work. Thanks be to the Moto Club for thus relieving this dreary, desolate time. Commencing at 9.30 a.m., these trials against the watch will continue until mid-day, when the *contrôles* will be closed. No fewer than ten categories are provided, so that every type of motor-vehicle will find a classification suitable to its powers. The three times taken will be those for—(1) Two kilomètres from stationary start; (2) one kilomètre from stationary start; (3) one kilomètre from flying start. In the big car class we shall once again see Levegh, who never misses an opportunity of running his flying Mors, Gilles Hourgières, who will be driving a similar class of vehicle, and Mors himself, who will mount the winner of the Gaillon hill-climbing race. A goodly trio! Among the motor-cyclists, Béconnais is figuring a grand favourite, but Gasté and other speed-merchants will give him a tough fight. We are told of phenomenal performances being made in this category, but to-morrow will show us all about that. Serpollet's steamers and Darracq's already celebrated little car will all doubtless acquit themselves with credit, as also will the Lefebvre cars. Let us hope, then, for dry roads and fine weather to-morrow, so that some of those long-standing records may be demolished. I don't like to see these figures, dating back ages, on the list of current automobile records. They look out of place there.

A Race at Antwerp.

A THIRTY-SIX kilomètre (25 miles) automobile race took place the other Sunday over the stretch of road which separates Antwerp from Bergen-op-Zoom, the latter place being a little Dutch township. Promoted by the Antwerp Automobile Club, this event was confined to its members, otherwise the number of competitors would undoubtedly have been much greater. As it was, however, twenty-two names were sent in, and favoured with

excellent weather the race attracted a considerable gathering of the general public. Three categories were provided, and that reserved for voituresses secured the largest entry, for in that class ten competitors lined up at the start. The big car and the motor-cycle divisions each had five racers. If the weather was excellent, the same cannot be said of the roads, which were distinctly heavy, and by no means conducive to fast times. But here are the official returns. Cars of more than 6 h.p. and carrying at least three persons:—1, Baron Pierre de Caters, 24 h.p., four persons, time, 41min.; 2, Baron Aug. de O'Serclaes 30 h.p., three persons; 3, Théo Bal, 15 h.p., four persons, time, 1h. 15min. 30sec.; 4, Baron Eug. de Caters, 8 h.p., five persons; 5, R. Geelhand de la Bistrade, 7 h.p., time, 1h. 30min. 30sec.; not classed, Dermanet and Servais. Voituresses:—1, Emile de Beukelar, 3½ h.p., time, 1h. 14min. 30sec.; 2, Van der Beken, 3 h.p., 1h. 28min. 30sec.; 3, Xavier de Beukelar, 3 h.p., 1h. 32m. 30sec.; 4, P. Spelten, 3 h.p., 1h. 41min. 30sec.; 5, H. Cogels, 3 h.p., 1h. 42min. 20sec.; 6, Siaens, 4 h.p., 1h. 55min.; not classed, E. Van Mieghens, Wilford, Daniel de Pret, and Spirlet. Motor-cycles:—1, Alex. Joostens, 3 h.p., time, 1h. 3min. 30sec.; 2, Jos de Kock, 2 h.p., 1h. 5min.; 3, Elskampf (bicycle), 1 h.p., 1h. 12min.; 4, J. Della Faille, 3 h.p., 1h. 32min.; not classed, Van de Werve.

At Nice.

It is interesting to learn that active measures are being taken to render the scene of the Nice speed trials absolutely perfect from an automobile point of view, and there is but little doubt that the competitors in the short distance events will be delighted with the track prepared for them. The Promenade des Anglais is actually being widened from ten to twenty metres, and, furthermore, the Automobile Club of Nice is requesting the town authorities to remove the only obstacle which mars the cement-covered surface of this splendid track. This is a palm tree, and as most probably the municipality will accede to the request, the three kilometres of the track will present an unbroken surface. It is on Thursday, March 28th, that the short-distance trials will take place, the distances being as usual, one mile and one kilometre, the latter from a flying start. The prizes will also be as formerly, *objets d'art* and medals, and in this connection Baron Arthur de Rothschild has just presented to the club a sum of £40 for the purpose of striking the latter. It is said that the Baron has decided to abandon his favourite sport, that of yachting, in order to devote more time to automobilism. So much the better for the motor, will agree *chauffeurs*. Baron Arthur de Rothschild is a member of the English and French clubs, as well as of the A.C.N.

"L'ARMÉE AUTOMOBILE" is the name of a new paper which is about to be published in France.

MESSRS. BURROW, STRUTT AND CO. call our attention to a misprint in our last issue in the description of the Minerva motor-bicycle. The machine is of Belgian construction and the price is £38 not £35 as stated last week.

UNTIL an electric tramway is constructed at Hemel Hempstead a suggestion has been made that an up-to-date motor omnibus service should be organised. The expense of laying a tramway would thus be avoided, and the town would secure what is greatly needed—facilities for travelling at cheap rates.

WE have already referred to the improved carburettor recently introduced by the Star Motor Company, of Wolverhampton, which is claimed to effect a saving in petrol consumption and to increase the efficiency of the motor. We learn that, in addition to using the new carburettor in their own cars, the Star Company are arranging to fit the same to cars on the Benz system and to supply them separately.

THE London County Council has tested the Clarkson and Capel Steam Car Syndicate's oil burner on a fire-engine in regular commission during the last six months. We understand that the experiment has so far succeeded that the Council has now decided to have one of the syndicate's 200-h.p. burners fitted to a fire raft on the Thames. This burner was originally designed for automobiles, but its usefulness is now being demonstrated for other purposes as well.

THE SPEEDWELL STEAM MOTOR-WAGON.



AS we recently mentioned in these columns, experiments have been made at Persley Quarries with the view of testing the practical utility of a motor-lorry built by the Speedwell Motor Car and Cycle Company, Limited, at Aberdeen. We are now able to publish an illustration of the vehicle together with some additional particulars. Steam is supplied by a Toward boiler of the latest type, located in the fore part of a steel frame. The engine, which is of 26-a.h.p., is of the compound type, the cylinders being 4 inches and 7 inches diameter respectively by 5-inch stroke, the number of revolutions of the crank shaft being 500 per minute, with steam at 200 lbs. pressure. A two speed gear to give 5½ and 3 miles per hour is fitted, the engine and gear being suspended from the main frame between the front and rear axles. There are carried seventy gallons of water, and this quantity suffices to cover about five miles with a full load and eight miles with an empty vehicle. The platform has an area of 60 sq. feet; it is easily detached from the main frame, and can be made any form to suit the goods to be transported. The road wheels are of the gun-carriage type, the rear pair being 42 inches in diameter with 5-inch tires, while the steering wheels are 36



inches in diameter, and shod with 4-inch tires. The weight of the wagon is 2 tons 18 cwt. At the trial referred to above a load of stones weighing 3 tons 16 cwt. 1 qr. was placed on the motor-lorry, while a trailing wagon with a load of 2 tons 14 cwt. 1 qr. was attached, thus making a total of 6 tons 10 cwt. 2 qr. With this burden, the wagon successfully mounted an incline 400 yards long on the high speed, the gradient being 1 in 10.

IN the Bill promoted by the Chester Corporation for the purchase, conversion, and extension of the city tramway a clause has been inserted to run a service of motor-cars.

THE *Electro-Chemist and Metallurgist* is the name of a new monthly which is to make its appearance early in January, the publishers being Messrs. Sherard Cowper-Coles and Co., Limited. The journal is intended to be the organ of the important electro-chemical sciences and industries which at present have no representation among the English technical press.

ON Saturday, November 17th, the Automobile Club of America held a club run, in which seventeen vehicles participated. Starting from Astor Court, New York, the vehicles proceeded via Kingsbridge and Yonkers to Ardsley, where lunch was taken at the Ardsley Casino. After lunch the vehicles continued the run from Ardsley to White Plains, to Mamaroneck, over the Boston Post Road to New Rochelle, through Bronx Park to Fordham, and back to New York over the same course as at the start. The run was favoured with fair weather and good roads, and was thoroughly enjoyed by all.

CORRESPONDENCE.

THE LONGUEMARE CARBURETTOR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to "C. G. W.'s" letter in your issue of the 1st inst., with reference to the Longuemare carburettor, I may mention that one way of overcoming the difficulty he refers to is by dipping a cloth in hot water and wrapping it round the carburettor.—Yours truly,

S. S.

THE 1,000-MILE NON-STOP RUN OF THE DECAU-VILLE CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—On Friday, November 30th, I rode a Butler tricycle from Sheffield to Birmingham. On arriving in Birmingham I dismounted, owing to traffic and to the fact that I had no chain on, as I found it rapidly clogged with mud. The carburettor—a Longuemare—was thickly coated with snow, the pipe from the silencer having dropped off while riding and the evaporation doing the rest. This may be of interest to "Amateur," who sends a letter about this.—Yours truly,

"MOTOR-MAD."

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the letter signed "Amateur" in your last issue, in which he apparently wishes to throw doubt on the fact of the carburettor freezing, if he only studied the carburettor of any car he would find that the faster the petrol is evaporated the greater is the cold produced, and you have only to travel fast through the air on a cold day for it to be a very short time before the carburettor has simply one solid piece of ice in it, unless, of course, sufficient hot air is conducted to the carburettor to counteract the low temperature produced by the rapid evaporation of the petrol.

In the Napier car, owing to our using electrical ignition and the inside of the bonnet, of course, being relatively cool, we have had to employ a hot air-chamber entirely round the carburettor, which is kept warm with the aid of a bye-pass from the exhaust.

It seems rather a pity that "Amateur" did not get a little information on this subject before rushing into print to try and throw doubt on those facts which are known to every user of a petrol engine.—Yours truly,

S. F. EDGE.

ELECTRIC IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It may interest those of your readers who have electric ignition troubles with their cars to hear of a recent experience I have had in connection with this matter. I was sufficiently satisfied with the results obtained with my car "Antrona," which had both electric and tube ignition, to arrange to change over from the tube to the electric in my older car "Rhoda," but as the cylinder heads had not been previously prepared for ignition plugs, I deemed it desirable to remove the platinum burners entirely, and substitute the electric, practically "burning my boats" in so doing, as I had no alternative in the event of failure. I am inclined to think that the results, if anything, are slightly better with the ignition plug placed in the site originally occupied by the platinum burner rather than in the top of the cylinder, where, among other things, the contacts are liable to be covered with grease, and trouble ensue in consequence.

But the other day, while experimenting with the engine, I noticed a certain intermittence in the firing, which I naturally put down to faulty electric connection. On going very carefully over the circuit I found there was nothing wrong there, and in consequence removed the suspected ignition plug to see if it was sparking all right, and, on examination, found there was no trouble with regard to this. The spark was long and brilliant. In fact, on testing I noticed I could readily get from my coil and four-volt cells a good spark from $\frac{3}{8}$ to $\frac{1}{2}$ in. long. The spark-gap in the plug I opened to about $\frac{1}{16}$ in., as it then appeared to me to be somewhat close. On replacing it and starting the engine, firing late, it fired for a time; but as I gradually altered the period of

firing to earlier it seemed to be somewhat intermittent. It then occurred to me that the width of the spark-gap should have some relation to the amount of compression when firing took place. On removing the said plug and closing the points to about $\frac{1}{32}$ in. or perhaps less, it fired every time at all periods of compression. I mentioned this subject afterwards to a friend of mine, who made a somewhat elaborate experiment in which, in a glass tube with convenient pump and pressure gauge and adjustable spark-gap, he found that at atmospheric pressure a spark of $\frac{1}{8}$ in. passed readily between two points, but it would not jump $\frac{1}{8}$ in. at one atmosphere; and when he increased the pressure to ten atmospheres it ceased to jump at $\frac{1}{32}$ in.; but as the pressure was reduced the sparking took place again. He also noted that there was a variation in the colour of the spark under the different pressures, it getting thinner and more attenuated previous to ceasing to jump as the pressure increased.

It occurs to me that this may be one of the causes of a good deal of apparent difficulty with the use of electric ignition, viz., that we often take out other plugs to see if they are sparking, which they do under normal conditions, but when reinserted in the cylinder under a higher pressure they may cease to spark, and give rise to difficulty and intermittent firing. This is a subject which I think would be worthy of more careful attention. But I trust that my experience may be useful to others who, like myself, have been bothered with so-called intermittent faults, which may be the natural consequence of variations in pressure, and have nothing to do with bad contacts, or anything that is wrong in the rest of the electrical circuit. I would therefore advise motorists to see that their spark-gap is not too wide, among other things, when going into this question.

Yours truly,

HENRY EDMUNDS.

CARBURETTORS FOR MOTOR-TRICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent "Alarmed" in your issue of the 8th inst., comments upon the remarks *re* the dangerous character of the surface carburettor appearing in an article on motor-cycles in one of your recent issues, and I quite understand that the assertions in the article caused him some uneasiness. Nevertheless, I do not think he need have any cause to fear. Having ridden myself tricycles fitted with the surface carburettor for the last four years many thousands of miles, and also having come into contact with a large number of other motor-cyclists using surface carburettors, on only one occasion have I come across an instance where the carburettor has exploded, and upon examination it was found that the owner had taken down the pipe from the carburettor to the motor and taken out the safety gauzes which are fitted by the manufacturers, with the result that there was nothing to prevent any flame passing back.

Messrs. De Dion and Bouton, in making their machines, fit a large number of these gauzes, so there is absolutely no possibility of an explosion, and the universal use of electric ignition also makes the safety margin a very broad one. Anyhow, "Alarm" can still ride his motor-tricycle with equanimity and rest assured that the "dangerous character" of the surface carburettor merely exists in the imagination.

Yours truly,

CHARLES JARROTT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent "Alarmed" need be alarmed no longer. The dangers of a surface carburettor, like the disadvantages of motor-cars, are more imaginary than real. He is probably aware that these carburettors are fitted with a layer of wire gauze, which protects him from the danger which he fears. I have heard of only two accidents from this cause, and in neither case was any damage done except to the carburettor.

He can therefore, I think, afford to sit astride it with no misgivings beyond those associated with stale petrol—and even this evil can very easily be remedied.

Yours truly,

CLAUDE A. P. TRUMAN,
Hon. Sec. Reading Automobile Club.

MEDICAL MEN AND MOTOR-CARRIAGES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "M.R.C.S.," it may interest him to know that I am a medical man in a country practice, and that it takes three horses to work it. A medical friend in practice in the Highlands of Scotland, who uses a motor-carriage manufactured by the Mo-Car Syndicate, Camlachie, Glasgow, advised me to get a carriage like his, which has been doing a tremendous amount of hard work on the worst of roads, and has been running magnificently for the past two years. Thinking this was a good enough recommendation I ordered a carriage from the syndicate, and they have given me truly a machine of the very highest class of workmanship, and one that goes on under all conditions of weather or roads without bother. It is a four-seated dogcart, with walnut body, the upholstery being composed of spiral springs, padded with horsehair and covered with strong morocco leather, which gives a most comfortable seat, and prevents one feeling any jolting over the roughest roads. The engine comprises four horizontal cylinders, developing 9 h.p. It is water-cooled, the circulation being maintained by means of a pump driven off the fly-wheel. A radiating coil is also provided; the ignition is electrical. There are three speeds forward, ranging up to about 20 miles an hour, and one reverse motion. The road wheels are of the artillery wooden type, and provided with solid rubber tires. Some of the special features of the carriage are its marvellously silent running, which is a perfect treat, and the absence of vibration. I often on a quiet country road run up to within thirty yards of pedestrians before they hear me, and after a long run I never have that shaky feeling that one so often has on alighting even from an ordinary dogcart. Another great point about the carriage is the ease and quickness of starting it. This is done from the driver's seat by a clever arrangement, and I am able at any time, night or day, to start off within five seconds of stepping into the carriage.

I need not go into the anatomy any further, as "M.R.C.S." will be able to get more correct and fuller information from the makers. He need not fear being unable to master the carriage very soon; my coachman was never in a motor in his life, and he drove me on my rounds after only two days' practice. My roads are pretty bad as regards gradients, one or two being 1 in 7; the carriage takes them all, and nothing I have met stops it. I drive over fields or anywhere where there are wheel tracks. Two friends who lately drove with me were so pleased with it that they each ordered one, and I can confidently recommend it to anyone who wants a carriage that will go and is thoroughly reliable.

Yours truly,
G. D. LOGAN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with great interest the opinions of numerous medical men, as set forth in your journal from week to week, and am astounded at the great enterprise shown. I am a poor parish surgeon, and have for some time been studying the question of horses for my practice, but still am undecided. I hear constantly of accidents to carriages, of horses falling, jibbing, running away, casting shoes, getting ill and old, and for other reasons becoming temporarily or permanently disabled from work, and I hesitate to embark in what seems a costly and eminently unsatisfactory venture.

What is required is a horse and cart to hold two; the horse must be powerful, nice-looking, and able to push along through mud and stony roads, never tire, stumble, get ill or lame; it must need neither whip nor jerking of the reins to start it, as this is so undignified. Fancy a poor country medical man getting ten miles from home, and his horse falling and cutting his knees and having to be led home, and being unfit for weeks! I shall carefully study the subject, but, until I can find an animal perfect in every respect, prefer to keep to my motor-car, which I have had for over a year in constant use without any troublesome breakdown.—Yours truly,

L. R. C. P.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. Teschemaker's letter in your last issue I write to say that I shall be in Devon before Christmas, remaining till the end of January, possibly. I should be delighted to test my Werner bicycle against his 2½ De Dion tricycle, as he suggests, but there are difficulties, for I shall be near Tavistock, and that is a long way from Teignmouth, as he knows. Weather has to be considered, nor am I at all fond of racing at top speed along West-country roads, where horses and their drivers, especially the drivers, take fright so uncomfortably. Neither do I, on my part, wish to cause them undue annoyance. Perhaps we can arrange the trial when I am in the West. I think he has misunderstood my first letter, for I merely wrote to prove, by relating a certain day's ride of mine, that the Werner machine will, and can, carry one for long distances over hilly roads at a decent speed without breakdowns. I never claimed the average speed to be anything remarkable, though I personally consider it excellent, knowing that I could have gone much faster had I chosen to open the throttle-valve of my motor completely. He should know what West-country roads are like, from north to south Devon—precipitous and winding, most unfavourable to speed. Since he raises the question, I do assert that the little machine can maintain an average speed over hilly roads which is very remarkable considering its small 1½ h.p. engine. There is a vast deal of difference between the way it responds to pedalling as compared to a tricycle, for one can maintain fifteen miles an hour up a stiff hill with but very small aid from the pedals. So very thoroughly do I appreciate the difficulties of adapting an engine and its accessories to a bicycle that I cannot refrain from expressing my admiration for the clever solution of the problem. Mr. Teschemaker must have misunderstood the Werner men, whoever they are, for no sane person would claim that he could "beat any tricycle," when we all know that 8 h.p., and more, are used on racing tricycles. If the Werner machine beat tricycles at the Exhibition official trials at Vincennes this year it was for many reasons, for speed was but one of the many points under consideration.

If Mr. Teschemaker will glance at my last letter he will see that I never used the term "amateur adjustments" at all, but "ignorant meddling." There is a vast deal of difference between the two. "Amateur" is not at all synonymous with "ignorant," above all if the true sense of the word, the French one, is adhered to. I cannot help quoting the *Motor-Car Journal* of last week, for it spoke words of deepest wisdom *re* "Necessity for Knowledge": "It should be the endeavour of motorists to dispel that notion of the simplicity of motor-car driving, as it is an incontrovertible fact that it is absolutely necessary, if the driver is to get out of his vehicle the amount of pleasure that it is capable of giving, that he should have a thorough and comprehensive knowledge of its working." That is the key to the whole wearisome string of objections, prejudices and difficulties we perpetually meet, that "necessity for knowledge!"

Yours truly,
A. L. BENETT.

MOTOR PATENT MATTERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In regard to the recent formation of the Motor Trade Protection Society, a body amongst whose members I have some friends, I think that they are being led away from the real facts of the question of motor patents without having given the matter the careful attention that they give to other portions of their business. Without even discussing the matter with the owners of the patents, they have assumed that it is a matter against their best interests. This idea I hope in this letter to entirely remove, and place my position in the matter clearly forward. How the situation has developed I will now explain. Some three or four years ago I felt that there was a large field in the manufacture and selling of motor carriages, and with that end in view I purchased from time to time samples from the leading motor makers, both here and abroad, and I then used their various vehicles many thousands of miles, both summer and winter, with the result that I came to

the conclusion that nearly all other practical users have come to, namely, that there were two great practical types of oil motor: first, the Daimler, from which common origin have sprung the great houses of Panhard and Levassor, Peugeot, the English Daimler Co., the Motor Manufacturing Co., the Napier, etc. Then, taking the small type of vehicle, there was the great parent De Dion and Bouton, to whose aid almost every successful small carriage or motor-cycle owes its driving force.

With these facts staring me in the face the next thing to be done was to find out what patents, if any, controlled their use; these I found in large numbers nearly all detail patents, but of serious importance to those wishing to manufacture these motors or those on similar lines. After consideration I decided that those companies with which I was identified would be best advised to apply for licences to manufacture from the then parent motor patent-owning company in this country, viz., the British Motor Company, Limited. Licences were in due course granted, and the manufacture and sale was commenced with the idea that the owners of the patents would give us some measure of protection from the already strong and robust foreign maker. But on this score we were sadly mistaken; on the particular patents under which we held licence little was done, and foreign importation continued almost unchecked.

However, during this summer the patent-owning company had occasion to call its shareholders together, and then I obtained the opportunity, as a shareholder and licensee, I wished for, to put clearly before the owners of the patents that I, as representing several companies which worked under their patents, must join the ranks of the infringers or give up manufacture, at any rate ceasing to pay money into the coffers of the company unless they took active steps to uphold their patent rights. With these facts before them the shareholders of the British Motor Company, Limited, were not long in making up their minds, and a call of 3s. per share was, for the purpose of legal action, soon agreed to almost unanimously. At the same time I was honoured by having offered to me a seat on the Board of the reconstructed company, now called the British Motor Traction Company, Limited, and it is purely as a member of the Board and trustee for the shareholders of this company that I am in any way interested in the service of writs and commencement of legal proceedings that have been taken and are being proceeded with against every motor vehicle seller or user, private owner or manufacturer, who the Board are advised are infringing their patents. Surely this course, which is the one the law of the land prescribes, is not one that requires the previously referred to society to combat. It seems to me that if this combination has any practical being it is for them to carefully consider the patents for which hundreds of thousands of pounds of English money have gone abroad to purchase, and see whether, in the event of their considering them good, it would not be better for all concerned to fight under their banner, and pay some consideration, as I have done, and then all of us together try and bring the manufacture of automobiles in England to the importance and prestige that it enjoys in France, Germany, and some other countries. This seems to me better than wasting time and money in the law courts, and this must inevitably come to pass if the English dealers and agents and unenlightened public still use unlicensed motors rather than follow the lead of the chief English manufacturing companies.—Yours truly, S. F. EDGE.

THE HEATING OF MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Heated," as the tubes are not clogged, the trouble must be that the water-jacket or the space between the two walls of the cylinder is partly clogged with rust, mud, and sediment, just enough not to let sufficient cooling water to pass in. The water will enter by drops and fill the jacket after a certain time, and this will evaporate on the part of the surface which is still clean; the result is that steam will be blown out, the cylinder gets heated, the engine stops, cools, and refills, and so on *ad infinitum*.—Yours truly, L. HAILER.

Breisgauer Automobile Club, Freiburg in B.

THE LOHNER-PORSCHE ELECTRICAL BROUGHAM AND VICTORIA.

TOWARDS the end of the National Cycle Show week, Mr. E. W. Hart, of Luton, added an interesting car to his stand in the shape of an electrical brougham, which is well represented by the illustration (Fig. 1) on page 699. The peculiarity of the vehicle resides in the motors, which are placed in the hubs of the front road wheels. The armature of the motor is fastened to the hub of the wheel, and the stationary field is fastened to the axle. The speed of rotation of the wheels is, therefore, the same as the speed of the motor. In order to keep down the width of the motor, the commutator is placed inside the armature, so that the width of the armature winding constitutes the whole width of the motor. The motors, of which there are two, have each $2\frac{1}{2}$ h.p. normal capacity, but it is claimed that they will work up to 7 h.p. for short periods. The battery comprises forty cells of the Leecoll type, the weight being 1,000 lbs., and the capacity 135 ampere-hours. The controller is arranged to give three speeds ahead and two reverse, electrical brakes, and is also provided with a switch by means of which the motor can be made to act as a generator in running down hill, so recuperating the battery. The car is fitted with horizontal wheel steering, and weighs complete under 15 cwt. Pneumatic tires are fitted to the road wheels. Fig. 2 illustrates an electrical victoria, identical with the brougham so far as the motor, battery, etc., are concerned. The cars are built in Vienna by Messrs. Jacob Lohner and Company, for whom Mr. Hart is agent in this country. A glance at the illustrations will show that the cars are not only attractive in design, but are luxuriously upholstered and finished.

JUST as we go to press we have received a letter from Mr. H. E. Wilkinson, manager of the Motor Trades Employment Agency, on the subject of Drivers' Certificates, which, together with a number of other interesting letters, we are compelled to hold over until next week. In his letter, Mr. Wilkinson incidentally mentions that since the Employment Agency was started, they have had over 300 replies to their advertisement in the *Motor-Car Journal*.

THE fourth annual general meeting of the Liverpool Self-Propelled Traffic Association is to be held at the Royal Institution, Colquitt Street, Liverpool, on Monday next, the 17th inst.

THE Duke of Oporto, brother of the King of Portugal, has joined the ranks of *chauffeurs*, he having lately received a 6 h.p. Panhard car from Paris.

FROM Italy we learn that a service of motor-cars for the transport of both passengers and goods has just been inaugurated between Modena and Bologna.

WE hear that the Swift Cycle Co., Limited, of Coventry, intend making their *début* early in the new year as motor-car builders. A 5 h.p. car with a gear on Panhard lines, and a body of the *tonneau* type, is at present in course of construction.

FROM an American source comes the news that the Rev. H. A. Frantz, Tamaqua, Pa., who retired from the ministry several years ago to build automobiles, has resumed his former calling—an intimation the significance of which depends entirely upon the point of view.

THE *Auto-Velo* gives some further details respecting its proposed hill contest near Rheims. The climb will be about six kilometres long, ending with a kilometre on the flat. This will be a test for the speed of the machines after the strain of the up-hill work. Times will be taken at the start of the climb and at the start of the level.

PUBLIC automobiles in Paris during the Exhibition have been almost prohibitive owing to the fancy prices demanded by the conductors. Now, however, owing to a decision of the Prefect of Police, these vehicles, like the public fiacres, will be subject to the police regulations, and will be controlled by a fixed tariff. The maximum fare will be for the numbered automobile, accommodating four persons, 2fr. the "course," and 2fr. 50c. per hour inside Paris.

FROM PARIS TO HALIFAX.

THREE gentlemen living in Halifax recently journeyed to Paris to secure a motor-car, upon which they returned to their Yorkshire home. Writing to the local *Guardian*, one of the party says:—"We had our first lesson in motor-

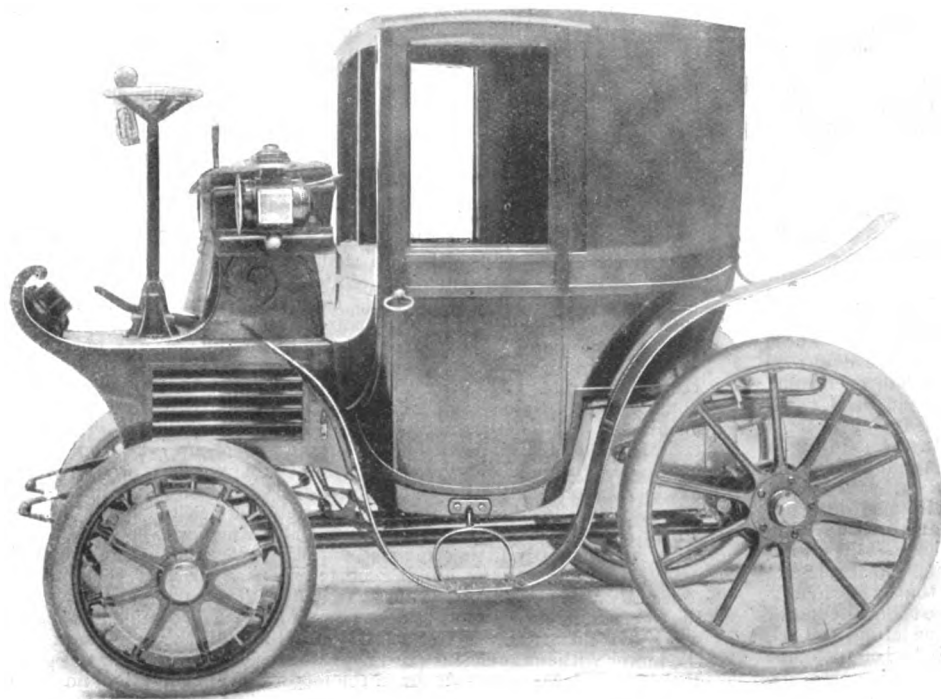


FIG. 1.—THE LOHNER-PORSCHÉ ELECTRICAL BROUGHAM. (See opposite page.)

car driving at the works, and on commencing our homeward journey we were accompanied by a mechanic as far as Dieppe. About six miles out of Paris we arrived at St. Cloud. Here there is a long stiff hill, where the cars are generally brought for climbing tests. Our car, with its three passengers, mounted the hill admirably, at a rate of eight miles an hour. It was night; rain poured heavily. Our driver pushed on at top speed, or about thirty miles an hour. It was an exciting experience, as we could not see many yards ahead, but we had confidence both in the machine and the driver, and duly arrived at Gaillon, where we put up for the night. The next morning we were again under way in an endeavour to reach Dieppe about 6 p.m. We soon covered twenty miles, and then came up with a funeral. In France it is the custom for vehicles not to pass a cortege on its way to the place of burial. Our mechanic explained that our desire was to catch the night boat, but custom proved too strong. Some of the men clustered in front of the car to prevent our passing, and we were compelled to follow, until the procession at length reached the cemetery, and left us in undisputed possession of the road. We dined at Rouen, and in the afternoon pushed on rapidly to Dieppe. When all appeared smooth sailing, however, the car suddenly stopped, and no power could make it budge. An examination revealed the fact that we had run out of oil, and we were four miles from the next village, and nine from Dieppe. Our attempts to get oil from the shops close at hand were fruitless, and we were just on the point of completing negotiations by which it might be brought to us from the next hamlet, when another motor-car came along, the driver of which spared us a quart of the necessary liquid. When things

were again made ready we put on a spurt, and reached Dieppe just in time to pass through the customs.

"The journey across the Channel was uneventful, and New-haven was duly reached. Here we were fortunate in finding at once a merchant who could supply us with oil, and with the tank filled we commenced our homeward journey, this time without the assistance of the mechanic, whom we left at Dieppe. However, we managed all right, and, though the road was hilly, our car mounted one stiff slope after the other with ease and celerity. It was curious to notice the different manner with which horses regarded the car. In France they took no notice, but here we had to drive with great caution, and after leaving Enfield two miles we found that our oil was once more exhausted. As this was our first experience we had no real idea for how long the oil would last, and so we had to submit to this inconvenience. One of our members walked back to Enfield, and returned in due course with a fluid that proved utterly unsuitable. The commission was entrusted then to another, who trudged off to get the necessary petrol. The third, tired of waiting by the roadside, eventually made a bargain with a passing driver, and the car and himself were towed back to the village at the tail-board of a pony cart, much to the amusement of the country folk. Difficulty was still experienced in securing the necessary oil, but this was eventually overcome by the kindness of a medical man in the neighbourhood, who owned a motor-tricycle, and kindly let us have a gallon of petrol. We stayed the night at Woking, and on leaving in the morning passed through beautiful scenery by Windsor and Oxford, and ultimately reached Birmingham. We pushed on, however, to Stafford, and there spent the night and the succeeding day. Our homeward journey was then

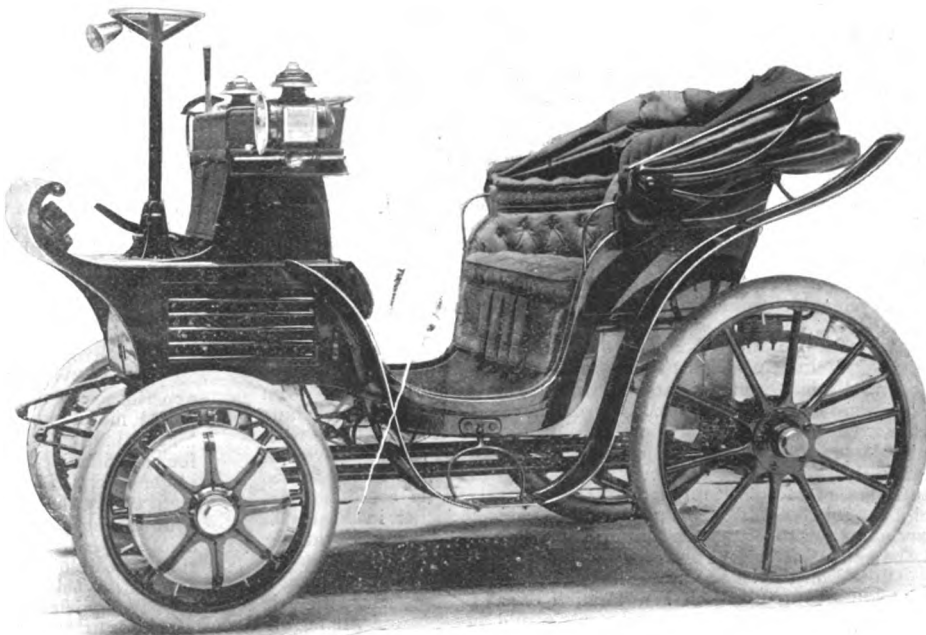


FIG. 2.—THE LOHNER-PORSCHÉ ELECTRICAL VICTORIA. (See opposite page.)

resumed, *via* Manchester, Littleborough, and Blackstone Edge, reaching Halifax safely, having thoroughly enjoyed our first experience of a long ride on a motor."

THE California Automobile Company has been organised at San Francisco, with a capital of £30,000.

MOTOR-BICYCLES.

MR. JOSEPH PENNELL ON HIS EXPERIENCES.



THE announcement that Mr. Joseph Pennell, who recently journeyed to Switzerland on his motor-bicycle, was to read a paper on the subject attracted a goodly number of members to the Automobile Club on Wednesday. Professor C. V. Boys presided, and briefly introduced the lecturer.

Mr. Pennell gave his address in a conversational manner, illustrating the various points with some excellent photographs thrown upon the screen. Living as he did in the heart of London, it was absolutely impossible for him to take up any form of motor-car, and there were many in the same position. If they wanted a motor-tricycle or a quad or a car they must have a stable and pay a man to look after the machine, or else make themselves slaves. Some had not the time to do that; and if they could get a machine they could look after and take care of and which would run he thought it would be an improvement on the ordinary safety of to-day. He did not pretend to be an engineer or a scientific man, but an ordinary person who loved to ride on a bicycle, but who wanted something that would go uphill and against the wind. Motor-bicycles he divided into three categories:—1. Those specially built as motors. 2. Those bicycles to which the motor could be attached. 3. Those motor-bicycles which would run and those which would not. Mr. Pennell then showed a series of sixteen views of various motor-bicycles. These included a photograph of the Singer motor-bicycle, which was described as the most beautiful piece of mechanism the lecturer had ever come across; he had seen it run very well on the asphalt at the Crystal Palace. He asked the makers to give him a chance of trying it for a week; but the matter had not yet materialised. In dismounting a motor-bicycle there should be no difficulty either in jumping off backwards or simply putting the feet down. Side-slip was rather a bogey. People had frequently told him he would kill himself some day, but that had not happened yet; and he did not see any reason why it should. The idea that side-slip arose from the weight being at the top was a mistake. He did not think the side-slip came from the weight. It came from the fact that the motor-bicycle drove straight ahead, and unless they stopped the thing the motor continued to drive. If on a bad road the rider stopped pedalling and the motor went on it would go straight ahead. He had only had one attempt at side-slip, and then he and the machine turned a beautiful somersault. It came from the direct driving on the machine. Where the motor-bicycle was driven on the front wheel it went along like the old ordinary bicycle. From correspondence which he had received from all parts of the world it was clear that intending owners of motor-bicycles wanted a machine that would go up hills and against the wind. He had no personal interest in the Werner motor-bicycle, but it had taken him half across Europe very satisfactorily. He had ridden bicycles for twenty-five years, but had had more fun and more amusement out of this machine than anything he had previously had. Some time ago he bought a motor-bicycle. He gave it up and bought a motor-tricycle; then he went in for a quad. But he had given them up because the vibration on those machines, owing to the motor being under or on the rear wheel, was so excessive that it was impossible for him to stand it. At the end of the only long ride he took on a motor-tricycle his eyes were dissolved in water, and he never suffered such excruciating agonies as during those rides. He next took to the motor-bicycle again, after reading a letter from Mr. Mansell Jones. From the factory of the makers of the Werner he took the machine on the last Saturday in August, and went over the Juras to Andermatt and Lausanne and up the first portion of the Furka Pass. With the aid of photographs and a delightfully unconventional manner Mr. Pennell gave a capital résumé of his trip, showing the zigzag character of the roads which threatened danger at many points and testifying to the remarkable roads and railways in the Swiss passes. On the whole of the trip through Switzerland he never saw a car or motor-tricycle which could hold its own with his "little beast." He did not mean to say it always went without pedalling, but a certain amount of simple, rational pedalling on a cold day was enjoyable, and enabled him to get up the hills at a surprising rate. Reference was made to the recent hill-climbing competitions at Gaillon, when out of thirty-seven cars that were entered the Werner bicycle beat every type of machine with the exception of six. Of those three were tricycles and three were cars, the latter including Levegh's 30-h.p. car. Mr. Pennell arrived at Lausanne three days after leaving Paris, having ridden 525 kilometres in eighteen hours of actual riding time. In Switzerland he could not get petrol, but got benzine. Nothing burned so well either in France or Switzerland. Motor-cars were forbidden on the Swiss passes, and at one point the gendarme turned out to stop his journey, but he (the speaker) simply slipped off the belt and pedalled round as on an ordinary bicycle—an advantage upon which Mr. Pennell expatiated in characteristic vein. On one occasion the motor-bicycle would not go, and all he did was to put it on a penny steamboat and take it to Lucerne. There he found no one who understood it; all they could do there was to entertain tourists. So he put it in a train and returned with it to Paris, where in about an hour he got it put right. From Paris to London the journey, excluding the sea trip, took thirteen hours. In conclusion he dealt upon the motor-bicycle as a form of locomotion that would be highly popular in the future.

THE DISCUSSION.

Mr. P. W. Northey opened the discussion, and, while thanking Mr. Pennell for his address, referred to the fact that he had rather decried other bicycles without giving them a trial. He (the speaker) believed

the motor-bicycle was in an embryo state and they should not discourage attempts to improve it. He had admired the arrangement of the Singer bicycle, but thought it would necessitate much cleaning of the clothes of the man who rode it sixty miles on a dirty road. Major Holden's bicycle had not been put on the market, but he had been fortunate enough to be shown some of the details, and could not help remarking upon the skill shown in getting over difficulties in some of the details. An automatic feed for the lubrication was provided, and other improvements had been adopted. The noise of all motor-bicycles was too great. He believed that the bicycle would, in the future, become an important means of locomotion, because the tendency was for people to get very quickly from place to place. Side-slip was rather a bogus fear. If a man rode a motor-bicycle on greasy roads he would not find any great difficulty as regards side slip, especially if the motor was driven on the front wheel. The Werner bicycle had an advantage in driving through a belt, as the vibration was less. With reference to speed Mr. Northey referred to a race he had had with a train between Bath and Box, he being on a Werner bicycle. After running parallel about two miles the train finally got the better of him.

Mr. H. J. Swindley thought Mr. Pennell had not dealt fully enough with the Shaw motor-bicycle. In that machine the motor was in the lower part of the frame in front of the back wheel, and was driven by means of pinion and chain wheels, through two chains on to the back wheel. He had ridden the Shaw motor-bicycle from Sutton to Burford Bridge, and found it very powerful uphill. When it was put on the market and some means of pedalling added it might take a good place. He had also ridden on Major Holden's bicycle, which was a very remarkable machine. Side slip in connection with motor bicycles was a terror for him.

Mr. S. F. Edge said the motor-bicycle was cheap, and would therefore appeal to thousands of people who could not buy anything else; but he did not regard it as a vehicle for everyday use. Certainly, as Mr. Pennell had shown, it would be extremely serviceable for a holiday. Major Holden's bicycle was very clever, but the man who bought a motor-bicycle was generally little concerned with the motor portion, and to duplicate the cylinders to the number of four was a distinct complication, especially when one might be made to suffice. The early experience with the Werner, eighteen months ago, was that it was a complete frost. It was a bicycle with a motor attached, and had all the disadvantages of the motor without sufficient power. But now a decent motor was given. He was glad Mr. Pennell liked the motor-bicycle, and had no doubt he would creep on to something bigger, for everybody would come to that. The nicest of all was the best, and to that everybody would come sooner or later. Mr. Pennell had had remarkable luck; had the Club sent forth a hundred people on such a journey only a few would have survived. The Singer motor-bicycle was something very pretty to run round a ring, but he did not think it was a practical vehicle.

Mr. New thought the bulk of the weight on a motor-bicycle should be on the steering wheel. The alternative was to put the weight on the back wheel, and he thought that the tendency then was for the machine to skid. On the other hand, it was more difficult to steer with the weight on the front wheel because that weight had to be shifted bodily. The weight on the Werner motor-bicycle should be carried lower down. On the Singer machine they had an example of the weight being placed not only on the rear part of the machine, but actually inside the back wheel, and very low down indeed. He had had two or three runs on the Singer machine, and it seemed to him that it was wonderfully free from skidding. Generally speaking, it seemed the Werner bicycle was the most satisfactory. They had not yet seen a motor-bicycle which was likely to be of a permanent type. Experience would probably alter the whole design of the machine considerably, and in a few years they would look back upon the Werner bicycle much as they regarded the old bone-shaker. On a motor-bicycle they could not stand still in traffic. On a motor-tricycle if they had to stop in the traffic it was by no means pleasant, and although they had the pedals to enable a start being made the small amount of uncertainty as to whether the motor would take up the running or not, and the trouble of having to pedal to bring the machine into a state of motion, was not pleasant.

Mr. W. Worby Beaumont said that after hearing Mr. Pennell's experiences he felt an unbounded admiration for what the high-speed petrol motor would stand. It had been suggested that Major Holden's bicycle had a complicated motor, because it had what was equivalent to four cylinders. In reality, although there were four pistons, those four pistons were in two cylinders, and were coupled together, and it was not right to say that the motor was a complicated one. It was one of the simplest motors that were made. The arrangement of its valves was also simple. It might be a question whether it was desirable to use a slow-speed motor for a purpose of this kind, but as soon as the bicycle reached anything like speed that objection died away, and the advantages of the simplicity in other parts became apparent. Major Holden's bicycle was very little known, but it was now being taken in hand by people who saw its good points. Whether the bicycle at all as a means of locomotion was likely to grow in favour he should not like to say. His own feeling was that when once on a bicycle he would rather use his own legs than a motor. It was quite true the latter would keep on going longer distances and getting up hills with more ease, but there was the objection of carrying about a much greater weight than with an ordinary bicycle, while the danger of side-slip was increased. A bicycle was only safe from side-slip when the rider took very great care.

Mr. C. Jarrott said he had ridden a considerable number of motor-bicycles. From a practical point of view the question of side-slip alone

was sufficient to prevent him from using one. He started in 1897 with the Wulfmüller. In Paris he had seen a long queer-looking motor-bicycle, about the length of a triplet. He purchased it, and one Saturday started from Holborn for a trip along the Strand. He believed he got as far as Battersea Park. He had the help of a lamp-post in mounting, and with much pedalling and assistance from two passers-by he got going. The thing weighed about 2 cwt. Then he had a De Dion machine. He had to turn on the machine and hop into the saddle. When he came to a hill he got off and ran up. Not seeing the fun of running half the way on a trip to Brighton, he got rid of that machine. He rode the first Werner machine in London, had a side-slip, turned a somersault, smashed the front wheel, and came to the conclusion that he was not a convert. He had ridden a number of such machines since then, and was of opinion that a serious accident would, sooner or later, happen to any ordinary individual in whose hands they were placed.

Professor Boys said nothing terrified him so much as side-slip, whether on a bicycle or a motor-car. On a motor-bicycle it must be very bad. As to the height of the motor and side-slip, his impression was that height was, in the case of the ordinary cycle, an advantage. But if side-slip did occur it was all the worse. In the early days of mechanical cycle locomotion they were told that these machines were to be aids to the ordinary machine, as a sort of help in case of difficulty. But anybody would see that such an aid on the hill would need more carrying about on the level. Unless the machine was capable of making the rider the help it would be no good at all. They had now got to that point in which the rider admitted himself as being a sort of help only in case of some unforeseen circumstance. Mr. Pennell had shown that he was able to get about with more risk and more excitement upon a machine of this sort than upon any other. With regard to Major Holden's bicycle, the complication of what were called four cylinders was imaginary. The extreme simplicity of the construction was due to the fact that two steel tubes which did not need boring out were used. With the four-cylindered motor he had a distribution which gave an explosion to take place 1, 2, 3, 4; 1, 2, 3, 4, round the two ends of the explosion chambers, which gave at every half turn an impetus resulting in an equable kind of driving. This was a valuable point, tending to minimise to a large extent the evil effects of side-slips. Professor Boys concluded by putting to the lecturer an interesting problem with regard to the direction of rotation of the motor with respect to the rotation of the wheels of the machine, and also as to the gyroscopic influence of the motor upon the stability of the machine.

Mr. Pennell replied, after which a hearty vote of thanks to him and the chairman concluded the proceedings.

THE Daimler Motoren-Gesellschaft, of Cannstatt, reports a profit of £9,484 for the last financial year and is declaring a dividend of 5 per cent.

THE Blood-Mille Motor Vehicle Company has been formed at Minneapolis, U.S.A., with a capital of £100,000, to manufacture and deal in automobiles.

THE importation of a steam motor wagon into Pietermaritzburg is another evidence of the steady creeping into favour of these machines, says a South African paper.

THE Russian representative of the firm of Messrs. De Dion et Bouton has obtained permission from the authorities to run ten motor-cars for public hire in Warsaw. The permission is granted for a year as an experiment. No tax will be charged until the utility of the new method of locomotion has been demonstrated.

THE Automobile Club of America has lately issued its first club book. It contains a vast amount of information that should prove valuable to all users of motor vehicles in America. Among other things, it contains names of officers of various automobile clubs, road ordinances, legal opinions on motor-cars, road books and maps, etc. It also contains full names and addresses of members.

In Washington, Minister Wu Ting Fang, of China, has attracted a great deal of attention with his locomobile. He was, states *Automobile Topics*, one of the first of the foreign representatives in America to take up automobiling, and he has become an expert chauffeur. When he returns to China, and takes his machine with him, he will no doubt open the eyes of his fellow countrymen.

THE Trinity Manufacturing Co., of Keene, R.I., has just completed a light steam-car. The boiler is of the upright and tubular type. The engine is a two-cylinder machine, the cylinders being 3 inches dia. by 3½ inches stroke. The petrol tank has a capacity of 8½ gallons, which is claimed to run the vehicle about 60 miles on hilly roads, or 100 miles on well-graded macadam roads. At the right of the driver are a reversing lever and a throttle lever, which latter is said to return to the "off" position automatically, if the operator releases his hold, but which may be locked in position if desired.

HEAVY MOTOR TRAFFIC IN FRANCE.*

By M. GEORGES FORESTIER, Inspector General of Roads and Bridges in France.

(Continued from page 688.)

ROAD traction presents the very great drawback of varying considerably, not only on the same surface through inclines, but also and especially by as much as three to one, according to the season of the year. Hence the motor must be sufficiently powerful to overcome the resistance which the most hilly part of the road will present on the day when the road is in the worst state, unless on that particular day the useful load can be reduced without inconvenience. The steam engine, which enjoys the precious advantages of a variable cut-off and boiler pressure, seems to be the motor that is preferred for the *Poids Lourds* which have to convey passengers at relatively high speeds. When the dimensions are calculated for average resistances, it is able to meet occasional increased demands, provided the boiler is in a state to furnish the extra steam. The weight of and space occupied by the motor and its boiler, as well as the evaporative power of the latter, are, then, the most important problems which constructors have to solve.

Regarding evaporative performance, the boilers which, in France, give the best results are the "Field," which is employed on the Scottie vehicles; the De Dion and Bouton, which is employed on the vehicles of this firm; the "Nielaue," which is employed in the Le Blant tractor; the Turgan, which is employed in that vehicle; and the Serpollet, which is of the instantaneous generation type.

In addition to the water and fuel required for the actual journey, there must also be taken into account the weight of the quantities carried in order to avoid running short between points of supply. In a regular service to a suburb of an important centre, an omnibus will generally have to carry out its usual functions of taking up and putting down passengers and goods at points close enough for the re-equipping to be done without loss of time. At the trials a little over nine miles was allowed, and this is obviously excessive.

The Serpollet boiler, which does not contain water, would seem at first sight to have a higher evaporative efficiency than is the case, but the reserve of heat provided in the mass of the heated tubes is, by reason of the low specific heat of iron, obtained only at a cost of greatly increased weight. In order to reduce this weight, it is necessary to apply fuel producing the greatest number of units of heat per unit of weight. In practice the following evaporations per lb. of fuel are obtained:—

Coal	...	...	...	...	7.0 lbs.
Coke	...	...	...	...	5.5 "
Petrol	...	...	...	...	6.5 "
Heavy Oils	...	...	...	...	13.0 "

Hence it would seem that coal is superior to coke, but with this fuel the control of the firing is very delicate, especially if one wishes to avoid smoke, which should be strictly prohibited, if not in the country at least in a populous district. Heating by liquid fuel, which saves considerable weight and dispenses with the presence of a stoker, seems the ideal method of firing. Unhappily, in France the rights for petroleum and its derivatives constitute a monopoly which renders their employment too costly for industrial automobilism. Again, creosote oil is employed for preserving railway sleepers, and its industrial worth for that purpose eclipses its calorific value.

The internal combustion engine, of which the heat efficiency is notably greater, offers for this kind of traffic prospects which we are now going to examine. The 12 h.p. four-cylinder omnibuses of Messrs. Panhard and Levassor, which have taken part in our trials, were as follows:—In 1897, total weight, with fourteen passengers, 3.8 tons; commercial speed, 10 miles per hour. In 1899 and 1900, total weight, with fifteen passengers, 4.6 tons; commercial speed, 9.4 miles per hour. If the itinerary did not admit of ups and downs, the explosion engine would be much superior to the steam engine on account of its lightness, which is so desirable. But, unfortunately, the power of the explosion engine is practically constant, and any increase of resistance has, therefore, to be compensated for by a corresponding decrease of speed. Again, the spirit costs much more than coke, as will be seen when it is mentioned that in the De Dion and Bouton system the consumption of gas coke per net ton-mile was 5.75 lbs., compared with 0.173 gallon of petroleum spirit in the Panhard and Levassor system. In 1898, in an omnibus fitted with a 9 h.p. Rozer-Mazurier two-cylinder explosion engine, the consumption was reduced to 0.104 gallon of commercial spirit per mile, for ten travellers.

At Versailles, gas coke costs 29s. 6d. per ton; deodorised spirit (0.700 S.G.), 1s. 6d., per gallon; commercial spirit, 1s. 1½d. per gallon. The cost of fuel per net ton-mile was, therefore, at Versailles:—

0.91d.,	using steam from (coke-fired) boiler.
3.15d.,	" deodorised spirit.
1.40d.,	" commercial spirit.

These figures would evidently be altered in favour of coke in the neighbourhood of coal pits, and in favour of the explosion motor in the vicinity of petroleum wells. Hence, in France, if one does not take road maintenance into account, the explosion motor, even with the economy resulting from the employment of a single mechanic to drive and no stoker, is useless for the quick conveyance of goods, especially on hilly roads where a reduction of speed has to be resorted to in the absence of an increase of power.

In 1898, after its success in the trials for hackney vehicles at Paris, the electric motor, in spite of the weight of the accumulators and necessary *impedimenta*, was thought capable of doing its share in the rapid trans-

* Opening Address of Fifth Session of the Liverpool Self-Propelled Traffic Association, being the local centre of the Automobile Club of Great Britain and Ireland, December 3rd, 1900.

port of people or goods. At the Versailles trials of 1898 there was a delivery van of the Jenatzy type which carried a useful load of 1.67 tons, and was able to run twenty-five miles without re-charging, at a speed of seven miles an hour. The particulars of this vehicle are:—

Dead weight, 3.25 tons	Tare	2.04 tons.
	Driver and stoker ...	0.14 "
	Accumulators ...	1.07 "
	Useful load ...	1.67 "
Total ...		4.92 tons.

Several vehicles of this type have been used by the *Grands Magazins du Louvre*, but it has been clear for some time that it is an advantage to reduce the load to 12 cwt. The *Bon Marché* have some Krieger delivery vans which work with success under these conditions, but this being so they no longer come under the category of *Poids Lourds*.

The problem of weight appears to have been solved at the 1900 trials at Vincennes, by the Riker electric delivery van, of which the total weight was 2.82 tons, and the load 0.9 ton. The accumulators weighed 0.63 ton. It is true that it was only able to cover the 31 miles of a hilly road, without re-charging its accumulators, by acting as an actual delivery van; that is to say, by depositing portions of its load of pig-iron at different points of the route, and picking these up again in the evening before going back to be weighed. After a total course of 155 miles on very trying roads, this vehicle showed no signs of wear whatever.

Electrical energy can be so easily and economically produced in mountainous countries, which are frequented in summer by tourists, that several hotels have thought of making use of omnibuses with electrical motors in order to take their passengers to and from the station. M. Jeantaud, at their request, has studied carriages of this type, but so far as I know he has not made use of any of them.

Another class of vehicle, which made an excellent performance on the roads of the Vincennes Annexe, is the electric motor omnibus with an automotor trolley, and this seems to provide the solution of the light automobile for the carriage of passengers and goods by road in hilly countries, for no motor excels the electric motor for variable powers. This omnibus, for twenty-four people, weighs 3.5 tons empty, and, when fully laden, 5.2 tons.

It runs in the midst of other carriages as if it were independent of its electric overhead wire. It owes this seeming independence to the fact that its trolley is self-propelled.

Briefly, this is the principle of its automotor trolley: The small, grooved, metallic rollers, which run on the two conducting wires, are driven by a three-phase motor connected, through an induction coil, to an alternator driven by the motor of the vehicle. The trolley thus moves itself along, the connection between it and the vehicle being made by a flexible cable of two conducting wires—the first leading the current to the motor on the vehicle, and the second the alternating current from the vehicle to the two poles of the induction coil on the trolley.

The only difficulty is the meeting of two vehicles which, fed by the same wire, require to pass each other going in the same direction, or cross each other going in opposite directions. The very simple solution which has been adopted consists of exchanging the transmission cables of the two vehicles, which enables them to overtake or cross each other at any point on the line. The only weak point in this application of electrical energy to suburban traffic is the capital outlay on the overhead line. This solution at once strikes one as being specially applicable on long lengths of road where overhead wires already exist for the transmission of electrical power for industrial purposes.

Good Vehicles.—Let us pass now to the *Poids Lourds* employed for the transport of goods.

The powers of the motors and the weights of the motor-wagons which have successively figured in our meetings have been, for steam:—

Date.	Maker.	Type.	Fr'ght	Total Weight	I.H.P.	Com. Speed
			tons.	tons.		miles per hr.
1897	Scotte	Lorry, with single trailer	4.1	11.6	16	4.0
1898	De Dion and Bouton	Lorry	3.2	8.7	30	7.1
1899	Ditto	Ditto	3.9	9.7	30	9.2
1900	Ditto	Ditto	2.3	7.5	28	8.3

In the same way as for passenger vehicles, after having brought the total weight to nearly 10 tons, which the roads could not carry without damage, especially with a commercial speed of nine miles an hour, the constructors have come back to total weights which are less, but the speed is still very high. This tendency in construction is not only caused by what the public attach so much importance to, namely, the speed, but also and especially because in the calculation of the expense per net ton-mile interest and depreciation play a preponderating part, as can be seen from the excessive prime costs of to-day. Hence the constructors believe it necessary that their vehicles should be able to do a still greater number of miles per day.

On the other hand, they estimate maintenance and repairs at a fixed percentage, whatever the speed, which is a mistake, because these expenses are manifestly the result of shock and vibration, which increase enormously with the speed, as the considerable weight which the wheels of these vehicles have to support does not admit of the use of resilient tires. The curves in which Messrs. Bovaine and Julien have summed up

their calculations and researches on the powers necessary to impart a given speed to different loads on the roads (see *Road Locomotion*, by Professor H. S. Hele-Shaw, F.R.S., page 182—published by the Institution of Mechanical Engineers) show very clearly that the same power, 10 h.p., for example, will allow the conveyance of three tons at a speed of thirteen miles an hour, and three-quarters of a ton only at a speed of thirty miles an hour. That is to say, one obtains, for the same expense of fuel, thirty-nine net ton-miles per hour in the first case, and only twenty-two and a half in the second.

If one considers the lower powers, one sees that with 6 h.p., for instance, one can carry three tons at a speed of nine miles an hour, and half a ton at a speed of twenty-seven miles an hour. That is to say, in the first case one obtains twenty-seven net ton-miles an hour, and only half that number in the second.

Since, in the transport of goods, it is economy and not high speed which is the essential point, one must recognise the importance that attaches to the use of the motor-wagon with a proper load and at a moderate speed. We in France, therefore, believe that the future success of the transport of goods will be achieved by slower automobile vehicles. The difficulty of reducing a big deadweight, which is particularly difficult in automobile vehicles, appears to some to have been solved by road trains, where the total load is spread over a greater number of wheels. In order to understand the merit of this solution, one must consider the load which has to be borne by the driving wheels in order to give the necessary adhesion. In self-propelled vehicles one is obliged to place upon them about 60 per cent. of the total load. For example, in the De Dion and Bouton lorry of 1899, with a useful load of 3.9 tons, 5.8 tons, out of a total of 10.5 tons, was carried by the driving wheels; whilst in the Scotte lorry of 1897, with a useful load of 4.1 tons, the 5.6 tons on the driving wheels scarcely gave 0.48 of the total weight, which appears to be too little for all conditions of road haulage. The solution of the problem would be to make all the wheels drivers, when the load could be distributed equally.

As has been seen in the case of passenger vehicles, lorries with explosion motors offer, for the transport of goods, the advantage of a smaller deadweight. In this class the lorries of Messrs. De Dietrich and Co. have shown very good results, as the following table shows:—

Date.	Maker.	Type.	Freight	Total Weight	I.H.P.	Com. Speed
			tons.	tons.		miles per hour
1897	De Dietrich	Lorry	1.2	2.5	6.5	5.3
1898	Ditto	Ditto	1.5	3.3	9.0	6.7
1899	Ditto	Ditto	2.3	4.1	9.0	6.6
1900	Ditto	Ditto	3.0	4.8	9.0	7.6
1900	Panhard and Levassor	Ditto*	2.0	4.4	8.0	7.4
1900	Peugeot	Ditto†	1.2	2.4	8.0	8.3

* Solid rubber tires on steering wheels.

† Solid rubber tires on all wheels.

The title of *Poids Lourds* truly applies to the electrically-propelled lorry which the Say Sugar Refinery have had built in order to carry loads of refined sugar between their manufactory, 163, Boulevard de la Gare, Paris, and the different stations of the various railways of the capital. This lorry weighs 11.8 tons with the accumulators, and carries 10 tons of sugar. The motor is 20 h.p. In the runs which it made during the recent trials at Vincennes it reached a commercial speed of 3.3 miles an hour. It mounted the hill of Courbeaux, which has a gradient of 10 per cent., at a mean speed of 2 miles an hour, taking a current of 200 amperes at 155 volts. Experience alone can teach us the economic results of this attempt. In any case this lorry deserves to be made the object of detailed study, for its construction does honour to the engineers of the firm of Postal-Vinay, who designed it.

At the present time the Say refinery is experimenting with a lorry of German manufacture, which has a driving bogie in front. This fore-part, which is steered by a quadrant, carries an electric motor. The weight of the lorry when empty is 8 tons, of which 4.1 tons is carried on the fore part and 3.9 tons on the rear wheels. The accumulators are placed in a box below the platform. The useful load is only 3.4 tons, on account of the hills that have to be climbed. The motor, which is of 10 h.p., appears to be inadequate for a total weight of 11.4 tons in Paris, and the vehicle certainly cannot take a load of five tons, or a total weight of thirteen tons, for which it was designed.

Costs of Working.—We have now arrived at the essential part of this address, viz., the working costs for the transport of passengers and goods by automobile vehicles. In order to deduce the cost per net ton-mile, or per passenger-mile, from the consumptions found at our trials, we have decided that the expenses must be divided into two groups—

- (1) Those which remain practically constant whatever the volume of traffic and the useful load;
- (2) Those which vary with the load carried and the number of miles covered.

The first group includes interest, depreciation, the wages of the mechanic and stoker, fuel, grease, and lubricants. In practice, the consumption of lubricants varies slightly with the number of miles covered during the day. Again, to the fuel necessary for actual running you must add that which is burnt during the stoppages between two successive journeys, and in the course of delivery and collection of goods. Finally, for want of sufficient data for calculating the main-

tenance and repairs of the vehicle, engine, boiler, etc., which evidently depend upon the amount of work which is demanded of them, we have estimated them at from 10 to 15 per cent. of the prime cost of the vehicle.

This rate is manifestly too low, although the prime costs are so excessive at present. In vehicles whose wheels can be fitted with rubber tires, the tanks, the boiler, the motor, and the various parts of the transmission escape the worst shocks, but the cost of the tires reaches a high figure. The "*Poids Lourds*," both lorries and omnibuses, until the 1900 trials had no resilient tires, and accordingly the hammering action of the roads on the wheels, which, of course, are below the springs, caused excessive wear on this essential part and necessitated frequent repairs. In this respect the 1900 competition was one of the most instructive, for two of the oil-propelled lorries which appeared there had taken part in the grand manoeuvres of the French army and had not been repaired at all. Before the end of the trials their wheels had to be pressed, especially the driving wheels on the right. Experience with racing carriages seems to prove that the springs have to be changed after about 2,500 to 3,700 miles' running.

It is necessary, therefore, to increase the rate from 10 per cent. to 25 per cent. on the purchase price, in order to cover maintenance and repairs. If we take rent, rates, and taxes into account, it will increase the expenses of the first group by 10 per cent.

The second group of daily expenses comprises the consumption of fuel and water.

The following are the costs which have been drawn up, on these lines, from the data of the different trials:—

COSTS PER PASSENGER-MILE, INCLUDING LUGGAGE, OR PER TWO CWTs. OF PARCELS PER MILE.
(In decimals of One Penny.)

	Third-Load.	Half-Load.	Fully Laden.
STEAM.			
De Dion and Bouton omnibus—			
1897 ... 16 seats ...	0.89	0.50	0.30
1898 ... 20 " ...	0.50	0.25	0.15
1899 ... 20 " ...	0.47	0.24	0.14
1900 ... 22 " ...	0.46	0.24	0.14
De Dion and Bouton brake—			
1897 ... 35 seats ...	0.67	0.34	0.23
1898 ... 35 " ...	0.43	0.22	0.15
Serpellet omnibus—			
1898 ... 14 seats ...	0.93	0.50	0.34
Scotte omnibus—			
1897 ... 26 seats ...	1.10	0.57	0.39
PETROL.			
Panhard and Levassor omnibus—			
1897 ... 14 seats ...	1.22	0.64	0.45
1899 ... 14 " ...	0.89	0.45	0.33
1900 ... 14 " ...	0.90	0.46	0.34
Rozier-Mazurier omnibus—			
1898 ... 14 seats ...	1.05	0.52	0.37
De Dietrich brake—			
1898 ... 10 seats ...	1.06	0.49	0.34
1899 ... 10 " ...	0.78	0.42	0.30

GOODS—COSTS PER NET TON-MILE.
(In Pence.)

	Third-Load.	Half-Load.	Fully Laden.
STEAM.			
Scotte train (1897) ...	9.29	4.82	3.36
De Dion and Bouton lorry			
1898 ...	5.08	3.26	2.28
1899 ...	4.04	2.14	1.50
1900 ...	4.09	2.18	1.52
PETROL.			
De Dietrich lorry—			
1897 ...	9.73	5.25	3.75
1898 ...	11.97	6.01	4.37
1899 ...	6.24	3.49	2.56
1900 ...	6.13	3.42	2.49
Panhard & Levassor lorry (1900)	6.39	3.65	2.64
Peugeot lorry (1900) ...	6.98	3.95	2.93

You will remark that in these costs no figure appears for road maintenance. In France, at least on the National and Departmental roads, vehicles have only to pay a carriage tax and some indirect contributions payable by any public service. On the ordinary and parish roads the contractors for regular automobile services would probably have to pay taxes for the repair of roads subjected to exceptional wear and tear. It

is certain that in this case the contractors would have an interest in diminishing any load which would prejudice them in this respect by seeking to reduce the total weight, instead of favouring the opposite tendency. If one looks at the question of transport from the point of view of the community which maintains its roads out of such a tax, one will have to take into account this expense, and then, perhaps, a regular transport service, particularly of goods, by automobile vehicles, may prove to be more costly than by railway. However that may be, if one compares the costs of passenger carrying or parcels delivery by automobiles with the charges of the railways, one sees that, setting aside the question of speed, these road vehicles can perform the transport with profit to the contractor and benefit to the public. This is especially the case when one remembers that the points of departure and arrival can be in the actual business centres, whilst the stations are often on the outskirts of a town.

Of practical results we have not much to show. Many regular passenger services have been established, many more will soon follow, but none of them have lasted long enough to supply reliable particulars. We must not, however, conclude from the checks received that these services are not practical. The cause of the want of success appears to be the high price of the vehicles, which has forced the users to content themselves with inferior plant, which has not been properly repaired and maintained. Again, instead of establishing several services connecting an important centre with a number of neighbouring localities, which would allow of the establishment of one single repairing shop for all, and instead of commencing by conveying passengers without a fixed time-table, which would have provided for the inevitable hitches at the beginning of a new industry, the contractors have commenced by guaranteeing services between a railway station and a locality which has made them hope for important traffic. The break-down have discouraged the passengers, who have sometimes lost their trains, and the lack of a repairing shop, the establishment and maintenance of which would have made too big a hole in the general expenses of a single line, has forced the vehicles to go on running until they could go no longer.

(To be continued.)

To commemorate the King of Belgium becoming the *Haut Protecteur* of the Belgian Automobile Club, the club is organising a grand banquet for the 22nd inst.

OFFICIAL returns just issued show that during the nine months ending with September last, automobiles valued at £249,600 were exported from France, as compared with only £99,720 in the first nine months of 1899.

As a result of his recent visit to America, Mr. M. D. Rucker is reported to have secured control of the patents of a new heavy oil motor, of which great things are expected. Mr. Rucker is getting some of the engine and transmission gear parts from America, and hopes to have a car ready in about two months.

EX-BAILLIE BROWN, chairman of the directors of the Caledonian Motor-Car and Cycle Company, Limited, Aberdeen, and Mr. J. H. Paterson, managing director of the company, left that city for the Continent on Tuesday last. The chief object of their journey to the Continent is to visit the works of the Daimler Motoren Gesellschaft at Canstatt, Wurtemberg. The Caledonian Company some time ago completed arrangements for the purchase of about a dozen large motor-cars, each to carry sixteen passengers, according to the specifications supplied, and the object of the visit to Germany is to inspect the cars, which are now ready.

VERY few motorists have an accurate idea of the grade per cent. they can climb. If their vehicles go up easily they are apt to underrate the grade; while, on the other hand, if it is hard work to get up, they are apt to greatly overrate the grade. There has been no convenient instrument with which to measure grades. Pendulums with a graduated circle have been tried and answered fairly well when at rest, but besides being very bulky they were entirely unreliable when attached to a vehicle under motion. The vibration would cause the pendulum to swing back and forth so that readings could not be taken. An American concern, the Adams Company, Dubuque, Iowa, have just placed upon the market a simple but ingenious little instrument, that may be attached to the side of the seat of any vehicle, and the grade the vehicle is ascending or descending can be determined at a glance. Gradometer is the name given the instrument, which consists of a nickel-plated casing, 6 inches long, containing a curved glass tube filled with spirits, leaving a small bubble which acts the same as a spirit level. The casing has graduations on one side of the opening, and figures from 0 to 30 each way from the centre on the other side, so the per cent. of grade can be read from the level to 30 per cent., either ascending or descending.

ACTION OVER MOTOR-CAR STORAGE.

AT Brompton County Court, on Tuesday, before Deputy Judge Clement Lloyd, the Automobile Association, Limited, brought an action against Messrs. Weigel and Co., Limited, described as wine and biscuit merchants, Spring Vale Terrace, Hammersmith, W., for the recovery of certain motor-cars and motor-tricycles, with accessories, or £50 as their value. Mr. Canot, counsel, appeared for the plaintiffs, and Mr. J. Osborn, solicitor, for the defendants. Dr. E. Lehwess, managing director of the plaintiff company, stated that Mr. D. M. Weigel formerly held a similar position under the Automobile Association. In October, 1899, he sold to Mr. Weigel, who had recently severed his connection with the association, motor-cars and cycles to the value of £1,620. These motors included those which were the subject of the present claim. The terms of the sale were that £50 should be handed over in cash, and that the balance should be paid by instalments at the expiration of nine and twelve months. The £50 was duly paid. Subsequently the Automobile Association brought an action, in which they sought, and ultimately obtained, an interim injunction, setting aside the sale. On January 25 last an agreement was entered into by which the Automobile Association were to obtain the return of all the motors sold to Mr. Weigel, while he was to have his £50 returned to him. Some of the motors were brought away from the defendants' premises but others remained there. Mr. Osborn remarked that he was not going to dispute that his clients had possession of the motors as claimed, but he maintained that there was rent due to the defendants for storing the cars, etc., and this rent they counter-claimed.

Dr. Lehwess went on to say that his association did not leave the motors on the defendants' premises owing to want of room on their own. On September 12 last Mr. Weigel ceased to be manager to the Automobile Association, and on that day gave him (Dr. Lehwess) a note by which he might obtain delivery of the cars which were now claimed. In this delivery order there was no mention whatever of any charge being made for storage of the cars, etc., and nothing had been said to him about such a charge. When shortly afterwards application was made for the cars, the defendants sent in a claim for storage. This claim was at once repudiated, but up till the present time the Association had been unable to get possession of the cars, etc. Cross-examined: It was quite true that he was the largest shareholder in the Automobile Association, but he was not practically the only one, for several of his friends also had shares in the concern. Mr. Osborn: I find at Somerset House that the paid-up capital of the Association is £7. Is that correct? The witness: No, that is not so. Cross-examination continued: He, as manager to the Association, sold the goods to Mr. Weigel. It appeared that Mr. Weigel retained the cars, etc., in question as security for his £50, referred to above, which had never been refunded. Witness was not told that the goods were retained because rent for their storage was owing. It was not a fact that the Association had no room for the goods, for at that time they had ample space for them at the premises which they formerly occupied at 1, Prince's Road, Holland Park Avenue, Notting Hill, W., and also at their stables in Portland Road, Notting Hill. Demand had been made for the cars, etc., in question to Mr. Weigel personally and also to the defendant company. It was totally untrue to say that he had ever agreed to pay half-a-crown a week for each of the cars or tricycles stored by the defendant company. In answer to further questions, the witness admitted that his association charged 7s. 6d. a week for storing a motor-car, but this included the work of keeping it clean. It was not true that on January 25 he received a letter purporting to confirm a verbal agreement to pay storage money. Mr. Frederick Frentzel, manager to the plaintiff association, gave evidence to the effect that he had never heard of any agreement for his people to pay rent for storing the cars, etc., in question.

Mr. D. M. Weigel, of the defendant firm, agreed with the evidence given by Dr. Lehwess as to the purchase of the cars and cycles, etc., for £1,620, the interim injunction being executed setting aside the sale and the agreement for the return of the goods, and the refunding of the £50. Subsequently Dr. Lehwess asked him to store the motors in question, agreeing to pay half-a-crown a week each for their storage. This agreement was confirmed by the letter of January 25, which he handed to Dr. Lehwess. It was absurd to say that he retained the goods as a security for the £50, because, as a matter of fact, he then owed the Automobile Association about £250. Mr. Canot: I call for the letter-book in which this letter was copied. Mr. Osborn: We do not produce it. Mr. Canot insisted that as this book was in Court, and had been referred to, it should be put in. The learned counsel also made some most serious suggestions as to this letter and the alleged copy in the book, and the defendants' solicitor declined to put in the book. The judge said he thought that, after the suggestions made by the plaintiffs' counsel, the book should be put in. This having been done, Mr. Weigel, in answer to other questions, said that the letter in question was dictated by him to his sister, who wrote it, and that the letter was then handed to Dr. Lehwess. Frederick Studwick, a man in the defendants' employ, stated that he heard Dr. Lehwess agree with Mr. Weigel to pay for the storage of the motors in question. Mr. Harold John Orchard, formerly in the employ of the plaintiffs, stated that Dr. Lehwess consented to lend him one of the motor-tricycles, which were stored on the defendants' premises, and that when he went for the machine Mr. Weigel told him that he could not let the machine go because rent was owing for storage. Mr. Canot repeated his suggestions about the letter, and its alleged copy of January 25, and asked that the case might be adjourned so that Mr. Weigel's sister, who was supposed to have written the letter, might give evidence, and also in

order that other witnesses might attend. The Judge: I am not going to adjourn the case. I shall decide it upon the evidence before me. The claim is practically admitted, and I think that the defendants have succeeded in their counterclaim. There will be judgment for the plaintiffs on their claim, and for the defendants on their counterclaim, with taxed costs on both sides.

MOTOR-CAR LITIGATION.

BEFORE Mr. Justice Cozens-Hardy, last week, a motion in the action of La Société Panhard et Levassor, and the Panhard and Levassor Motor Company, and the Panhard Motor Company was mentioned by Mr. Vernon Smith, Q.C. The plaintiff asked for an injunction to restrain the defendants until the trial or further order from using the names of Panhard and Levassor, or any title or description which included those names, in connection with the manufacture or sale or use of motor-cars. The learned counsel stated that the defendant company had recently been formed in this country with the object of taking the trade of the plaintiffs—a French company—by using their name. The defendants had not yet commenced business. Mr. Eve, Q.C., thought the case was one for the trial of the action, and without prejudice the defendants would not commence business in connection with the sale, use, or manufacture of motor-cars until the trial of the action; but he asked that the trial should be expedited. Mr. Vernon Smith assented. Mr. Justice Cozens-Hardy thought that was a reasonable course, and he ordered that, the defendants undertaking in the terms of the notice of motion, the motion should stand over until the trial. It was arranged that the parties would agree to be bound by the judgment in the first action, and that the action against the second parties would be stayed. The action would be set down at once.

ACTION OVER MOTOR-CAR ACCESSORIES.

IN the Lord Mayor's Court, last week, Messrs. Friessell's, Limited sued Mr. Kitto to recover the sum of £9 for goods sold and delivered. The defendant raised a counterclaim for commission due. Mr. Jelf (instructed by Mr. Chaproniere) was counsel for the plaintiffs, and Mr. Young (instructed by Mr. Cheverton) for the defendant. Mr. Friessell said that the defendant purchased a motor-car of him. It was a second-hand car, and would have to be taken as it stood. Afterwards certain accessories were ordered by the defendant, and in respect of those goods the claim was now made. The defendant alleged that the accessories were included with the motor-car, and that he had paid for them in the price of the machine. Before the evidence was called for the defendant it was intimated that the agreement upon which the defendant relied in support of his counterclaim was lost, and could not be put in evidence. The Common Sergeant considered that that put an end to the counterclaim. Eventually, upon a suggestion from the Judge, the parties came to terms, a verdict being entered for the defendant on the claim, and for the plaintiffs on the counterclaim, except as to £5 13s. 6d., the defendant to have the costs on his counterclaim up to the time of the admission by the plaintiffs on the proceedings that that sum was due.

FURIOUS DRIVING CASE.

AT the Chertsey Petty Sessions last week, M. le Baro, a French engineer, of London, was summoned for driving a motor-car at an excessive speed at Egham Hill on November 25. William Whipp, engineer, of Egham, estimated the speed at which the defendant was driving his motor-car from Virginia Water to Egham at from twenty to twenty-five miles an hour. The car was going down hill, without the brake on. Subsequently, on turning a bend he saw the motor-car backing into the road, having evidently collided with some gates. The vehicle sustained some damage, as did the gates. Buckley Allen of Egham Hill, said he was astounded at the pace at which the car was travelling just before he saw it run into the gate. The pace must have been about twenty-five miles an hour. John Spencer said he was cycling down Egham Hill when he saw the motor-car; it was evidently out of control. His idea of the speed was similar to that of the other witnesses. Defendant, who pleaded that brake did not act, was fined £3 and costs.

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COMMENTS.



THE Automobile Club has shown," says the *Times*, "an admirable desire for compromise in the general interests of the community." Such is the verdict of the Press on the letter to which we made reference last week. Journalists have begun to recognise that fast speeds have only been indulged in by an insignificant minority of motorists,

and that owners of motor-vehicles are gentlemen and sportsmen, whose object is not to go on man-killing and children-frightening expeditions, but to get pleasure from a new pastime, the development of which means much for the future of British trade—both in engineering, road-making, and catering. There may not be much in common between engineering and catering, but there is a very tangible relationship between the encouragement of the automobile and the revival of the best class of hotels on all the main country roads.

Action Delayed.

ALREADY the letter sent by the Automobile Club to members of the County Council and other authorities is bearing fruit, and has been mentioned at several meetings of such bodies. Evidently some of the opponents of the motor-car do not

quite appreciate the efforts now being made to place the other side of the case before the public, and we are glad to recognise that in some cases it has been decided to postpone further action for awhile.

In Devon.

IN Devonshire, for example, several of the county councillors are opposed to automobiles. A Mr. Hurrell has declared that "they did not trouble about the person who was riding on the motor-car," and the Rev. Vowler Tanner, having

referred to those ancient and historical people the Medes and Persians, said it would "be better for the present to keep the limit down to a moderate pace." Why the present should be limited we know not; and apparently the reverend gentleman did not succeed in converting his brethren to a recognition of its importance. Anyhow, on the motion of Lord Elbrington the proposal of the committee with regard to speed is not to be acted upon. For which relief, many thanks.

Liverpool Self-Propelled Traffic Association.

THE report of the Liverpool Self-Propelled Traffic Association for the fourth session brings into concise form the activities of the organisation during recent years. The number of members has steadily risen until it now reaches

105. The draft report upon the working of the 3-ton limit of tare under Article I of the Locomotives on Highways Act, 1896, is given in full, and reference is made to the fact that the matter has been brought to the notice of the Associated Chambers of Commerce of the country. A full list of members

is published in the report, and the balance in hand amounts to £16 17s.

Annual Meeting.

THE fourth annual meeting of the Association was held on Monday at the Royal Institution, Colquitt Street, Liverpool, Professor H. S. Hele-Shaw presiding, in the absence of the chairman of the council, Mr. A. L. Jones. Mr. S. B.

Cottrell moved the adoption of the report and accounts, which was seconded by Mr. W. Beckett Hill, who referred to the 1901 Trials in Liverpool. He said that not only were railway charges excessive, but that the frequent handling and hooking of the Manchester bales so damaged them and so annoyed the merchants of that city that they would gladly pay a special price for efficient transport. Thus the way was opened for the motor-vehicle, which was expected to carry at approximately 6s. per ton for the entire transport between warehouse and quayside. So far only the high-pressure steam boiler had been tried on these vehicles, but other types might yet prove successful. It was notable, too, that heavy petrol-motors, which once carried a load equal only to half their weight, could now work up to 97 per cent. The motion having been carried, the chairman moved a vote of thanks to the Lord Mayor (Mr. Arthur Crosthwaite) for his assistance in receiving and entertaining Monsieur Georges Forestier on his recent visit to Liverpool. Mr. Anthony G. Lyster seconded the vote, which was accorded. On the motion of Mr. John H. Toulmin (Preston), seconded by Mr. H. H. West, a vote of thanks to the honorary officers of the association, the honorary solicitor (Mr. Lawrence Jones), the honorary treasurer (Mr. J. Walwyn White), the honorary secretary (Mr. E. Shrapnell Smith), and to the honorary auditors (Messrs. Lloyd and Walker) followed. In reply to a question, the honorary secretary stated that the proposal to dissolve the association after the third trials had been abandoned. The association would be continued in a form to be duly announced.

The Christmas Tour.

SEVERAL enthusiastic motorists have notified their intention of joining in the Christmas tour of the Automobile Club, and the fact that many ladies will participate should prove to the public that our pastime is as much for the fair

sex as for those of sterner mien. That the club should have undertaken a trip to Plymouth is evidence of the confidence that motorists have in their cars, and doubtless good educational work will be done during the course of the journey. At the time of writing, however, the climatic conditions are not of the most seasonable kind, and the outlook is rather dampening. But, hopeful for the best, we intend to enjoy a Motor-Christmas.

The Levassor Monument.

FRENCH officialism in common with that of other nations is only too prone to conduct business matters with a deliberation truly exasperating, and as a striking instance of the methods employed one might well cite the question of the proposed Levassor statue. Dating from the early part of last year,

posed Levassor statue.

the project eventually reached the fourth commission on December 15th, exactly twelve months ago, and yet in spite of the favour accorded to the scheme by all the members nothing definite would appear to have yet been decided. The selected spot is at the Porte Maillot entrance of the Bois de Boulogne, Paris, by the side of the tramway running to the Jardin d'Acclimation, and it doubtless is there that the statue of the founder of French automobilism will ultimately be placed, but when nobody seems to know. The statue itself is the work of the well-known sculptor, Dalou.

An Alcohol Motor-Car in England.

MR. W. T. PRETTY, of Ipswich, has lately received a new car from France, in which he intended using alcohol as fuel in place of petrol. Considerable attention has been devoted to the use of alcohol in motor-vehicles in France of late, and as this is the first car of the kind in England, so far as we know, the following particulars, kindly furnished by Mr. Pretty, will be of interest: "Living in an agricultural, or rather hostile, district, I decided to try an alcohol car—a 12-h.p. Gobron-Brillié, which had run in the recent French trials. The car reached Ipswich the day before the lecture on motor-cars by Mr. E. Shrapnell Smith, and I was anxious that some of the members of the Automobile Club who had come down to hear this lecture should participate in the first alcohol trial to take place in England. The instructions were to use 40 per cent. of alcohol and 60 per cent. benzoline, but as I found the first to cost 21s. per gallon I decided this would be a fuel for princes only, and therefore had recourse to methylated spirit at 2s. 2d. per gallon (65 per cent.), which was mixed with rectified benzol (2s. 6d. per gallon) in the proportion of five parts methylated to six parts benzoline. Having had no opportunity to test this mixture, it was therefore with some trepidation that I asked Messrs. Shrapnell Smith, C. Johnson, and E. Rosenheim to accompany me on a trial spin. The motor is of the two-cylinder four-piston type, working on the Otto cycle. The car carried the driver and four passengers from Ipswich to Colchester, eighteen miles, splendidly, and at a speed fully up to the legal limit, and the return journey was made on petrol without any alteration or adjustment. I cannot yet give definite figures as to consumption, but it is claimed that this is not more than petrol, while the power developed is from 5 to 10 per cent. more. With alcohol there is a total absence of any unpleasant smell, and if, therefore, the price can be reduced somewhat it should prove a very strong competitor to the oils we are now using." The car in question is the property of Mr. Henry Smith, of Regent's Park, and is expected to reach London to-day.

Naming Cars.

THE naming of cars is becoming popular among owners. It was the Antrona of Mr. Henry Edmunds that won Mr. Harmsworth's cup on the run to Southsea, and La Toujours Contente and La Presque Contente are associated with Mr. E. W. Hart's advocacy of electric vehicles. The idea is certainly a good one, and, as for ourselves, will have to be considered when our new cars arrive. These are now on order, and comprise a 9-h.p. Napier car and a four-cylindere M. M. Co.'s Panhard—of the latest type.

The Manchester Automobile Club.

THE first annual dinner of the Manchester Automobile Club was held on the 12th inst. The dinner was well attended, and was a success in every way, Mr. E. Shrapnell Smith being the guest of the evening. After the dinner Mr. W. E. Rowcliffe, Chairman, spoke a few words introducing Mr. Shrapnell Smith, and said that the Manchester Automobile Club was started a year ago; it had at present fifty-three members, and during the coming year there was every prospect of adding very considerably to the membership. Mr. E. Shrapnell Smith, in rising to propose the success of the Manchester Automobile

Club, said that he hoped the toast for another year would not be the success of the club, but the continued success. With respect to the speed at which motor-cars were allowed to run, he thought that the more electric tramcars that were laid down in our cities, the more would the public be educated to seeing large masses moving at what at present were called excessive speeds, and still under perfect control. He himself, in the city of Liverpool, had timed electric cars running at twenty miles an hour. He thought that the more general use of motor-cars was certain, and this general use would affect the question of the housing of the working classes.

Medical Men and Motor-Cars.

DR. W. W. HARDWICKE, of East Molesey, supplies the following useful contribution to the discussion on this subject: "I bought a 'Benz' car and started running it in October, 1899. My coachman soon dropped into its management. We have run it every day with, perhaps, two or three exceptions since. Our only troubles have consisted of a hot bearing on two occasions, due to our own fault in not properly looking after the grease boxes, and of short-circuiting of the electric current, generally at a point on the top of the battery under the seat, the result of imperfect insulation. This is remedied by enclosing the coil in an old piece of hose-pipe split down the middle and sprung upon the coil. The initial outlay on the purchase of the car was £230. The expenses for the twelve months have been: Repairs, painting, etc. (engineer and coach builder), £12 10s. 6d.; petrol, £10 17s.; carriage, etc., £1 10s. 2d.; pair of new chains, £3; re-charging cells five times, 7s. 6d.; total, £28 5s. 2d. I can quite understand a motor-car giving trouble to an owner who has no taste for, or much knowledge of, mechanics, for it wants learning, but when thoroughly understood a great deal of expenditure for repairs, etc., is saved, and in my experience there can seldom be any difficulty. Once only have I been 'hung up,' and had I only had the 'gumption' to lift up the seat and look at the battery I would have seen the spark flitting across from the coil into the battery again, and so saved myself much wasted time and some of the above expenditure, and have proceeded on my journey within the space of three minutes. A man is indispensable to look after a motor-car, and he is useful also in his spare time about the house and garden."

Another Convert.

OUR old friend Dr. Gordon Stables, who we remember in the *Tricycling Journal* days of two decades ago, writes a pleasant and inquiring letter which will doubtless cause a great many catalogues and much useful advice to enter his caravan during the next few days. We are glad to record the lessening of his aversion to motor-cars, and our readers will note with gladness his conversion to a form of locomotion which should increase the measure of his rural delights. Probably we shall be having a book, "The Story of the Caravan that Motored," by Dr. Gordon Stables, whose pen has delighted thousands of readers since he began to live his life among country scenes.

French Automobilists Honoured.

AMONG the recent recipients of the coveted red ribbon of the *Legion d'honneur* two names will at once attract the attention of the automobilist, two names which will always be inseparably connected with the new means of locomotion. The first is that of M. Amedée Bollée, father of MM. Leon and Amedée Bollée, and one of the founders of automobilism in France. We say founder, for the first of M. Bollée's cars was built in 1873, and the last of the famous four was constructed in 1880. The last-named vehicle was called the "Nouvelle," and it competed in the Paris-Bordeaux race of 1895. The big car, which was shown at Vincennes during this year's Exhibition, and which, steered by M. Bollée himself, led the procession at one of the *fetes*, is called the "Mancelle"—M. Bollée hails from Le Mans—and is the second in point of age, having been constructed in 1878. All these vehicles were successful,

and no one seeing the "Mancelle" careering gaily round the Lac Daumesnil at Vincennes would for a moment have thought that it was a car twenty-two years old. Since 1896 the sons have been more to the front in automobile affairs than has been the father, and one is therefore rather apt to overlook the part played by M. Bollée *pere* twenty-seven years ago. During the Exhibition, however, the famous constructor has performed a vast amount of work, for, in addition to serving upon a jury, he acted as president of the congress, and actively interested himself in connection with the show, both at Vincennes and Champ de Mars. The second name is that of M. Serpollet, another advocate of steam as the best motive power for automobiles. Born in 1858, M. Serpollet constructed his first car in 1887, and then a couple of years later began to devote all his energies to tramcar work. Up till last year this continued, but now the inventor has commenced to construct his automobiles in series, and at the moment no factory is busier than that belonging to MM. Gardner and Serpollet at Menilmontant. Congratulations to both of the new *chevaliers* will, we are sure, be the wish of every automobilist.

The Automobile Club of America.

At the last meeting of the Board of Governors of the Automobile Club of America, the question of a club-house was again taken up, and the board came to the conclusion that as there are about eighteen storage and repair shops in New York, it would be wise for the club not to go into the same business, and decided to leave this portion of the club-house plan to private enterprise. In connection with the proposal for the establishment of new club quarters, a committee of two members was appointed to negotiate with the New York Club, while the long endurance run, for some time in prospect, has been referred to the Committee on Runs and Tours, and will be probably held the same time as the Chicago Automobile Club holds its exhibition in Chicago, about May next.

Street Sweeping by Motor-Car.

THE latest proposal which is to come before the Grimsby Scavenging Committee is that the streets should be swept by motor-car. The car which is to be brought before the notice of the committee is an electric motor-car made by Messrs. Kruse Bros., of Hamburg. It sweeps the street by means of brushes in front of the car, collects the mud into a heap, throws it into a basin, and takes it away, instead of leaving it to be collected by a separate process. The first question which will naturally occur to the members of the committee will be, "How does the cost compare with that of the present method?" Herr Owert, the local agent, has prepared a mass of information on this point. The cost of six horses and carts for a year would be, he says, about £704 4s. Against this the cost of one motor-car, which would do an equal amount of work, would be £441 4s. The cost of the car itself would be £910, and an extra battery would cost £150. The electricity would be obtained from the Corporation works, but if it had to be paid for there would be the sum of £132 12s. per year for current. Of course, the stabling for one car would not be the same as that for six horses and carts. One man would work each motor-car, two or three of which would be required if electricity superseded the old method. A number of members of the Council are favourably inclined towards the proposal, which will doubtless be discussed at an early date. Messrs. Kruse Brothers have long been identified with carriage building in Germany, and have attained some distinction in connection with heavy motor-wagons and also electric vehicles.

Accidents in France.

In accordance with its custom, *Le Vélo* has issued a series of figures showing the accidents caused during the month of October by the principal means of locomotion, and, as is invariably the case, these statistics emphasise the increase of safety secured by the employment of mechanical traction. Whereas during the month in question horses have been

responsible for no fewer than 967 accidents, bringing death to 82 persons, and causing injuries to 885 others, the automobile can only be held guilty of 38 mishaps, in which but two lives were lost. In spite of the great difference in the number of horse-drawn and self-propelled vehicles, the record is all in favour of the automobile. Turning to the bicycle, one finds that the *petite reine* has given rise to 119 accidents, bringing in their train six fatalities. But the most astonishing item for the month is that of the railways. Generally very moderate, the return for the iron road has run up to 145 mishaps for October, giving rise to 8 deaths and 137 persons injured. This is altogether exceptional. The automobile, cycle, and train in all account for 302 accidents as against 967 occasioned by the horse. Our dear old friend the hay-motor should be ashamed of himself, but as he has been so long in the world he is probably quite hardened to the massacre.

The English Motor Club.

THE English Motor Club are not touring this Christmas, but the members will be on the road early in the new century, a run to Brighton on the first Saturday in January being contemplated, the Star and Garter being again the headquarters. It is probable that the club will hold a race meeting at the Crystal Palace on Easter Monday, and it has been definitely arranged that a control test shall be held on the first Saturday in April in the grounds of the Palace. This is likely to cause a great deal of interest, coming just as it will at the opening of the motor season, and will doubtless serve a useful purpose in once more exhibiting to doubters how easily and completely the modern motor-car is controlled.

A Junior Motorist.

WHEN the English Motor Club enjoyed Mr. Hart's hospitality at Luton the members were much interested in the motoring performances of young Oscar Hart, whose electric "Sherinette" was manœuvred through the crowd with ease and skill. He goes to school on the little car—probably the



only lad in the United Kingdom who is thus far advanced. In the accompanying illustration this enterprising young motorist is seen mounted on his favourite "steed" with his sister and a cousin as passengers. He is a keen motorist, and this little electric car is familiar in the streets of Luton, along which the mayor of the town has been driven by the young gentleman, whose love of motoring seems a natural trait.

French Medals for English Cars.

THE medals offered by the Automobile Club of France in connection with the English club's 1,000-mile Trial have been received this week, and are being dispatched to their winners. They are certainly well worthy the donors, and comprise the silver-gilt medal awarded to Mr. Edward Kennard's car, the silver medal which was won by the Wolseley voiturette, and the bronze medal awarded to the New Orleans voiturette.

The War Office and Automobiles.

BOTH the *Daily Chronicle* and the *Daily Graphic* have woke up this week with some particulars of Colonel Crompton's work in connection with automobilism in South Africa. Few of the facts are new to those who heard the gallant gentleman at the Automobile Club's dinner, but they doubtless proved of some interest to the general public. Had motor-vehicles been largely employed in the campaign there would certainly have been a lower death rate, for the spread of enteric fever was materially assisted by the carcasses of horses with which the veldt was bestrewn. Even the capture of De Wet, who seems to elude infantry and cavalry alike, might have been facilitated had motor-wagons been utilised for transport and commissariat purposes. Anyhow it is satisfactory that the War Office is abandoning its Bourbonism and has secured Colonel Crompton's assistance in practical reform.

Motor-'Buses in Lincoln.

SOME interest has lately been aroused in the shares of motor-car companies, particularly those concerned with the manufacture of vehicles. Lately at Lincoln something has been heard of the shares of the local Motor-'Bus and Parcel Delivery Company. These are £1 shares, upon which 12s. has been paid, and they sold at auction for 12s. 6d. In putting these shares up for sale the auctioneer took the opportunity of predicting that motor-cars had come to stay in Lincoln definitely and permanently. There were people who were ready to decry the trams when they were first placed on the streets, as there were now with respect to the motor-'buses. But in his opinion the time would come when motor-'bus shares would be very valuable.

A Busy Lecturer.

MR. E. SHRAPNELL SMITH is becoming well known as a popular exponent of automobilism, and since his recent lecture at Ipswich has been very busy in other parts of the country. On the 15th inst. he lectured at the Glasgow University Engineering Society, Professor Barr, M. Inst. C.E., being in the chair. Mr. Smith urged the use of motor-vehicles for three chief reasons: first, they would relieve horses of much hard drudgery, which in Liverpool meant an average of six or seven tons for two horses. Their use would not decrease the number of horses in use for light services; second, the horse being as long as a vehicle, removing the horse was equivalent to doubling the street area; third, the low cost, which was about 5s. per ton per day with a full load for 30 to 40 miles. There was a good muster of members of the society, and on the previous evening Mr. Smith was their guest at the annual dinner at the Grand Hotel, replying for the guests. Since then he has responded for the guests at the Liverpool University College dinner, and has opened the session of the Nottingham Automobile Club with a lecture.

An Automobile Handbook.

WITH a very effective cover, and printed in splendid style, the catalogue of the Automobile Manufacturing Company, Limited, rightly deserves the title given it by the firm in whose interests it is issued. In the early pages the instalment system of the company is described, by which it is possible to obtain any type of motor-vehicle, from a bicycle to a racing car, at a slight increase in the cash price. The first payment is made on ordering the car, the second when the car is delivered, and the remaining payments monthly. Section I. of the catalogue deals with petrol-cars, and illustrations of the Hille tricycle, the Carlton and Savoy voiturettes, the Georges Richard 7-h.p. truck, the Richard car, the Hille car, and the Delahaye high-speed cars are included among the other views. Steam cars are the subject of the second section of the book, and an illustration of the 10 h.p. A.M.C. steamer is given. This can be fitted with any design of body for two,

three, or four persons. In the section devoted to electric vehicles various types of the Cleveland car are shown, and the last few pages of the work are devoted to some of the accessories kept in stock at the showrooms, 48 and 49, Long Acre, W.C.

The Leecoll Battery.

SIX Leecoll cells, which had been four months in use on a motor-car, were recently submitted to Sir W. H. Preece for the purpose of testing. He subjected them to forty-two discharges and forty-one charges within six weeks, then left them standing idle for ten weeks, and afterwards submitted them to three more charges and discharges. He came to the following conclusions:—The normal voltage of each cell is 2.4 volts; the voltage of each cell remains above 2 volts for at least four-fifths of the discharge; the cells can be discharged to as low as .5 volt, without apparent injury to the electrodes; the cells may be left standing discharged for weeks without damage; they can be charged in two hours, and will stand discharges of 50 to 60 ampères—five times the normal rate. Sir W. H. Preece believes that the vibration to which the cells would be subjected on a motor-car would improve the cell capacity by assisting in the prevention of polarisation. This has been actually proved to be the case. The Leecoll cells on the "Powerful" car discharged 275 ampère hours, although only supposed to contain 270 ampère hours—a result which testifies to the value of the battery.

A New Company.

THE battery has been introduced by the Leecoll Electric Battery Company, Limited, a concern whose assets, together with one half share in the Leecoll patents in most European countries and the colonies of Victoria and New South Wales, are being acquired by the British and Foreign Electrical Vehicle Company, Limited. This company has been formed with a capital of £150,000 in £1 shares, 54,000 of which are now offered for subscription. The directors are Colonel J. F. Caldwell, J.P., Mr. Roger H. Fuller, of the De Dion-Bouton Company, Mr. T. G. Chambers, of the Leecoll Battery Company, Limited, and Mr. E. W. Hart, of Luton. These gentlemen are well known to automobilists, and their experience should prove a great factor in the development of the business. Through Mr. E. W. Hart the company has secured the English rights in the convertible electric brougham and victoria on the Lohner-Porsche system, and it is proposed to place a number of these vehicles under licence to ply for hire, in connection with which part of the business a splendid central depot and charging station has been taken in Lambeth. These premises are admirably adapted for the purpose with a superficial area of 14,000ft., and accommodation for 150 carriages on the ground floor. An expenditure of between £30,000 and £40,000 was entailed by their erection. The building is well suited to the special needs of the concern, and was the charging station of the old London Electrical Cab Co.

Extensive Operations.

THE sale of electric delivery cars and delivery tricycles is another branch of the business to be developed, and arrangements will be made with electric light companies throughout the country for the charging of cars, so as to encourage the sale and hire of cars for touring purposes. Mr. Hart has erected extensive works at Luton, and a contract on the part of this company has been entered into with him by which it has the option to purchase the whole of his stock, whether manufactured or imported. In addition to the Lambeth premises, depots have been acquired at Notting Hill Gate, South Kensington, and Shoreditch, so that the business may be able to carry on operations with equal facility in the West End, the City, and the suburbs. Although electromobiles will form the main part of the concern it should not be forgotten that the Leecoll battery, to be made by the British and Foreign Electrical Vehicle Company, Limited, is well adapted for launch work; that it has many advantages in connection with lighting, and can be used in connection with oil engines, and on petrol cars.

COUNTY COUNCILS v. AUTOMOBILISTS.



COUNTY councils are on their trial. Since their inauguration they have done much to bring system into the chaos of local government, and, although some have made conspicuous mistakes, they have, on the whole, justified their existence. Men of wide views and tolerant sympathies have directed their deliberations, and they have generally risen above prejudice and privilege and discussed matters of public importance on the high platform of public interest as opposed to private predilections.

But latterly they have revolted from the spirit of uniform fairness with which they were once characterised and have fallen into a state of mind reminiscent of the toll-keepers and turnpike-men of the pre-Victorian days. A minority has declined to run with the crowd; but a large number have fallen victims to the general outcry against mechanical traction on ordinary roads, with the result that they are now clamouring for the thwarting, if not the throttling, of the automobile industry. This they seek to do by a memorial to the Local Government Board to restrict the speed of motor-vehicles to ten miles an hour, and to have every car and carriage, propelled without the extraneous assistance of a quadruped, numbered in a prominent and impertinent fashion.

Basing these recommendations on the rash conduct of a few motorists—as to whom the Automobile Club has given chief constables good advice—they have declared that the motor-car is a dangerous vehicle and the motorist an enemy to the lives and limbs of the public. As is well known, the Automobile Club, regarding this in the nature of a challenge, is preparing to demonstrate to county councillors and others that the motor-vehicle is more manageable than the horse, and is a mechanical arrangement that need not be numbered. This demonstration will take place in May next, and should do even more for automobilism than the great Trial of 1900. Already invitations have been sent to county councillors throughout England and Wales, and in the office of the Automobile Club a huge pile of letters now testifies to the universal interest taken in the subject. When the idea was first mooted it was hinted that a meagre attendance of councillors would prove that the minds of the majority were made up; but the letters of acceptance that have been received show conclusively that the attendance will be large and thoroughly representative. Replies have come from every county between Northumberland and Cornwall, and we have reason to believe that there will not be an English or Welsh county unrepresented at the demonstrations. That fact alone warrants the enterprise of the Club and justifies the arguments of those who urged the adoption of the policy of “educating our masters.” Whatever county councillors may be in their collective capacities, they are, apparently, reasonable and rational persons as correspondents. The letters that have been received reveal a desire for information and practical experience, and not one breathes anything of the spirit of captious opposition. True, one councillor does not like the smell of petrol and another objects to the teuf-teuf of the motor-horn; but in spite of some such minor matters a more hopeful bundle of correspondence was never tied together by the secretary of the Club. One councillor, who bears a name honoured throughout Essex, regards the motor-car as connected with the revival of many a village industry; another sees in it a helpmate to the farmer who has been crippled by the expense of horse-hire; another recognises that it will help the engineering trade; and a fourth sees a bright future for many a small town with the popularisation of the automobile. And so on through a series of letters written by representative and influential men who, while writing for themselves, indicate an interest in the matter that will make for the conversion of others.

So keen is the interest taken in the matter that the Highways and Bridges Committee of the Worcester County Council is desirous to have such a demonstration of automobiles nearer home, and would like evidence of the reliability of the motor-car to be shown in or near the county; and Mr. J. Willis Bund, the chairman of the Council, has pointed out to the Club that the importance

of the Birmingham district may be sufficient to secure this education for the Council. The spirit in which Mr. Bund has replied is characteristic of the reception given to the Club's recent letters by many other broad-minded men. “I will give directions,” he says, “to the chief constable to report all cases of motorists failing to stop when required, and will, as far as I can, supply you with a list of such cases.” If similar steps will be taken by the chairman of every Council in the country and the chief constables will properly carry out the request, the insinuations as to the reckless and rash driving of automobilists without any consideration of other users of the road will soon fall to the ground. On the question of speed the remarks of Mr. Willis Bund (who, it must be remarked, only expresses his individual opinion, and does not in any way commit his council to the same view) are equally comforting to motorists. “I am opposed,” he continues, “to any limit of speed being fixed by law, as it is almost impossible for anyone to say with accuracy what rate of speed the vehicle was travelling at. I should much prefer to see it a question of fact in all cases: ‘Was the vehicle going at such a rate as to be dangerous to the public?’ This, I think, is the true rule for all kinds of traffic, and this I should be prepared to support. I feel more difficulty as to the compulsory numbering of motor-vehicles. On the one hand, placing the owners' name on carts or other vehicles has been law for years, and has, so far as I am aware, worked no hardship. I can quite understand the objections to it in the case of motors. I am rather inclined to give the justices in case of a conviction for furious driving, power to cause a distinctive mark to be fixed on the vehicle for a certain time. I am, however, strongly of opinion that the County Council should have power to see that any cars used in their county are fitted with proper appliances for stopping and guiding the motor. Subject to these conditions, I think that County Councils should give every facility to the drivers of motor traffic.”

Sympathetic as is the general tendency of Mr. Bund's letter, the suggestion that a number should be placed on offending cars for a stated period suggests conviction of the car rather than of the driver. The man with two cars will be at the advantage of being able to stable the offender while using the virtuous car that has not come under the eye of the law, although, perhaps, this might be avoided to some extent by causing the delinquent to make periodical journeys to the nearest police-station to report itself, as do men supplied with a “ticket of leave”—a system which is suggested by the proposal. However, that is a matter about which we do not expect to hear much in the course of discussion.

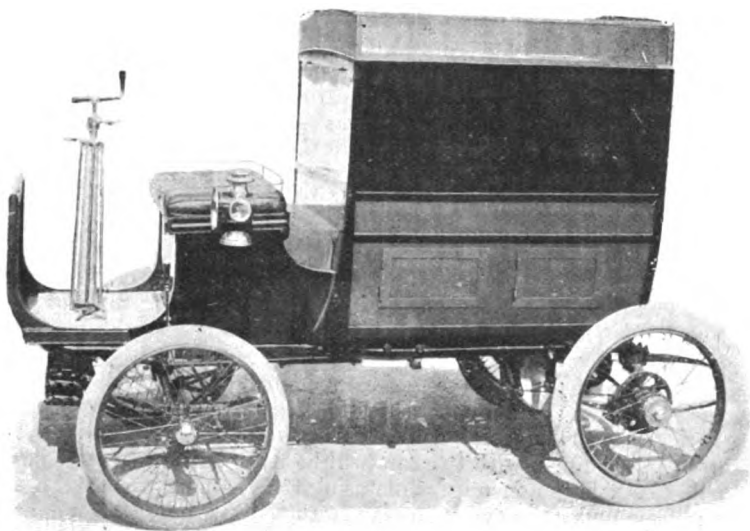
It would be well if county councillors who are thinking of coming to London next May would make inquiries in the direction of finding reasons why the motor-car should not be subject to the common law of the land, and why all traffic, whether horse or motor-drawn, should not be placed on an equality. We have thought over the subject from every point of view, and it does seem reasonable to suggest that whereas the man who drives in such a way as to imperil the life of a pedestrian should be severely dealt with, the man who spins along where there is no traffic and no obstruction should be allowed to be guided by his own common sense. To restrict the speed to ten miles an hour will not lessen the risk of accidents, and the man who is run over—and, by the way, the number of such does not go into two figures—by an automobile does not worry whether the vehicle is proceeding at four or forty miles an hour. The fact that does concern him is that he has been knocked down, and such an incident could happen at the lower speed just as easily as at the higher one. Hence we should say that to bring automobilists within the common law as to driving to the danger of the public would meet such an extreme case as the above; and every other case that is likely to crop up.

With regard to the numbering of vehicles, the consensus of opinion amongst owners of private vehicles—whether horse or motor-drawn—is against the proposal. Why should privately owned broughams be labelled as though they were on convict service at Dartmoor? Why should the Lord Mayor's coach be disfigured by a number, as if intended for an auction sale? Why should a motor carriage be similarly dealt with? Motor-car.

cannot be considered alone in this respect. There must be equity, and both the horse-drawn carriage and the much maligned motor-car must be dealt with on similar lines. Otherwise where is the fairness and justice of our much-vaunted system of Government?

THE DE DION LIGHT DELIVERY CAR.

THE accompanying illustration represents the light delivery van now being built by Messrs. De Dion-Bouton and Co., of Puteaux, near Paris. So far as the frame, motor, and transmission gear are concerned, these follow the lines of the firm's well-known voiturette. It is driven by a $4\frac{1}{2}$ h.p. water-cooled De Dion motor, located in the rear of the frame; two speeds forward and a reverse motion are available. The car, which complete weighs about 7 cwt., secured a gold medal in the recent *poids-legers* competition in France. The trials extended over five days, during which, states *La France Automobile*, the



DE DION LIGHT DELIVERY CAR.

vehicle travelled a total of 198 miles, carrying an average load of 5 cwt., the consumption of petrol during the whole test amounting to 7.57 gallons.

MR. T. G. LEWIN has joined Mr. H. Percival in the business of H. Percival and Co., Saracen's House, Snow Hill, E.C. The business will also be conducted from High Street, Kingston.

A VERACIOUS British contemporary says a large motor-van loaded up with coffins has been seen in London. A correspondent remarks it is but a short step from this to the motor hearse and coaches, and, we would add, to that correspondent.

THE LONDON AUTOCAR Co. informs us that they are now in a position to supply to motor-car builders voiturette fittings as used for building the Renault car. The set includes back axle and differential gear, complete with bevel wheel enclosed in aluminium case; strong wide hubs for metallic spoke wheels; two brake drums, 8in. diameter, and lubricator on gear-case; frame of voiturette complete, with the different attachments for fixing on motor, change speed-gear, springs, and foot step; ball steering head; front axle with hubs and steering joints; central shaft with universal joints for driving direct motor. The frame is made in three sizes, viz., for cars to seat two, three, or four persons. They are also now supplying a set of all motor parts for converting an ordinary bicycle into a motor-bicycle. The set comprises the motor, carburettor, silencer, accumulators in leather case, petrol tank (three quarts) in basket, special rim for driving belt, electric wires and handles, clips—in fact, everything for converting an ordinary roadster bicycle into a motor-bicycle. The bore of the motor is $2\frac{1}{8}$ in. by 2 $\frac{3}{4}$ in. stroke.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

Italian Public Services.

FOLLOWING the example set by the railway from Milan to Monza, the line Bologna-Modena has now commenced a regular service by electric traction. Each carrying two motors of fifty horse-power, the carriages can transport eighty passengers at a speed of fifty kilometres per hour; indeed, they can do better than this should necessity arise. The car with accumulators complete, weighs some four tons, and measures from end to end nearly sixty feet. The service so far has given most excellent results, and before long similar cars will be seen running between Bologna and Saint Félix. This class of work, together with that of the conveyance of the public over ordinary roads by means of self-propelled vehicles, would appear to be of great interest to Italians, for it is especially in these directions that automobilism is being made use of commercially. In this respect Italy is but doing like Spain, for there also new public services are frequently being inaugurated.

At Acheres.

So after all the keenly anticipated speed trials did not come off, and we must wait until to-morrow to see the champions go flying over the road in the Achères agricultural park. The cause of postponement was simply the bad weather, which had rendered the track quite unsafe for fast-speeded vehicles, and the action of the Moto Club in retarding the event for a week met with universal approval. Under ordinary circumstances every care should naturally be taken to minimise the possibility of a mishap, but now, when the position of automobile racing is distinctly critical, the precautions of the organisers of a course should be multiplied. An accident, and a regular hue and cry would be quickly raised, and I fear that all chance of next year's events would be entirely demolished. So let every care be taken, and I hope to be able to record to-morrow's meet as one perfectly organised and successful from every point of view.

A Big Lorry's Adventure.

WHEN reading in last week's *Motor-Car Journal* the report of M. Forestier's address at Liverpool that portion of it dealing with the experiments of the Say Refinery brought vividly to my mind a little incident which occurred to the big Postel-Vinay lorry one day, near to the Porte Ivry. On that particular morning this Hercules was steadily pursuing its way over a road the surface of which was somewhat greasy, when a sudden side-slip caused the rear of the vehicle to slue round. Crash it went into a road refuge, and the ponderous weight simply swept that refuge and all its belongings away as if it were but a pat of butter. One can judge of the driver's surprise when on looking back to see the extent of the damage he saw no refuge at all, but merely a distorted spot where it had once stood on the roadway. A 20-ton vehicle, even when travelling at only three miles per hour, is distinctly useful as an engine of destruction.

The A.C. du Var.

YET another club has to be added to the ever-increasing list of automobile societies, and once again it is in the South of France that birth has been given to the new organisation. This time it is at Draguignan, and the promoters have decided to call the new venture the Automobile and Vélo Club of the Var. Upon the occasion of the inauguration a banquet was held at the Bertin Hotel, at which some fifty automobilists participated, including several leading members of the Nice Club. Among those present was the Mayor of Draguignan, M. Gondoin, president of the A.C.N., and the Marquis de Villeneuve, to the latter of whom the new club already owes so

much. The Nice contingent left at four o'clock upon the return journey *via* the Esterel road, and duly reached home after an uneventful run. The new club will doubtless lend valuable aid to the A.C.N. in connection with the races in March, for the touring category will, as last spring, journey to Draguignan.

The Shah's Motor-Cars.

IN common with all motor men, I suppose my first thought was for the Serpollet cars when I read of the foundering of the steamer *Vera*, which was transporting a great quantity of goods purchased by the Shah of Persia during his recent European tour. The unfortunate vessel and her entire cargo, valued at many thousands of pounds sterling, went down in some 3,000 feet of water in the Caspian Sea, and as the first reports of the mishap cited the motor-cars as forming part of the shipment, I could only conclude that M. Serpollet's productions were already being examined with the greatest curiosity by the finny tribes. I had already heard that one of the Shah's automobiles had been safely delivered at Teheran, but I mourned to think of the other "teuf teufs" buried deep in the ocean's stormy bosom. But to relieve the feelings of automobilists, all of whom had taken much interest in the Persian monarch's motor experiences, M. Serpollet has made it publicly known that none of the cars formed part of the ill-fated *Vera's* cargo, and that the vehicles are safe in a spot fortunately less humid than the bed of the Caspian Sea. Motor men will rejoice at the news, for such a drowning would indeed have been an untimely fate for the noble "steamer."

Numbered Cars.

WHILE the question of numbering cars is causing so much excitement in England, it is interesting to note the system adopted by the authorities of Lyons in order to ensure the moderate pace of automobiles when passing through the town. Upon arriving at the "octroi" the automobilist, as usual, pulls up to permit of the officer's searching in the car for dutiable goods, and he is there handed a number, which he is required to place on his vehicle in a prominent position. This done, the motorist may proceed on his way, and upon reaching the other side of the town he hands over his number. A simple operation in itself, but one quite impossible in the case of a town entered by a hundred and one roads, unless an enormous staff of officials were retained. In France, where all the larger towns have their "octroi" stations, nothing is easier to carry out, and I should not be surprised to learn of other municipalities adopting the Lyons system. Big numbers, *caniveaux* and bad *pavé* combined should succeed in making even the wildest of motor men moderate his pace to a sedate crawl, and this combination is evidently favourably regarded by certain provincial authorities.

Three Accidents.

A VERY curious, and, unfortunately, a fatal, accident is reported from Apt, a small town upon the Avignon road. It would appear that a certain M. Sautel and his wife were proceeding in a cart to Apt, when they stopped to converse with a passing acquaintance. At this moment the sound of an approaching automobile was heard, and the party drew well to the side of the road to permit of its free passage. Just as the car had come almost up to M. Sautel his wife for some unaccountable reason suddenly descended from the cart and endeavoured to cross the road, with the result that she was knocked down and so badly injured that she expired a few hours later. Safely seated as she was in the cart with her husband standing at the horse's head, Mme. Sautel's unhappy idea to traverse the road is beyond comprehension, and from reports it would appear that the act was done so suddenly and unexpectedly that the driver of the automobile had no chance of pulling up his vehicle. Recently a couple of other accidents have occurred in the provinces, but happily in neither case have the results been serious. One mishap is reported from Valence,

where on the Tain road, almost at the entry of the town, a faulty bit of driving resulted in the upset of an 8-horse-power car and its occupants. One of these latter was thrown clear, but the other was imprisoned beneath the vehicle, and it is a matter of surprise that he received nothing worse than a few bruises. The case at Belfort was that of a cycle maker, who in driving a *voiturette* had occasion to turn sharply in order to avoid a pedestrian. In doing so he failed to observe an approaching tramcar, by which his little vehicle was struck and upset. Bruises to the driver only resulted, but he can congratulate himself on having escaped very lightly. What dangers one runs in driving an automobile some people may say on reading the above, but I would remind them that this is a record of ten days' motor accidents in France, a not very formidable list when the number of cars in use is taken into account, and as the papers seldom fail to record an automobile mishap, one can be fairly certain that the three above recorded are all that have occurred in France recently. Can the horse show an equally clean sheet?

The Paris Automobile Exhibition.

THE greatest activity now prevails in the works of French constructors, for in a month's time the Salon at the Grand Palais will open its doors to the public, and for the success of their next year's trade makers must be worthily represented there. This naturally entails a vast amount of work, rendered all the more difficult of accomplishment by reason of the disorganisation everywhere caused by this year's big show. Exhibitions are no doubt necessities, but unquestionably too many tend to upset both the clerical and engineering staffs of any manufacturing firm. The commercial men have, as it were, a second office to attend to, while the engineering people's attention is distracted from the construction of clients' cars to that of the firm's exhibits. Exhibitions give endless worry and anxiety, and when, as in the case of this year's big show, the result is microscopical, manufacturers are naturally far from content. With reference to the Salon, the organising committee has notified constructors that for the transport of machines and objects intended for exhibition the various French railway companies have, without exception, decided to apply a special tariff according to a total reduction of 50 per cent. This means that those machines and objects upon which the integral tax of the tariff applicable to them has been paid on entering, without reduction, will be transported free upon the return journey to the same destination from whence they came, excepting the cost of such minor charges as registration, receipt stamps, etc., etc. In order to secure the benefit of this important concession exhibitors should present—1. The receipt showing that they have paid upon the outward journey the price of the tariff allotted to their goods. 2. The certificate of admission to the exhibition of the objects to be returned. As for the customs, and this should be noted by foreign exhibitors, goods coming into France will be admitted subject to free temporary admission in accordance with the authorisation of the administration. These goods will be required to be re-despatched within one month from the date of closing the exhibition, so, exhibitors, make your arrangements accordingly.

As announced last week, a *Locomobile* is on its way from John O'Groats to Land's End. It arrived at Bristol on Wednesday.

CALLING on Hewetsons, Limited, Dean Street, Soho, the other day, we were able to inspect the latest type of Benz car—a spider phaeton fitted with a two-cylinder engine of 12 h.p. The transmission is effected by a single belt and spur gears, four speeds forward and a reverse motion being provided.

AT both the recent Stanley and National Shows, Grappler tires were exhibited on many of the stands, several motor-cars being shown fitted with these tires, which have acquired a reputation in connection with motor work upon which the New Grappler Tire Company, Ltd., is to be congratulated. The company has just issued a new price list of its motor-car tires.

THE LEMP IRREVERSIBLE STEERING DEVICE.



ONE of the important features in a motor-car is the steering mechanism. The divided axle pivotal steering (rigid front axle with the two front wheels pivoted on short vertical axles at either end) is almost exclusively used, as it produces a stable wheel-base under all conditions and reduces the leverage of the steering wheels upon the operating lever or hand-wheel. While this arrangement is safer than the old fifth wheel steering, it is open to objections in that it is only comparatively and not absolutely safe, and may for that reason lull the operator into a state of comparative security which really does not exist.

The requirements for a proper steering device are:—1. Ability to turn the wheels on heavy roads with little power. 2. All strains upon the wheels from obstacles in the road, and particularly the momentum of the carriage pressing against the steering wheels when the latter are at an angle, should be completely checked in the frame of the carriage and not allowed to reach the operating lever or wheel. 3. The steering gear must admit of turning the car instantly, to its full extent, if necessary, to run around an obstruction.

Several methods have been tried for obtaining these results. For example: the steering wheels have been pivoted in the centre of the hub; and the pivot of the steering wheels has been inclined so that a line drawn through its axle will strike the ground at the rim of the wheel or a few inches beyond. The latest device to come under our notice designed to fulfil these requirements is the Lemp steering check, illustrated herewith. It has been introduced by Mr. Fred M. Kimball, of 200, Summer Street, Boston, Mass., U.S.A., and its reliability is said to have been demonstrated by its use during the past two years on cars weighing from one thousand to four thousand pounds over rough roads and obstructions. It is claimed to prevent strains and shocks from obstructions in the roads from reaching the steering

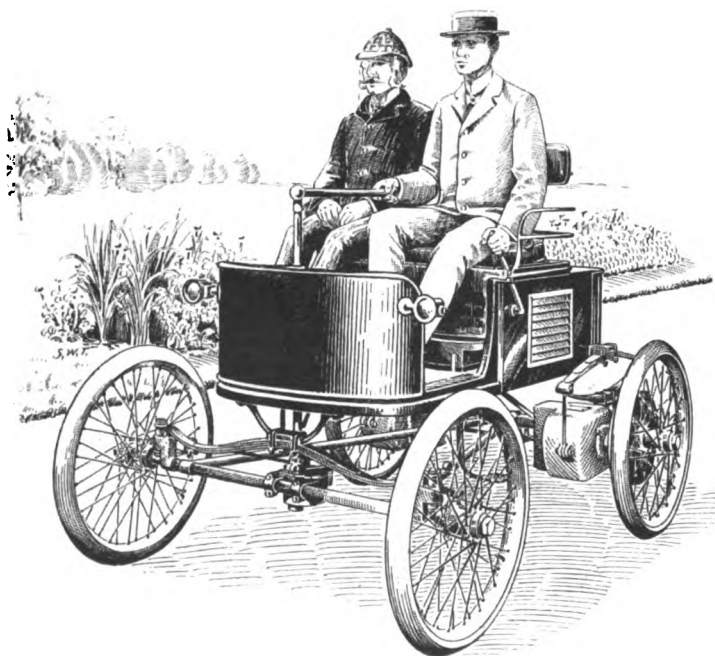
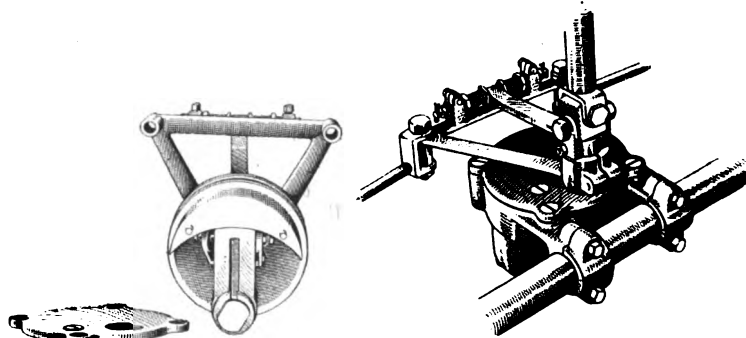


FIG. 1—VIEW OF DEVICE FITTED TO AN ELECTRICAL CAR.

handle, and to relieve the operator not only of a feeling of insecurity but of all the physical strains experienced when riding in a car over rough roads without such a device.

Figures 2 and 3 illustrate the general construction of the device. Fig. 1 shows it fastened to the front axle of a motor-car connected by steering rods to the steering wheels, and by a vertical rod through a universal joint to the steering handle. The device consists of a circular receptacle having pivoted close

to its circumference a sleeve with a wing, which divides the receptacle into two compartments of variable size. The compartments are connected by a control passage which is normally closed by pivoted check valves. The wing with sleeve is connected rigidly to the quadrant, which in its turn is connected by rods to the steering wheels. The wing is concentric with a segmental oil tray, and can be moved in close contact with it



FIGS. 2 AND 3.—DETAILS OF DEVICE.

through an angle of 60 degrees, until it touches either side of the circular box. The whole receptacle is filled with a viscous fluid, such as glycerine or heavy mineral oil, which is not apt to clog or freeze. When both the check valves are closed, no communication exists between the two compartments on either side of the wing, and the quadrant is securely locked in that position. Through the central portion of the sleeve there is a shaft connected to the vertical steering rod through the universal joint. The latter carries a finger on the outside of the box and a short lever on the inside. This lever bears against the inner surface of the two valves of the wing, and the slightest motion in either direction will raise one of them. The valves are normally held closed by a light spring and the steering handle held in the central position by adjustable spring pistons having a limited motion just sufficient to allow the check valves to open slightly. Turning the steering handle to either side will open the valve on the opposite side and allow the liquid in that compartment to pass through and open the valve in the other side. When the valves have thus been opened the wing and steering wheels connected thereto are liberated so that they can be moved by the steering handle. As soon as the movement is stopped the valves close, and the wheels are held rigidly in their last position. It is evident that if the finger be moved in any direction the quadrant will move with it, but the quadrant cannot be moved without touching the finger. A special point to which attention is drawn is that the valves are unlocked by the motion of the steering handle required to steer. The makers claim that the device does not easily get out of order, and adds but little to the weight of the vehicle. It is equally well adapted for use with steam, petrol, or electrically-propelled vehicles.

THE three Panhard cars, respectively of 8, 12, and 20 h.p., of the late Count Cahen d'Anvers were put up for sale by auction in Paris on Tuesday.

THE Decauville Company gave a dinner in Paris, last week, to commemorate the recent 1,000-mile non-stop run on the Crystal Palace track. A number of well-known Parisian motorists sat down, and a pleasant evening was spent.

A GERMAN correspondent informs us that the Canello-Durkopp Company, of Bielefeld, is building a 50 h.p. racing car, with which Herr Canello intends to compete in the races at Nice next season. Is this the car that the company has entered for the Gordon-Bennett cup race?

AT Birmingham Assizes on Monday, before Mr. Justice Lawrence, Mr. Joseph Alfred Pember sued Mr. Vernon Pugh for damages to a horse and trap. The case for plaintiff was that his horse took fright at a motor-tricycle defendant was riding, but his lordship found there was no evidence of negligence, and therefore no case to go to the jury.

THE STARTING OF PETROLEUM-SPIRIT MOTORS.

IN a recent issue of *La France Automobile* M. H. Grosheintz, of Thann, Switzerland, describes a new and simple method of starting petroleum-spirit motors fitted with tube ignition. The inconvenience of doing this with an engine having high compression and the danger of personal damage from occasional back firing are too well known for me, says M. Grosheintz, to dwell upon here. Having in view the easy starting of motors fitted with electric ignition when the spark is retarded, I have endeavoured to apply this principle to motors provided with tube ignition, and have obtained excellent results by two methods. The first, which is more theoretical than practical, consists in moving the burners so that they will only heat the extreme ends of the platinum tubes, and so retard the firing.

The second method, which is much simpler and quite practical, is by closing the tap governing the supply of petroleum spirit to the burners to such an extent that the tubes are only brought to a dull red by the flame, which equally brings about late firing. With the tubes in this condition the motor will start at the first revolution of the starting handle without back firing. No variation of the carburation is required to start a motor under the last-mentioned conditions. The exact heat of the tubes under which the motor will start best is easily discovered after a few experiments, it varying with the compression.

MR. MARK MAYHEW has lately been seen driving a light steam car in and around the metropolis.

A SUCCESSFUL consumption test was held near Turin, Italy, on the 9th inst. The course was from Turin to Chieri and back, a distance of 38 kilometres.

MR. REGINALD TREVOR, a prominent member of the Bath Road Cycling Club, is lying at Esher in a precarious condition, as the result of an accident whilst riding a motor-tricycle on the Portsmouth road, near Horseshoe Clump, Esher. Mr. Trevor was proceeding towards London on Sunday night, and is reported to have collided with a vehicle which carried no lights. Mr. Trevor was extricated from under his wrecked machine in an unconscious state, his severe injuries including a fracture at the base of the skull.

A LIGHT two-seated car has just been put on the market by the Warwick Cycle Company, of Springfield, Mass. It is equipped with a $3\frac{1}{2}$ De Dion water-cooled motor, and has a tubular frame. In general appearance the vehicle much resembles the light steam carriage. A post for the steering and control levers rises right in front of the seat, the steering being effected with a very short lever. There are four little handles grouped around the steering post, which control the time of ignition, the ignition switch, the carburation and the gas admission, respectively. The speed gear is controlled by a lever just outside the seat. The weight of the car is about 5cwt.

THE Adams Express Company, of New York, has been experimenting for some time with a heavy steam wagon. The vehicle has lately completed a run from New York to Bridgeport, Conn. The object of the run on open country roads was to test the power and general strength of the vehicle, and to discover any defects that might exist in any of the parts. The wagon carried a load of 5,000 lbs., and the result of the test was, as a whole, satisfactory. The vehicle successfully negotiated several steep hills, and proved sufficiently powerful for all conditions of road encountered, although the latter were at times in a very bad condition. Portions of the road were covered with new road materials, to a depth of eight inches, and these were rendered very soft by continuous rains. Mr. Herschmann attributes the success of his wagon, in a great measure, to the large diameter of his wheels, and thinks that it is only a question of time when other makers will have to follow his example in this respect. No serious accident or breakdown of any sort occurred during the trip, but the test proved very instructive, and many minor improvements will be made as the result of the experience gained.

CORRESPONDENCE.

CARBURETTORS FOR MOTOR-TRICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read Mr. A. E. S. Craig's article on "Motor-Tricycles: Some Defects and Remedies," and note he states the surface carburettor of the De Dion type is a source of danger, owing to the bulk of liquid and explosive vapour in communication with a chance of ignition. I am interested in reading these articles, and should much like to know in what way there is a chance of explosion occurring; also will he explain how the explosion in the carburettor happened that he refers to—was it by back flow, or how? I have heard of one tricycle being on fire in my neighbourhood, and riding a De Dion type of motor, I am anxious for information as to this danger.—Yours truly,

VERITAS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to Mr. A. E. S. Craig's article on "Motor-Tricycles, some Defects and Remedies," in your issue of the 1st inst., I notice he makes disparaging remarks about surface carburettors, and imagines they are a source of danger. This is the first time I have heard of an actual explosion taking place in the carburettor when the safety discs of gauze were properly fitted—a very simple matter. When this is done there is no more danger than with the Davy safety lamp; of course, if the gauze on the lamp gets damaged it is of no more use than a naked candle. It does not, however, always follow that an explosion would take place if the gauze were left out of a carburettor mixture chamber, as the valves would have to be out of order first. Perhaps Mr. Craig is not in a position to say whether the discs of gauze were out of place before the explosion he refers to occurred.

With regard to the unequal action on varying roads of the triangular surface carburettor as fitted to De Dion pattern tricycles, this was undoubtedly caused by the air space above the surface of the spirit being too confined, and over rough roads the spirit itself would sometimes splash into the mixture box. This may be the reason of the explosion, but the unequal action and source of danger is entirely eliminated in the "Ariel" carburettor, inasmuch as the carburation is never affected by unequal roads, owing to the distance between the mixture box and the surface of the spirit. The carburettor, which itself only holds a small quantity of spirit at a time, is replenished from a spare tank above, through a drip valve, and having the narrowest part at the bottom is less likely to waste the spirit than other types of surface carburettors. With it it is seldom necessary to run off more spirit than is required for cleaning spray carburettors. I see in your issue of the 8th inst. a letter signed "Alarmed" on the same subject, and my object in writing the above is to set his mind at ease.—Yours truly,

J. W. STOCKS.

TUBE VERSUS ELECTRICAL IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having in a country district met with ignominious failure and a lot of trouble with motors having electrical ignition, particularly in wet weather, I should be glad of advice from any of your readers as to the best type of tube ignition; any little hints as to the management of the lamps or burners, and how they are manipulated, also as to how they are likely to be understood by the average countryman, will be greatly appreciated by,—Yours truly,

TWENTY MILES FROM THE RAILWAY.

MOTOR PATENT MATTERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with considerable interest the letter of Mr. Edge which appeared in your issue of the 15th inst. This letter is, I venture to suggest, a most convincing proof how necessary it is that this association, which Mr. Edge is pleased to call "The Motor Protection Society," should receive every

support from all who are interested in motors, whether as agents, manufacturers, or as private owners. What are the objects of this society? Certainly not to support anyone in infringing any patents which the society, after proper advice, are advised are good and valid ones, but to see, if necessary, that no one shall be forced into paying royalties on patents which are, to say the least, extremely doubtful, and from which royalties foreign makers are free. I am sure not one of its members would object to pay a proper consideration to the proprietors of any patent on any article which they were using if, after proper advice, they were advised such patent was a good one. But is it reasonable to ask 5 per cent. on the cost of a car for using one article on it which can be bought for £2? Mr. Edge has quoted the names of several large French firms in his letter. Can he inform us if it is a fact that not one of them are paying a royalty on the carburettor, which is to-day the burning question between Mr. Edge's company and the public, and whether it is not a fact that the firm of Panhard and Levassor have refused to pay any royalty for using Daimler patents, including the one for the carburettor? Mr. Edge asks the industry to combine, I suppose by paying his company royalties, and so bring the manufacture of automobiles to the prestige it enjoys in France and Germany? I venture to assert it enjoys this prestige because, for one reason, it has not been hampered with threats of law actions against all who do not fall in with the views of certain patent speculators. As Mr. Edge assures us that he has so much the interest of the industry and sport at heart, might I suggest a course which would at once help the industry and be sportsmanlike, viz.: That the association which he is pleased to call "The Motor Trade Protection Society" should purchase a float-feed carburettor, which in the opinion of Mr. Edge's company, most infringes the patent under which they are acting, that an action be brought on this carburettor, that the gentlemen who compose the society agree to be bound by the result, which I am certain they would willingly do. This would at once be sport and serve the industry.

While on the question of sport, I would suggest it is not quite playing the game to insert week by week in the automobile journals the result of an action which has nothing to do with motor-cars at all. However, if it is the game, I am sure Mr. Edge will see that for several weeks the result of an action which was decided against his company the other day in the House of Lords appears, and if this advertisement is to assume the same proportion in respect to its importance as the action *v. Taylor*, the advertising columns of the *Motor-Car Journal* and other automobile journals will be full for months to come.—Yours truly,

W. D. ASTELL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with great interest Mr. Edge's letter on Motor Patents, which seems to me to be a most temperate and clear exposition of the situation from his point of view, but I think that there is another way of looking at the whole question which has entirely escaped Mr. Edge's observant mind.

In the first place Mr. Edge cites the success of the industry in France: now why, may I ask, has the industry been successful in France and why has it developed the large and thriving concerns mentioned by Mr. Edge? It seems to me the only answer to these questions lies in the fact that the industry has been unrestricted and untrammelled. Why, on the other hand, has the industry hung fire in England? For two reasons:—Firstly, because it was hindered by legislation; and secondly, because the large concerns promoted specially by the holders of the patents in question were saddled with huge purchase prices, which have ever since been an incubus to them, and because many of our great manufacturing concerns were kept out of the trade by the general threats contained in the advertisements and circulars of the proprietors of the said patents.

If the inventor himself had been profited by this or had even had a hand in fixing the value of his invention, some justification might have been held out even if the patents were sound and only over-valued, but in this case it is purely a speculator who assumed the value of the patents, and why should the British purchaser pay inordinate profits to this speculator in whom he

has no interest whatever? Mr. Edge calls in British and patriotic reasons to his aid, but he surely forgets that several of the concerns with which he is connected are the greatest importers of French made motor-cars.

In my opinion the whole question resolves itself into one of the validity of patents, and cannot be treated in any other way, but if the B.M.T. Company, Ltd., claimed a royalty on a carburettor I venture to think that whether the patent be good, bad or indifferent, most people would be satisfied to pay a reasonable royalty, but to demand 5 per cent. royalty on a £1,000 car, to which there is attached a £2 carburettor, is, in my humble opinion, unjustifiable, and I speak as a patentee of nearly twenty years standing.

With regard to the manufacturing interest, I feel convinced that the best way to promote a motor trade in England and to build up a large manufacturing business is just to do what the concerns in which Mr. Edge is interested do, that is to say, import the best cars and get them into use. Each of these cars will have educated a future purchaser for the British-made car when it is ready. I go a step further, and do not hesitate to say that if foreign cars were kept out now it would endanger the legal situation of motor users in this country, and open the way for further restrictive legislation, for the simple reason that the demand could not be filled by the British manufacturers, and that every new owner of a car, when he gets on the road, drives another nail into the coffin of prejudice.

I should see with great pleasure that Mr. Edge would weigh up these considerations, and put the energy he displays in everything on the side on which lies the real interest of the British manufacture and trade in automobiles.—Yours faithfully,

J. J. MANN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As one of "the unenlightened public who still use unlicensed motors," I was interested to read Mr. Edge's letter. I note that he would like me to pay "some consideration," and probably there are many who read his letter who wondered what that might amount to. The copy, which I give below, of a letter received from the company with which he associates himself will give a very good idea of his desires.

On investigation I find that the patent referred to is for a carburettor, similar to the one in my Panhard, the chief claims being the float and the jet through which the petrol is sucked. The idea that I should pay royalty on the whole car for the sake of the carburettor of the engine strikes me as rather comprehensive, apart from the question of validity of the patent. As well ask for a tenth of the value of a locomotive (less the cab) because somebody's patent packing was used in the pump glands. Perhaps it has not struck Mr. Edge that his friends who give such careful attention to other portions of their business may have already gone into these motor patent matters before combining for protection.—Yours truly,

T. B. BROWNE

[COPY].
THE BRITISH MOTOR TRACTION CO., LTD.
40, Holborn Viaduct, E.C.
December 12, 1900.

T. B. BROWNE, Esq.

DEAR SIR,—It has been brought to the notice of my Board that you are infringing Maybach's Patent No. 16072/93, of which my company are the registered owners, and I am instructed to ask you for an undertaking not to infringe again, and to send us the sum of 10 per cent. on the purchase price of the motor less the cost of the carriage body.

Yours faithfully,
(Signed) CHAS. OSBORN,
Secretary.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to the letter from Mr. Edge in your last, I think most people will agree that a patentee should have some consideration. But I cannot agree that the following instance shows reasonable consideration, and in my opinion such unreason-

able charges are doing more damage to the motor industry than the county councils. I will give two instances, both from companies with which Mr. Edge is connected.

In conjunction with Messrs. Brooks, of Lowestoft, we wished to know what the British Motor Traction Company would charge as royalty for permission to use one of Maybach's carburettors. In reply we received what I consider an impertinent letter to the effect that the royalty for the use of the carburettor was $7\frac{1}{2}$ per cent. on the value of the car, and a request that a cheque for that amount be sent on together with a letter undertaking not to infringe again. As a matter of fact I did not intend to use the carburettor on a car at all, but on a boat, the value of which is about £1,000. Do the British M.T.C. seriously think that we shall pay £75 to be allowed to use an article of the value of about £2, when there are other carburettors on the market? Or is it

THE 1,000-MILES NON-STOP RUN OF THE DECAUVILLE CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with interest "Amateur's" letter in your issue of the 8th inst. I do not doubt the truth of the statement that a piece of ice was found in the carburettor of the 8 h.p. car. What has the warmth of the engine to do with the carburettor? Is "Amateur" an ice-cream vendor, or in any way related to the trade? His letter is, in my opinion, the most absurd communication I have seen in your excellent paper. I have formed the following solution to the mystery: The 8 h.p. car had insufficient exhaust passing through its carburettor. Everybody knows, except probably "Amateur," that when evaporation or carbura-



A "BARDON" VOITURETTE IN THE RECENT FLORAL FETE IN PARIS.

Cliché de

[La France Automobile.

only when their patent carburettor is used on a motor-car that they try to throttle the industry by charging such absurd royalties. Please note, they not only charge a $7\frac{1}{2}$ percentage on their patents, but on all other patents that are used with theirs, as well as on all material and workmanship used a car that is blessed by one of their patents.

In the other case I ordered through Mr. Edge a pneumatic tire (cover only), and was surprised to receive invoice for £11 1s. 6d. I wrote asking if there was not some mistake, and was informed that there was not; that it was the usual price, and that I could not get as good a tire at a lower price. I found that the price for Michelin tires in France was about £8; the price of a better tire, in my opinion, from the North British Rubber Company was about £5, and from the Clipper Company about £8. In both cases the excuse for the high charges is that they have paid large sums of money for the patents.—Yours truly,

ERNEST ESTCOURT.

tion takes place, heat has to be taken from somewhere, in this case the petroleum spirit, which, as I contend, had insufficient heated exhaust passing through it. Therefore it was gradually reduced to freezing point, when ice began to form. I think this is the only way it could come about. I should also like to know other readers' opinions upon the matter.—Yours truly,

E. DE ST. G. TREGURTHA.

TO THE EDITOR OF *THE Motor-Car Journal*.

SIR,—Thanks for your correspondent's letter *re* Freezing of Carburettor. Mr. S. F. Edge being, I may say, a professional, must not imagine that quite every motist knows as much as himself. He says every user of a petrol engine knows the facts of the freezing of carburettors. I have had such an engine for over a year, and yet I didn't know this "fact" until now, and

probably I was not by myself. We all have to live and learn, and your capital journal is to teach us—and it has taught me a lot. Mr. Craig's articles in particular are most interesting, and I wish such as Mr. Edge would take a leaf out of his book and do likewise. No doubt that gentleman could teach us a lot if he would.—Yours truly,

AMATEUR.

MOTOR-CARS FOR MEDICAL MEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The letters of "M.R.C.S." and "M.D." have interested me as indicating the growing necessity for a thoroughly reliable motor-car for the purposes of the medical man. The cars that appealed to me most at the recent shows, for appearance, sufficiency of power, and reasonable price, were the "Charette," "Mayfair Doctor's Car," "Progress," and "New Orleans Voiturette." With each of these cars the necessary hood is supplied, but as at present constructed all are defective in one detail, so far as the medical man is concerned, viz., in not having the starting arrangement from the seat. The object of this letter is really to emphasise the necessity of the seat starter. The doctor's car must remain silent at the patient's door, and the motor should be started afresh from the seat after each visit. To introduce a handle at the back or side of the car, or through the spokes of the wheel, is suggestive of "winding up the works," and excites ridicule.

As regards the tires, heavily-covered pneumatics appear to me to be the most suitable for town work, as less likely to cause trouble with the tram lines.—Yours truly,

"MEDICUS."

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—While fully approving the intention of your correspondent signing himself "M.D.," of taking in your journal and studying it, I think he need hardly postpone indefinitely the possession of a car. The mistake—unfortunately a terribly common one—is to suppose that the same car, or type of car, will suit different people of varying tastes, habits, and occupations. It is precisely on all fours with the idea that because a top hat suits one man it will equally well become all and sundry. As a matter of fact, there are several voiturettes that would prove, and have proved, entirely satisfactory to a doctor, just as there are others that answer every purpose for a commercial traveller.

In reading (I may add with pity) letters from malcontents in the *Lancet*, I have invariably come to the conclusion that the melancholy results therein chronicled have been due to the fact of the wrong car for the particular work in hand having been chosen. I have no doubt that if "M.D." consulted the secretary of the nearest automobile club he would receive some consolatory advice.—Yours truly,

CLAUDE A. P. TRUMAN,

Hon. Secretary Reading Automobile Club.

THE WERNER MOTOR-BICYCLE

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. A. L. Bennett seems to think that I have overstated the case when I say that the Wernerists claim that they can beat "any tricycle." To be more specific, then, Mr. Leonard, of the Motor Manufacturing Company, tells me he can beat "any 2½ h.p. tricycle." Mr. Pennell is reported to have said in his lecture before the Automobile Club that "he never saw during his whole trip a car or motor-tricycle that could hold its own with his 'little beast.'" Lastly, Mr. Bennett has stated that in the endurance competition at Vincennes, the Werner beat "the tricycle," though he now tells us he does not know in respect of what it beat them.

Mr. Bennett deprecates high speed on west country roads, but I can assure him that it would not have been necessary to travel faster than his normal average, when touring, of seventeen miles an hour, in order to defeat my 2½ h.p. roadster tricycle. My reason for troubling your readers with these two letters is that I think the Werner has been rather too highly spoken of lately, which might cause disappointment to intending purchasers. I do not think anything much better has been produced lately than the De Dion tricycle in point of speed and reliability; and if some riders have given the latter up and purchased voiturettes it is because they jolt—a defect which can be easily remedied.

Perhaps some may even be glad to return to the despised "trike" when they have charged a milestone at full speed, as I did recently on my voiturette through a side-slip.—Yours truly,

W. E. TESCHEMAKER.

DRIVERS' CERTIFICATES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We notice in your issue of the 8th inst. mention of drivers' certificates, and we, as an agency dealing with large numbers of men, especially drivers, are quite in accordance with the paragraph, as it is very necessary and apparent that drivers should have some official qualification beyond the every day references. If the Automobile Club would interest itself and take the matter up, it could be worked through on a sound basis, for the Automobile Club being the recognised authority on everything "motor," a certificate issued by them would of course spell "proficiency." There is no doubt that the granting of certificates would have to be done on very exclusive lines, for, to hold a certificate or qualification as driver, it is not necessary just to be able to drive a car along the road, but to do so in such a manner that neither the general public nor the police could find fault.

We have seen drivers who, when given a car to drive, seemed to have no idea except that of tearing along at a great speed without any consideration for the car or anything else, and when changing speeds make the most terrific bungle and noise, while the smell from dirty valves, badly adjusted lubrication and ignition, etc., made them a nuisance to the road. These men class themselves as drivers, much to the detriment of the good men—there are good men—and the trade generally. Bad driving is what has caused half the public service companies to close their concerns. All these things would have to be taken into consideration when granting certificates, as an official certificate carries such great weight in obtaining employment; and as the trade is young and growing fast, all motors should be seen to their best advantage by the general public. It is our personal belief that the granting of these qualifications by such an influential body as the Automobile Club would act as a "soother" to the police and stay or prevent some of their vexatious actions. Trusting this matter will be taken up and thoroughly discussed.—Yours truly,

H. E. WILKINSON,

The Motor Trades Employment Agency.

ELECTRIC IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I quite agree with Mr. Edge that the bulk of the trouble with electric ignition is experienced on motor-tricycles, and that less difficulties and troubles are found when the same system is applied on a motor-car proper; but Mr. Edge does not sufficiently clearly explain why this trouble exists. In my opinion it is due to the fact that one of the poles of the high-tension current is earthed. I am sure if both poles of the high-tension current were insulated, and if a double pole plug, instead of a single pole plug as at present, were used, there would be an entire absence from faults, misfires and other difficulties. I did not read the paragraph to which Mr. Edge refers in his letter, but I think before we can appreciate the enormous advantage of electric ignition over other methods that the other method or methods should be set forth.

I read in the *Engineer* recently a review on the gas engines exhibited at the Paris Exhibition, and it stated to the effect that out of all the American, French, German and English manufacturers who exhibited commercial stationary gas engines, the English firms were the only ones who stuck to the old tube ignition, and who did not fit electric ignition to their engines. Now, if electric ignition commends itself to the manufacturers of stationary gas engines as being advantageous and superior to the tube ignition, it must be ten times more so when applied to the engine on a motor, and for the following reasons: In the stationary gas engines there is always fitted an ignition valve which prevents any of the explosion charge from entering the incandescent tube or pocket until the exact moment is reached

when its explosion is desired. This valve is a most important safeguard, and prevents early explosions and other faults. With engines used on motor-cars no ignition valve is fitted, and therefore the open incandescent tube is free to the explosive charge from the commencement of the up-stroke of the piston to the time of its maximum compression, and an explosion may therefore occur at any time on the up-stroke of the piston, and not a few broken shafts and twisted connecting rods can be traced to this cause. The only safety lies in the fact that the gases are not liable to ignite until they are compressed to a certain degree of compression. From the first moment that the engine commences to work this compression never increases, but is liable from a variety of causes to commence decreasing. The wearing of the piston rings, wearing of valve faces, the increase of temperature in the walls of the cylinder, are all causes which tend to reduce the compression, and therefore cause constant misfires and loss of efficiency. When this happens it is possible to shorten the length of the ignition tube, and so increase the compression and cause the charge to fire a little earlier, but there is really little or no elasticity or adjustment; the system is crude, and I cannot see that it has one redeeming feature to recommend it, whereas with the electric ignition the most delicate adjustment can be obtained. The power of the engine can be increased or decreased within a very wide margin, and another very important point is that a weak mixture of petrol and air can be exploded by means of electric ignition that it would be absolutely impossible to explode by tube ignition, and therefore provides another means of economising fuel and reducing the power of the engine when necessary.

There are a large number of advantages which it would take up too much room to go into detail, but Mr. Edge will be able to criticise my remarks on this subject and perhaps furnish us with some additional reasons in favour of electric ignition. It seems to me a great pity that the press should be continually reporting the blowing up of a motor-car, and other silly reports of that character, which would be entirely eliminated from such reports if tube ignition were relegated to the place it deserves.

Yours truly,

R. F. WALL.

MOTOR MEN TO THE RESCUE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have hitherto looked upon motor men as a peculiar people, and I am not sure that I have always loved them. You see, I take my pleasure in summer in my caravan, "The Wanderer," and motor men have often scared my horses. I told a motor man so the other day. His reply was peculiar but pointed. He said, "Then, doctor dear, why the d—l do you have horses?" That set me a-thinking. When I drove into Lowestoft the summer before last, I met Mr. Estcourt. He scared both me and my horses, and I was sorry at the time I hadn't an egg handy. (N.B.—A stale one would have done.) I was relating my wild adventure to a Lowestoft journalist. His reply was also pointed. He said, "Oh, that was Mr. Estcourt. He's a motor-maniac!" But I found Mr. E. was a very good fellow, nevertheless. He drove his biggest car across Gunton Moor to my camp after that. I stared aghast! He didn't go round the road. Dear me, no! but came straight for the caravan. He rode his Daimler (I think he called it a Dammler) through the heather and furze, over the boulders, and across a moving bog, and came up smiling.

That set me a-thinking also. He said, "Doctor, will you come for a little spin?" I said, "Oh, yes. Certainly. Can my dog trot behind?" I added, "Not much," he answered, laughing. I ran into my caravan to add a codicil to my will, praying my executors to erect a headstone to my memory in each of the parishes in which pieces of me should be found. Then I mounted the motor-car. I can't say I didn't enjoy that little spin; but I was astonished to get safely back. We had driven thirty miles in twenty minutes, scared fifteen horses, and returned with a yard or two of a schoolgirl's red frock sticking to the Dammler.

Well, all this set me a-thinking, and I've been a-thinking ever since, and now I come, through the medium of your *Motor-*

Car Journal, to ask your readers for a bit of advice. To wit:—(1) My caravan weighs two tons, and I only want to do thirty miles a day. Could that be managed, and by what sort of a motor? (2) Could I have a safe one? (3) What manner of man should I have to *mote* me? (4) Could I *mote* myself without spending the next five years of life studying at an engineers' college? (5) What would the ex.'s run to?—Yours truly,

GORDON STABLES, M.D., R.N.

MOTOR TRADES' ASSOCIATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am requested by my committee to inform you that the object of the Association is the protection of those interested in the motor-vehicle industry, whether as manufacturers, agents, or vendors, and also the private users of motor-vehicles, as far as the trade is concerned. To this end this Association will work by enquiring into the cases of such members as are threatened with litigation, advising them as to their position, and, if thought advisable, supporting them in their actions. To enable this end to be achieved, the Association needs the support, not only of members of the trade, but also of the private users of motor-vehicles. The objects of the Association include the protection of private users who are members thereof.

It is intended to register the Association as a company, limited by guarantee; the annual subscription is £2 2s., and each member may then guarantee any further sum or sums to the funds of the Association, and his liability will be limited to the amount of such subscription and guarantee.—Yours truly,

GEORGE R. HELMORE, Secretary.

SEVERAL interesting letters have had to be held over, owing to the pressure on our space this week.

THE Galashiels Town Council has abandoned a proposal to acquire motor-waggons.

THERE are already thirteen incorporated automobile clubs in the United States.

THE Delahaye Company, of Paris, have lately completed a 14-h.p. phaeton to the order of the Marquis de la Ferté-Meun. They are also introducing a 4½ h.p. car, with *tonneau* body.

IN addition to air-cooled motors, Messrs. Buchet, of Paris, are now building a 6-h.p. water-cooled engine on their well-known system.

THE Hyde Park Cycle Company, 15-20, Parkside, Hyde Park, W., are prepared to undertake repairs to motor-cars. They have every convenience for the display of motor-cars.

A CORPORATION has been formed in New York for the purpose of organising automobile coaching parties from New York City to Long Island and other resorts in the neighbourhood.

THE Automobile Club de France has published its "Report on the Concours International D'Accumulateurs, Juin-Décembre, 1899." The Report consists of 109 pages, and includes illustrations and a number of charts.

A COMPANY under the name of the Massachusetts Steam Waggon Company has been formed at Pittsfield, Mass., for the purpose of manufacturing a steam waggon, known as the "Cunningham." The capital is fixed at £70,000.

PROPOSALS for the establishment of a number of motor-car services in the neighbourhood are at present being invited by the municipal authorities of the town of Romorantin, in the French Department of Loire et Cher.

AT the last meeting of the committee of the French Automobile Club, Baron de Zuylen announced that His Majesty the King of the Hellenes has been pleased to accept the title of high protector and honorary member of the club.

MR. LEWIS EARLE, of London, has, states the *Horseless Age*, been in New York for several days past in the interest of a London automobile company which has secured the right to run automobiles for public purposes in some of the principal thoroughfares of the metropolis, and is desirous of equipping the lines with American vehicles.

HERE AND THERE.

THANKS to the good policy of the Automobile Club in giving a complete answer to the case made out against automobiles, and also to the advocacy of Lord Clifford, the Devon County Council has gone against the recommendation of its Bridges and Main Roads Committee and declined to advocate the restriction of the maximum speed of motor-cars. Lord Clifford made the searching remark that he supposed there was not a member of the committee who had ever driven a motor-car and most of them would not, perhaps, dream of doing so. Under the circumstances he thought it was a little premature to say what was the proper pace for a motor-car—a suggestion with which no motorist will disagree.

IN last week's *Punch* Mr. Raven Hill depicted a poor wretch who had been laid low and flat by a motor-car. The driver is looking round, having evidently reversed his engine, while the victim, looking up and seeing the car apparently returning, exclaims, "What! Are you coming back?" The point of the joke is in the agonised expression of the mangled one.

THE automobile is becoming an object of delight to juveniles. A pupil in a Board School was asked for a definition of a horse, and replied, "A horse is a motor-car what neighs instead of puffs, and what runs by oats instead of oil."

MR. C. JARROTT suggests, with reference to the issue of certificates to motorists, that the certificates might be of three



ON THE ROAD TO TINTERN.

classes, namely, (1) Drivers who might travel at a maximum of ten miles an hour; (2) those who might go fifteen miles an hour; and (3) those who might be trusted to go at any speed. What would happen if those issuing certificates placed the holder of the forty-two mile an hour motor-tricycle record in the first category?

MOTORISTS have been very prominently to the fore in the eastern counties of late, and not only have magistrates been giving advice but several correspondents of the local papers have been airing their wisdom. Many suggestions for catching speedy motorists have been made, but unfortunately all the correspondents, save one, have shown undoubted bias—on one side or the other. The single exception is Walter Rye, who, in the columns of the *Eastern Daily Press*, declares: "There is only one way in which safety to the public from excessive speed and to the motorists from unjust convictions can be obtained."

His proposal is so delightful that I give it entirely in his own words:—"Let a short Act of Parliament," says Mr. Rye, "enact that every machine shall carry a meter-like contrivance which, whenever it travels more than twelve miles an hour, shall blow a horn or sound a gong, and at the same time register the fact that it has done so. The Act

should, of course, also enact heavy penalties for tampering with the register, but on the other hand make its evidence actual proof either against the scorching motorists or against the County Councilman or policeman who, foolish beyond the wont of his kind, is prepared to swear he sees bicyclists ride thirty miles an hour, and no doubt would equally boldly vouch for a motorist's hundred." Mr. Estcourt's speed indicator, recently illustrated in these columns, is ingenious, but where is the man prepared to come to the rescue of the public and the motorist—and, I would add, of Mr. Walter Rye—and devise the musical-box that will play tunes to gladden the weary motorist? It should also be arranged so that it could perform while passengers were waiting for repairs to be executed.

A NEW danger threatens those who have met with accidents in the streets of New York. Four of the city hospitals own motor-ambulances, the idea being that those who require hospital attention shall have the same at the earliest possible moment. It worked splendidly when there was only one such ambulance in the city, but now there is a quartette the advantage is somewhat ambiguous. For "ambulant rivalry" has grown so keen that every time the drivers of the vehicles meet a street race is sure to result. Up to the present the Presbyterian ambulance leads in wins, with Roosevelt a close second. What a glorious uncertainty for the man with a broken leg! Having escaped death in one form he runs towards it in another.

THE system of *garages* is common enough in Paris and is now developing fairly quickly in the Metropolis. The Automobile Manufacturing Company, Limited, have facilities for storing and cleaning cars. The Chelsea Electricity Supply Company, Ltd., is also prepared to store motor-cars and has special convenience for electric cars, the current being laid on at their premises for charging electric cars.

M. EDOUARD DETAILLE is a painter and M. Henri Lavedan is a litterateur. Like many other Bohemians in Paris they have interests other than those which form the staple fare of their daily task. Both are troubled with ideas as to the future of the horse and the advance of the automobile. Recognising that the latter may displace the horse as a beast of burden somewhere in the next century—we are still in the nineteenth—they are advocating the formation of a museum of the horse and carriage. This will testify to future generations the evolution of the horse from the Garden of Eden to, say, the Rue de Nations. This is only one of the senseless notions which some people suggest as the result of automobilism. If the two Parisians had confined the idea to asses it would possibly have excited more enthusiasm among their friends.

VERY amusing, and yet quite feasible, is the suggestion that automobile vans should be employed for the conveyance of race-horses to and from race meetings. At present the arrangements of railway companies for the conveyance of horses are most unsatisfactory. Animals frequently arrive at their destination too late to take part in races, or with their tempers so tried that they cannot be trusted on the course. Why not convey horses by road using the automobile for the purpose? Vans have before now been employed to transport racehorses, and the adoption of the latest idea would often prove a saving of time and invariably an advantage to the horses concerned; in addition to which the animals could be exercised on the roadway if desired.

LOLLIUS.

THE Serpollet-Gardner Company, of Paris, are building a 5 h.p. steam car for Dr. Yersin, of the Pasteur Institute, who intends to take the vehicle with him to Indo-China.

WE learn that the Thornycroft Steam Waggon Co. of America commenced by building standard 3-ton vehicles, with a 3-ton tare. It soon became manifest that the demand was for a considerably larger load to be carried, and they have therefore designed and are constructing 7-tonners to meet this want. These larger vehicles have a tare of about 5 tons and a gross of about 13½ tons.

HEAVY MOTOR TRAFFIC IN FRANCE.*

BY M. GEORGES FORESTIER, Inspector General of Roads and Bridges in France.

(Continued from page 703.)

Comparison with Railways.—For goods, the costs per net ton-mile, even when fully loaded, are decidedly greater than the corresponding charges of the French railways, and particularly for heavy goods which form a wagon load. On the other hand, if one takes into account the fact that goods sent by rail have to bear the expense of cartage both in collection and delivery, and of the terminal loading and unloading charges, which are usually about 6d. per ton at each end of the journey, one sees that for comparatively short journeys the advantage remains with the motor-wagon which takes the goods from the sender direct to the consignee.

In order to understand this better, let us consider the rates under the different tariffs and the terminals of the Cie. du Nord. The general tariff has five rates, varying from 1'25d. to 2'5d. per net ton-mile, and the special tariff four, varying from 0'64d. to 1'60d. per net ton-mile. Goods sent under the conditions of the general tariff pay 1s. 3d. per ton, for loading and unloading at the stations, which charge is reduced to 10d. for goods sent as a full wagon-load under the conditions of the special tariff. In addition to this, cartage has to be paid from the sender's warehouse to the departure station, and from the arrival station to the consignee's warehouse, and this is an expense that varies in each town according to the distance from the station. Let us take 1f.50, that is 75 centimes at each end for the terminal services, which is evidently a minimum. We are not going to take into account the loading and unloading at the warehouse, which are the same whatever the mode of transport. On the horizontal line we have the length of the journey in kilometres; on the vertical line the cost in francs (see diagram). The average cost by automotor transport being 18 centimes per ton-kilometre, the expenses for any number of kilometres will be represented by the ordinates on a straight line drawn from the lowest of the co-ordinates to the point 9f. at 50 kilometres. The cost of transport by railway, under the conditions of the general tariff, will be represented by the ordinates on the lines drawn from the point 3f. on the vertical scale to the points 3f. + 8f. and 3f. + 4f. on the vertical scale at 50 kilometres. The costs of transport by railway of a full wagon load, under the conditions of the special tariffs will be represented by the ordinates on the line drawn from the point, 2f.50 on the vertical scale to the points 2f.50 + 5f. and 2f.50 + 2f. on the vertical scale at 50 kilometres.

From the diagram one sees that transport by automobile is cheaper than that by railroad up to eleven and twenty miles for goods paying rates six and one respectively of the special tariffs; and up to nineteen and more than thirty-one miles for goods paying the rates one and six respectively, of the general tariff. These limits are the minima, as we have not taken stamp duties into account, which, on railways, are generally seventy five centimes, whatever is the expense of transport.

Comparison with Horses.—Let us compare, now, the cost of transport by automobile with that by means of horses. In France we reckon that a horse can go at a pace of from 2'25 to 2'5 miles an hour, giving a tractive pull of 0'13 of its weight, for a day of from eight to nine hours, and that on a well-paved or even a macadamised road on a fine day the rolling resistance is less than 44 lbs. per ton. A cart for two horses weighs 12 cwt., and the two horses, weighing together one ton, can thus give an effort of 291 lbs., corresponding to a load of 6'6 tons on the level. If one takes hills and the tare of the vehicle into account, the load must be reduced to 3 tons, which, for twenty miles per day, equals sixty net ton-miles. Besides, the driver of this team has to be paid, the team fed, repaired, and this equals 12s. 6d. per day, that is to say, 2s. 5d. per net ton-mile.

As horse haulage can take the goods from the sender to the consignee quite as well as automobile traction can in fine weather or on a paved road, it is not yet threatened by mechanical haulage for any traffic where a higher speed than 2'5 miles an hour is not required. In winter, master-carters can vary their teams according to the state of the roads, but in mechanical traction, one can only reduce the loads and speed. Accordingly, it is very desirable that our constructors should carefully study the conditions by which they can reduce their prices, still much too high in consequence of the unnecessary provision made for speed which is of no actual use to them commercially.

Road Maintenance.—I shall close my address by giving a few details of the effect of quick-speed motor wagons with small wheels on road materials.

The mutual action of roads and motor-vehicles ought to be studied for both paved and metalled roads, for it is not similar in the two cases. In pavements, each stone is of a shape individually to resist the weight of the wheels without any perceptible movement. This is owing to the mode of construction of the road and the depth of the sand foundation, by which the pressure is spread over a large enough surface of the sub-soil to prevent any getting out of shape. However wet the weather may be, heavy motor traffic is unaffected on pavements. If, however, the pavement is badly kept up so that its surface becomes irregular, while its paving stones become too rounded, in addition to the jolts and shocks which are so fatal to the preservation of the mechanism and of the vehicle, the surface then constitutes a serious obstacle to heavy

motor traffic. This trouble has often arisen at our trials, and in the attempts made in the various departments.

When the tangent plane common to the surfaces of the pavement and the tyre makes with the horizontal an angle equal to that which corresponds with the coefficient of friction, no matter what power is applied, the wheels slip round without being able to move the vehicle forward, unless enough sand is thrown down to increase momentarily the coefficient of friction. This unfortunate condition occurs all the more frequently as the diameter of the motor wheels is smaller, the pavement more badly kept up, and the gradient of the road more severe. I have also heard it said by an engineer of the plant belonging to M. Say, the sugar refiner, that it has been necessary in a five-mile journey of his large electric lorry to consume nearly two cwts. of sand.

The remedy for this unfortunate state of things depends on the public keeping up of the roads and on the constructor of the vehicle. In the first place, the worst pieces of road must be relaid or the holes filled up, especially on hills. In the second place, the constructor ought to try and increase the diameter of the wheels as far as the mode of construction and the mode of connection with the motor allows him to do without affecting the strength of the wheels or the balance of the

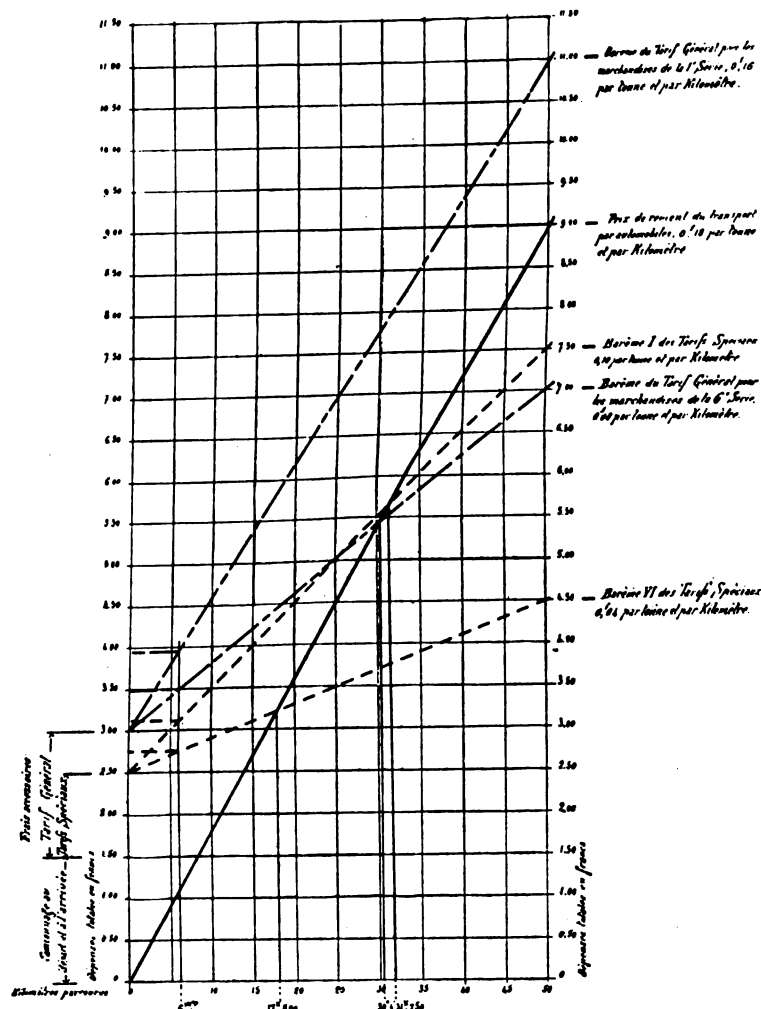


DIAGRAM SHOWING RELATION BETWEEN RAIL AND MOTOR COSTS.

vehicle. At the present moment, a French engineer—who two years ago started a regular service of goods transport by automobile, at Bougie, in Algeria, on loose stone roads—is on the point of founding a new concern for conveyances of this kind in the Département du Nord, where the roads are paved. He has decided to try and increase the diameter of the driving wheels of his Scotte vehicles from thirty-five to fifty-one inches.

Contrary to what we have said of the individual resistance of the sets which constitute a paved road, metalled roads are composed of materials of small dimensions which are only able to resist the weight of heavy motor traffic by mutually helping one another. Again, the foundation and top layers together form a thickness or depth which is oftener than not insufficient to prevent the subsoil from having to bear so heavy a pressure that it gets out of shape. In normal weather, metalled roads are almost as firm as paved roads, and the resistance to rolling is about equal on the two. Unfortunately, when rain has fallen for several days, the binding material loses all cohesion and the road becomes a mass of movable stones, which slip about more and more easily under the pressure of heavily-burdened wheels as the speed increases. At the same time the depth of the road, already too small and still further reduced by the displacement of some of the stones

* Opening Address of Fifth Session of the Liverpool Self-Propelled Traffic Association, being the local centre of the Automobile Club of Great Britain and Ireland. December 3rd, 1900.

transmits to the subsoil a pressure too great for its stability, and it gives way. When this is the case, the road continually presents an inclined plane in front of the driving wheels, and this largely increases the rolling resistance and, at the same time, adds considerable friction between the sides of the felloes and the depressions that are made. All engineers responsible for roads have agreed that during the rainy season the rolling resistance may be treble what it is during fine weather. This is one of the most unfavourable conditions for mechanical propulsion, for it necessitates the motors not only being capable of a single maximum effort but of a continual one, which may be three times greater in wet than in fine weather, unless one is content to diminish the speed.

The remedy for this state of things depends, as we have seen in the case of paved roads, on proper maintenance and on the motor-vehicle builder. In the first place, the depth of the road should be increased, it should be kept of all excess of detritus which might increase the state of mobility of the material, and the subsoil should be drained in order to prevent its giving way under the load. In the second place, the weight supported by the motor wheels should be diminished, and the latter should be given a width of tire in harmony with the compressibility of the road. I am going to make use of the experience acquired in a regular transport service, for both passengers and goods, which has been established since April, 1899, in the Department de la Mense, between Stenay and Montmédy, in order to arrive at the extra expenses which heavy motor traffic entails in the construction and maintenance of metalled roads.

This public service makes use of 11.2 miles of the National road (No. 47), where, before the establishment of the *Poids Lourds*, the traffic consisted of ordinary vehicles. Up to that time the roads were kept in repair by adding new ballast, well screened, under the following conditions:—

In order to maintain the 14 ft. road in good order, it was necessary to repair 1.7 miles, by laying 848 cubic yards of quartz from the Vosges, or of "trapp" from the Ardennes, both materials of excellent quality. This corresponds to 75 cubic yards per mile per annum, and to a wear of 0.33 inch per annum. The annual cost was £480.

(To be concluded.)

THE DAIMLER MOTOR COMPANY.

The following is the report of the Daimler Motor Company, Ltd., issued to the shareholders on the 12th inst.:—The directors beg to submit the balance-sheet and accounts for the year ending September 30, 1900. A gross profit is shown of £14,919 18s. 11d., and a net profit of £4,430 8s. 11d. It is satisfactory to note that as compared with the fifteen months covered by the previous year's report, the present report for twelve months shows about the same amount of gross profit, and more than four times the amount of net profit. The net profit is sufficient to pay a dividend of 4 per cent. and carry forward £146 4s. 11d. It will be observed, however, from the accounts, that in the permanent interest of the Company, the sum of £18,082 6s. 11d. has been expended on capital account as follows:—Additional buildings, £1,196 12s. 11d.; plant and machinery, £2,046 9s. 7d.; standard tools, £695 19s. 7d.; patterns, £522 4s. 7d.; drawings, £994 19s. 6d.; re-arrangement of office, etc., £283 2s. 4d.; stock, £12,342 18s. 5d.; total, £18,082 6s. 11d. Good value has been received for the whole of this expenditure. The sum expended upon stock may appear large, but experience has shown that for the securing of orders it is necessary that a sufficient number of completed cars should be in stock, as many intending customers decline to order when informed that a period of six months will be required for the building of cars. In view of the above expenditure the directors, after the fullest consideration, recommend the conservative policy of using the profit that has been earned for working capital for the present, instead of distributing it in dividends. The company's cars are giving the highest satisfaction, and satisfactory orders are being received. A proposal will be laid before you for converting the company's £10 shares into £1 shares by dividing each £10 share into ten shares of £1 each. Mr. J. H. Mace retires by rotation from the office of director, and, being eligible, offers himself for re-election. The auditors, Messrs. Monkhouse, Stoneham, and Co., also retire, and offer themselves for reappointment.

THE STARTING OF ENGINES.

JUDGMENT was given on Monday in the House of Lords in the case of Andrew and Co. v. The British Motor Company and the Great Horseless Carriage Company. The original action was brought by the respondents for an injunction to restrain the appellants, Andrew and Co., from infringing certain letters patent granted to Frederick W. Lanchester for improvements in gas motor-engines. Mr. Justice Kekewich expressed no opinion as to the validity of the patent, but held that the appellants had not infringed the same, and dismissed the action. The Court of Appeal decided that the patent was valid, and that the appellants had infringed it, and they discharged the judgment of the learned judge and granted an injunction. Hence the present appeal. Their lordships now delivered a reserved judgment, holding that the judgment of the Court of Appeal must be reversed, and the judgment of Mr. Justice Kekewich restored. The appeal was accordingly allowed.

ACTION OVER A MOTOR-CAR.

THE action at the instance of Messrs. Allard and Company, Ltd., Coventry, against Mr. James Todd, cycle dealer, Banchoy, for payment of £28 15s., being the unpaid balance of a motor-car, etc., obtained from the pursuers and in the action at instance of James Todd, against Allard and Company for repayment of £25 paid by Mr. Todd to Messrs. Allard and Company in part payment of the motor-car, was concluded last week. Sheriff Burnet has issued his judgment, discerning against James Todd for payment of £1 10s., sums admitted to be due by him, but granting him expenses, and in the second action discerning with expenses in his favour against Allard and Company.

THE Chief Inspector of Schools at Detroit, U.S.A., has been provided with a motor-car to facilitate the performance of his official duties.

THERE is some talk in America of arranging a regular inter-collegiate automobile meet, in which several of the universities where automobile clubs have been formed will take part.

THE Duryea Power Company, of Reading, Pa., U.S.A., have sent us a copy of their new catalogue, in which the latest types of Duryea three-wheel and four-wheel motor-cars are illustrated and described. The Duryea cars are fitted with a three-cylinder engine of 6 h.p.

THE Arvid Schuberts Fabriksund Handels Aktibolag, of Stockholm, who are going extensively into the motor industry in Sweden, send us a copy of their illustrated list of motor-cars and cycles, motors for cars and launches, pumps, etc. They have lately introduced a new carburettor, which is claimed to work without failing in the very coldest weather. It can be used on engines from 1 to 6 h.p., and up to 10 h.p. with a little alteration.

MR. ALEXANDER WINTON, of the Winton Motor Carriage Co., Cleveland, Ohio, and a companion, reached New York on the 4th. ult., after a running time of 38½ hours, from Cleveland, Ohio, a distance estimated at about 800 miles, over the roads he traversed. This was Mr. Winton's third journey over the route, but notwithstanding, in the storm and darkness, he mistook the road several times, and went out of his way some 60 miles, the journey occupying three days and 20 hours.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editor's hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

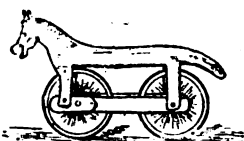
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COMMENTS.



IN a special article last week we referred to the interest taken in the Automobile Club's Letter to County Councils, and quoted largely from the reply of the Chairman of the Worcester County Council. Another communication worthy of note is that of Mr. Tonman Mossley, the deputy chairman of the Bucks County Council. His sympathies are with motorists, and he does not see why automobilism should not be both useful and popular "if it is carried on in a reasonable and considerate manner." But he does object to road-racing, and blames the Club for "having arranged demonstrations upon public highways which would never have been allowed for costermongers' carts or racehorses." Mr. Mossley is an automobilist himself, being the owner of an electric car, and "would be proud to carry a distinguishing badge and number on my car." He declares emphatically for numbering vehicles, pointing out that the Thames launches are similarly distinguished, and that such a course is necessary owing to the easy evasion of police efforts by the average motorist. Although our readers will disagree with him on this point, they will probably welcome his suggestion that they should advocate the nationalisation of public highways by making their repair and maintenance a charge upon the National Exchequer instead of upon the local rates. "In this way," Mr. Mossley suggests, "you will conciliate the ratepayers."

A Lincolnshire Automobile Club.

A MEETING of Lincolnshire automobilists and others interested in the movement is being called for Friday afternoon next, January 4th, at the Saracen's Head Hotel, Lincoln, for the purpose of forming a Lincolnshire Automobile Club. Mr. G. J. Wilkinson, of 18, York Avenue, Lincoln, is acting as honorary secretary *pro tem.*, and will be pleased to hear from any Lincolnshire men interested in the proposal. We hear that the Club is likely to be very strong.

New Season's Racers.

As may be expected, the air is full of rumours relating to next year's racers in France, and certain is it in France that several exceptionally high-powered cars will be seen quite early in the spring. For one, the 100 h.p. Peugeot should run its maiden race with the opening of the season, for months ago the vehicle was practically ready, and we have little doubt that had last summer been as prolific in automobile events as in previous years, the big car would long ago have made its appearance. Many times have I seen this monster, writes our Paris correspondent, with its eight-cylinder vertical motor, and I only hope to witness it at work upon the road, for it ought to move along in a bit of a hurry. One peculiarity is the disposition of the cross-shaft, which is placed right at the rear of the frame, the motor itself being carried in front. Even the lattice work body in aluminium has long been ready. Surely we ought to see this flyer at Nice. Another big car will be the Canello-Dürkopp, for a 50 h.p. specimen of this type is entered for the

events of the Nice week, and it is also reported that a 100 h.p. vehicle is in course of construction at the Bielefeld factory. Then there will be the 40 h.p. Mercedes cars provided with all manner of new devices. And then, too, one may rest assured that neither Panhard nor Mors are doing nothing, and from both stalls there will certainly issue worthy representatives of the firm's past reputations.

Motoring in Algeria.

A CORRESPONDENT in Algiers writes us to the effect that it is surprising to see how many automobiles of every description are in that town at present. The foreign colony and visitors are going in strongly for motoring, the pioneer, as far as the English portion is concerned, being our friend Mr. S. E. Guy, who is generally to be seen in his De Dion voiturette or his Rochet car. The roads generally are good, and as soon as the hills around the town are passed long stretches of level country extend in every direction on the plain.

Count Zborowski's 26-h.p. German Daimler Car.

ON another page we reproduce an interesting photograph of Count Zborowski's 26-h.p. German Daimler with its new *tonneau* body, in which as many as six persons can be carried, in addition to the two accommodated on the front seat. The photograph was taken just prior to the embarkation of the car at Havre for England. At the wheel is Mr. E. M. C. Instone, who had driven the car through from Paris the previous afternoon, the journey, including stops, occupying five hours. Seated beside him is M. Delaville, one of the Count's *mécaniciens*, while M. Tourand, the proprietor of the well-known garage at Havre, is seen standing beside the car.

Good Prospects for Heavy Steam Wagons.

THE conveyance of heavy goods in cities or in other places where horse-transportation is expensive, or impossible for other reasons, is one of the most promising fields opened up by the advent of the heavy motor-wagon. The transportation on roads of heavy loads by means of mechanical power has so far received its greatest share of attention in England. Of late American firms have become aware of the possibilities of the motor-vehicle in this particular field, and there are now at least a half-dozen concerns in the United States devoting special attention to this line of work. If inquiries count for anything, there are also reassuring signs that those who have much heavy hauling to do are not slow to inform themselves of every advance made in this line, and are willing to do their best to hasten the advent of their emancipation from the thralldom of the horse. The interest manifested in the heavy motor-wagon is not, however, confined to large business houses in our chief cities. There are many mining and agricultural interests in our own country as well as in foreign lands where the transportation of raw materials is at present carried on by horses and mules in a very unsatisfactory manner. The owners of these enterprises are anxious to find a practical system of mechanical propulsion which they may substitute for their present costly means of transportation.

Licences for Drivers.

A MOTOR-CAR driver, plying for public hire at Merthyr Tydvil, has rendered himself liable to a fine of £4,500 for driving during the last ten months without a licence. Having confessed his inability to pay such a sum, he was doubtless glad to hear the magisterial decision as to a fine of 40s. and costs. The point is a small one, but it should not be overlooked by those promoting public vehicle services. Every driver must have a licence. Speaking of public-vehicle services, we hope the statement made in our report of the Motor Manufacturing Company's exhibit at the National Show the other week will not be overlooked, for the profitableness of such ventures when the motor-car is employed that was clearly shown.

A Run of 880 Miles.

ON Saturday the Locomobile upon which Mr. Hubert Egerton had travelled from John o' Groat's reached Land's End, and the journey of 880 miles was complete. The route taken was *via* Inverness, Perth, Edinburgh, Gretna Green, Carlisle, Preston, Worcester, Bristol, Exeter, and Penzance. There was apparently no trouble with the boiler throughout the trip, and no



MR. H. D. EGERTON LEAVING JOHN O' GROAT'S ON A LOCOMOBILE.

repairs to the engine had to be made. We have pleasure in giving a photograph of the driver leaving John o' Groat's on his long run, part of which was performed in very disagreeable weather.

Motor Cabs at Vienna.

FROM Vienna comes the news that a series of important tests have recently been made with a couple of electric automobile cabs, for the purpose of demonstrating the capabilities of this vehicle to the chief Commissioner of Police and the head of the fire brigade. The facility of manœuvre was clearly illustrated during the course of a run through thick traffic and narrow thoroughfares, and the officials were so favourably impressed that the question of adopting an electrically-driven fire engine is being considered. The cells will have a thirty mile range of action, which is considered sufficient for the work to be performed at Vienna. A number of these vehicles are to be placed upon the streets of the Austrian capital.

Mineral Oil for Cylinder Cooling.

M. E. LEGRAND, in a letter to our French contemporary, *La Locomotion Automobile*, suggests the substitution of mineral oil for water for cooling purposes in petrol motors. He says that mineral oils have a very high boiling point, and there would, therefore, be much less loss of cooling liquid, and with proper precautions the same oil could be used indefinitely. The oil will not freeze in winter, and another inconvenience would thus be removed. Finally, the oil will not corrode the walls of the jacket like water. Owing to the greater viscosity of the oil, the conveying pipes and circulating pump would have to be somewhat larger than with water. M. Legrand does not state whether he has given his suggestion a trial with practice.

The Automobile not a Nuisance.

THAT the ways of American justices are practical and sensible has been often shown, and in an automobile case heard in New Jersey the judge has had the motor-car in the courtyard for purposes of demonstration. A citizen of Hackensack had sued a doctor for the damages for the loss of his wife, who had died from the effects of injuries received in being thrown from a buggy. It was alleged that the horse drawing the vehicle was frightened by defendant's motor-car, although the latter was 275ft. away from the automobile. In his charge to the jury the judge said: "The first question you have to decide is whether this machine was a nuisance. You have seen how it was operated. The question rests with your judgment as to whether the machine, driving along the country roads without a horse in front and discharging steam behind, is likely to frighten a horse on the highway, and thus endanger the road as to constitute the machine a nuisance. The right to drive horses along the highway is an established right, and if a modern method of locomotion is used of such a nature that it commonly brings danger to those exercising the common right, then it is a nuisance and cannot be tolerated. If it occasionally or exceptionally frightens horses that would not make it a nuisance. In order to make it a nuisance its common effect must substantially interfere with the people who drive horses along the highway. After being absent a few minutes the jury returned to inform the Court that the automobile was not a nuisance."

A New Industry for Ireland.

THE recent trials of alcohol in connection with motor-cars in France have delighted some of our Irish readers, and the *Irish Times* devotes nearly a column to the subject under the heading which commences this paragraph. Having pointed out that alcohol has been proved to be cheaper than petrol our contemporary goes on to say that a great industry prevails in Germany, where, from potatoes, a cheap alcohol is made, which very often is used to adulterate the higher priced spirit produced from grain. The connoisseur who likes his "Irish" or "Scotch" pure would object to this; but the stomach of the motor-car is not so delicate, and cheap alcohol can be consumed by it without harm. Ireland possesses many distilleries at work, and the ruins of a great many more. It seems very probable that if a demand sprang up for cheap alcohol for motor-car purposes few countries should be better able to meet it than Ireland. The advantages are such as would recommend the new spirit to every motorist; the supply would be unfailing, it could be got in most towns, and the price would make it more economical to use than petrol.

Alcohol to Overcome Prejudice.

BUT unfortunately there are many Irish people who object to motor-cars because, they say, such vehicles do not benefit the country to the same extent as horses would. The cars are made in England or France, and the oil comes from America or Russia. Hence the *Irish Times* looks upon the utilisation of alcohol as likely to remove some of the prejudice now existing against the advance of automobiles. It may roughly be

computed, continues our contemporary, that a motor-car consumes a gallon of spirit for every twenty miles travelled, and an enthusiastic-driver will think nothing of doing at least 2,000 miles in a season. Hence he will consume about 100 gallons of spirit per annum. Work this out for the total number of actual and prospective automobilists in the United Kingdom and it will indicate a quantity of liquid well worth the efforts of Ireland to supply. They are able in Ireland to make whisky cheaper and better than England because they have most of the raw materials nearer at hand, though this country has the coal. They should also be able to produce the cheap tractive spirit profitably, for in all probability the potato would be found the best vegetable to get the raw spirit from. These reflections of an Irish authority are interesting.

Automobilism in Austria.

FROM Vienna comes the news that the Automobile Club of Austria has at length come to a definite decision with regard to the date of next year's automobile exhibition. The show, which will be held under the patronage of His Highness the Archduke Francis, will be formally inaugurated on May 23rd, and will remain open to the public during a fortnight, the exact date of the closure being June 6th. But the exhibition will not be by any means the sole feature of next year's automobilism in Austria, for on May 9th the annual Exelberg race will again be held. The Schottwein-Semering event, too, will be repeated, and very possibly a big race from Vienna to Budapest will be organised. The proposal to hold this latter event meets with universal favour, among motor-men at any rate, and it is not considered probable that the authorities will raise any objection to a race between the two capitals.

Danger to London Horses.

ON behalf of the horses of the metropolis an appeal is made by the London Master Carmen and Cartage Contractors' Association. They direct public attention to the serious danger to these animals arising from the carelessness of persons throwing nails in the roadways when unpacking cases outside warehouses. It is no exaggeration to say that there is scarcely a firm of carriers who are not sufferers from this cause. One firm at present have nearly ten per cent. of their horses incapacitated by injuries arising from nails, chiefly French nails. Apart from the serious loss to horse-owners, much suffering is caused to horses which might be prevented by the exercise of greater care on the part of persons using the roadways for unpacking. To such an appeal automobilists would give emphasis, and add the remark that this humanitarian view should be furthered by the greater utilisation of motor-vehicles in connection with the transport of goods.

The Daimler Meeting.

THE fourth annual general meeting of the Daimler Company passed off pleasantly enough, the full speech of Mr. E. H. Bayley, J.P., giving a very good account of the present position. Evidently the shareholders appreciated the caution of the directors in not declaring a dividend, and also in their diplomatic dealing with regard to the offer of purchase which has been made. The proposal to convert the £10 shares into shares of £1 each was unanimously sanctioned, and altogether the proceedings at the meeting were as smooth-running as the company's cars.

The late Comte d'Anvers' Cars.

THERE was a considerable gathering of motor men last week upon the occasion of the sale at Chéri's of the three Panhard cars belonging to the late Comte Cahen d'Anvers, and among those present we noticed the Comte Bozon de Périgord, MM. de Knyff, Charron, Gleizes, Girardot, etc. The first vehicle put up was an 8-h.p., which not only had seen considerable service, but was not of the authentic Paris-Amsterdam type. Still the car was worth considerably more than the

ridiculous sum of £140 for which it was knocked down to M. A. Mercier. Then came the turn of the 12-h.p. of the Paris-Bordeaux 1899 type, and in this instance the bidding was much more active. Finally, M. Hoquette secured the car for £668. This cleared the way for the big 24 h.p. vehicle in which the unfortunate count was killed. Damaged as it was the racer presented a somewhat woebegone appearance, and the general estimate was that £120 would barely cover the cost of the repairs necessary to put the car "*au point*." After some animated bidding the vehicle was knocked down to M. Charron for £1,088. It is only a few months ago that this self-same car was purchased by its late owner from Charron for £2,080, while Lord Carnarvon is said to have paid upwards of £3,000 for his vehicle of a similar type. But then an agent buying is quite a different person from an agent selling.

Mr. Cordingley's Car.

THE accompanying illustration depicts Mr. Cordingley on his well-known M.M.C. Panhard car. The photo from which it is reproduced was taken some months ago, on the occasion of the demonstration in connection with the summer meeting of the Institution of Mechanical Engineers. Since



Photo by Argent Archer.

that time the car has been driven thousands of miles, and, with a larger body, has taken part in the Christmas tour of the Automobile Club, an account of which is given on another page.

A Projected Service between Shrewsbury and Montgomery.

A MEETING of those interested in the projected motor-bus service between Montgomery and Shrewsbury was held on the 13th instant, at which the Mayor of Shrewsbury, Mr. Archibald Graham, presided. After examining estimates and specifications of the proposed vehicle, a committee was appointed to ascertain the amount of financial support likely to be accorded to the scheme in the district interested.

Toll for Six Horses.

THE "Tale of a Toll," told in a recent issue, finds a companion story in the adventure of a motorist in an out-of-the-way district in America. It is thus told in the *Motor World* of New York:—"In the course of his journey the motorist came upon a ramshackle toll bridge, the keeper of which was a thin, lantern-jawed, tobacco-eating mountaineer who looked as though he knew a great deal more about moonshine

whiskey than he did about collecting toll off the very few vehicles that might have occasion to risk themselves and their drivers by crossing his rickety allevation of a bridge. When the tourist stopped to ascertain how much he was indebted for the privilege of bridge crossing, the collector was evidently worried. The schedule of charges had upon it an enumeration of what a horse, a one, two, three, and even four-horse vehicle cost to pass over that bridge, but it was discreetly silent as to the tariff upon a vehicle which was minus any horse at all. Then followed a game of talk, in which the motorist was more bent on confusing the already perplexed tolltaker than in doing anything else. In the course of all this the fact escaped that the vehicle was a 6 h.p. one, and in the end the laugh wasn't with the man who owned it—that lantern-jawed mountaineer added the tariff for a four-horse vehicle to that for a two-horse one and made the chagrined tourist pay the six-horse tariff thus arrived at.

Toy Motor-Cars.

VISITORS to the bazaars this Christmas-tide have seen many automobiles in the form of toys for children, mostly propelled by clock-work. In the United States an electrical automobile has been a feature of the season, and has doubtless found its way to the shopping resorts of this country. It is 10 inches long and 7½ inches high. The battery is placed under the seat, where it can be easily got at. It will furnish power to drive the vehicle from half an hour to an hour without recharging. The motor is attached to the under side of the body, with a suitable gearing connecting with the wheels. The front axle is pivoted, and there is a steering lever by means of which the little car can be directed, the handle being placed in the usual manner in front of the seat.

An Enthusiastic Parisian "Chauffeuse."

ONE of the most prominent of the lady motorists in Paris is Madame Gobron, who during the past season has covered more than 6,000 miles on long tours, without reckoning ordinary runs. In March she went from Paris to Monte Carlo and back; in May she covered the course between Paris and Moulgouse; in June she visited Belgium; in July she toured along the sea coast, and in July returned to Belgium. Since then she has taken part in all the trials around Paris. Madame Gobron always drives the car herself, and in all of her travels has only been in danger of accident on one occasion, when the vehicle went over a tree that had been blown down across the road by a storm. Singularly enough the car was not damaged in any way, nor was its plucky owner.

Road Maintenance.

IN a paper read at a meeting of the National Traction Engine Owners and Users' Association, Mr. H. Howard Humphreys, M.Inst.M.E., has been criticising the authorities responsible for the maintenance of the roads. It appears to him that it will be necessary ere long for cyclists, automobilists, and users of traction engines to obtain Parliamentary powers to compel defaulting local authorities to do their duty in respect of maintaining their highways and bridges. The general tendency is to starve the roads in material or labour so that some more showy scheme may be carried through. Mr. Humphreys gave credit to one county that has appreciated the importance and economy of more centralised control in the matter. That is the Buckinghamshire County Council, which has a system by means of which they contribute a very large portion of the cost of maintaining every highway in the county on the condition that those highways are maintained to a certain standard of excellence.

Better Roads.

No apology need be given for again referring to the question of the roads, since they form a not inconsiderable factor in the success of automobilism. So often are people inclined to connect mere tire troubles with difficulties of the motor that the motor-vehicle has obtained a certain amount of prejudice

owing to no cause of its own. Smooth roads are, therefore essential if the public is to become thoroughly educated to the automobile. And the necessity of such being provided should be urged upon the ratepayer as well. As soon as a road becomes uneven and small depressions occur at frequent intervals, the wear of the surface goes on very rapidly indeed. Hence the necessity for surveyors to secure a firm surface that will admit of proper drainage, and to see that it is kept on an uniform level.

No Doctors for Horses.

A STATEMENT reaches us from America which, like many reports from the United States, seems hardly credible. It is to the effect that Harvard University has found it impracticable to continue its veterinary department, there being only seventeen students who care to devote themselves to the ailments of the horse. This is owing, it is said, to the fact that the young men of the country recognise the growing development of the automobile, and see in the study of mechanics a better living than in poulticing horses and doctoring mules. If it be so, it is very hard on the quadrupeds.

The Duke of Manchester an Automobilist.

THE Duke of Manchester having taken to matrimony by marrying Miss Helen Zimmerman has now taken to automobilism, and while in New York *en route* to Cincinnati to visit his father-in-law, has purchased a motor-carriage seating four persons. The principal amusement of the young couple in New York has been motoring, and they were seen out on Riverside Drive nearly every day, sometimes accompanied by the Misses Evans, aunts of the bride. The Duke and Duchess left New York a few days ago on a private car, which was attached to a fast goods train for a portion of the way. Their automobile will meet them when they reach Cincinnati, where Mr. Eugene Zimmerman, father of the bride, will entertain them. It is the Duke's intention to bring the automobile with him when he returns to Europe, in about a month.

The English Motor Club.

THE English Motor Club extend a hearty invitation to all automobilists to join them on the occasion of their run to Brighton on the first Saturday in the new century. The start will be at 1.30 sharp from the Westminster end of the Embankment, and the route and time table is as follows:— Mitcham Common, 2.15; Wallington; Coulsdon, 2.45; Crawley, arrive 4 p.m., depart 4.30; Hickstead; Brighton, Star and Garter, where dinner will be served at 8 p.m. All motorists desiring to have seats secured for the dinner should write not later than Wednesday morning to Mr. F. W. Baily, the hon. sec., 94, Oakfield Road, Anerley, S.E. The club is also arranging a race meeting at the Crystal Palace track for Easter Monday, when, in addition to motor-cycle events, there will be a voiturette handicap and an attempt at record for cars by a 70 h.p. Napier driven by Mr. S. F. Edge. A control contest will also be held in the Palace grounds on the last Saturday in April, when amongst the novel events will be a 200 yards starting handicap.

Motoring at Christmas.

NOT only have some members of the Automobile Club been enjoying a motoring Christmas, but Mr. A. J. Balfour had his motor-car dispatched to Whittingehame, his country seat, where he spent the vacation, and he has indulged in some lengthy trips in the vicinity. Not only has the Leader of the House been a-motoring, but we hear of a good many of his Parliamentary colleagues on both sides of the House having taken motor trips. Evidently their education can go on, even though the House is not sitting.

MR. T. BAYLEY, M.P., presided over Mr. E. Shrapnell-Smith's lecture at Nottingham last week. There was a capital attendance, and the proceeds should prove a very acceptable addition to the funds of the General Hospital.

PARIS TO LONDON.



THE Editor, with a fearlessness that characterises some motorists, has asked me to describe a flying visit to Paris to fetch a four-seated Darracq voiturette. We started on a recent Thursday *via* the Dover and Calais express, and although the passage was somewhat rough it luckily left no unpleasant recollections to mar our appreciation of the excellent appetites with which the short run provided us. Having heard so much about the French express trains, and the enormous speed they sometimes attain, it may be interesting to note the following figures: 1 kilomètre in 26 sec.; 1 kilomètre in 25 sec.; 1 kilomètre in 24 sec.; equal to 90 miles per hour. For considerable distances we made 70 miles per hour, and the car attendant informed us that in certain places the speed amounted to over 90 miles per hour.

On arrival at Paris I had the pleasure of dining at the charming French Automobile Clubhouse. The fine *garage* awakens feelings of covetousness undreamed of before; to say nothing of the fifty or more cars that were stabled. On Friday morning we started afresh for Suresnes, where the Darracq Works are situated. Stopping *en route* at the Palais Automobile, it was interesting to note the 12-h.p. Panhards and to watch the confidence with which the French *chauffeurs* rushed up and down the narrow road, regardless of greasy mud and skidding, which in England is looked upon by some motorists as one of the misfortunes attached to driving under these conditions. While lunching at a small restaurant at the bottom of the Suresnes hill, close to the bridge, it was astonishing to see the number of motors that passed, and we admired in particular the way in which a smart-looking lady, driving a four-seated car, took the sharp turning to the right on to the bridge (which, by the way, is crossed by tram lines) descending at the rate of about 30 miles per hour.

At Messieurs Darracq and Cie. the plant is practically all automatic, worked by electricity, and one cannot help remarking how few men (and sometimes women) work in this labyrinth of mechanism. I myself, no engineer, must not speak authoritatively of the perfection of their work, but think it no mean recommendation that a gentleman present, who is an engineer, stated his approval; and I believe seriously contemplated a purchase.

Having obtained the voiturette we started on our journey towards Dieppe at 4.15 p.m., expecting all sorts of strange things to happen, as the machine was new to both of us and the dusk coming on. But Mr. Maurice Farman, driving a similar car with two members of the A.C.G.B.I. and a friend on board, kindly volunteered to be our guiding star as far as St. Germain. As there were only two on our car we easily passed the others on the Suresnes hill, but they soon drew away from us on the flat, as it needed the confidence of an experienced driver and knowledge of the motor to disregard the bad grease which characterised the road; but our ascent into St. Germain was most satisfactory, as skidding up hill gives one the pleasurable excitement without the generally-accompanying danger. We stayed the night at the Henry IV. Hotel, where, by the way, they have an excellent *garage* with every convenience and up-to-date *mécaniciens*.

The following morning (Saturday) we left at 7.30, and though the air was cold the sky looked promising. After about an hour's run an unpleasant squeaking started, for which we could not account. At last we discovered that it was only the lubricating pump, which, with the usual inventive genius of this apparatus, had somehow got some air below the oil; this little matter delayed us one hour at the village of Fluis. The next stop was to fill up with petrol, and then we mounted Gaillon hill in grand style. During one long gentle ascent a 12-h.p. Panhard passed at a seemingly terrific pace; the faces of the two occupants, who were enveloped in furs, were scarlet with the wind. The "swish" as they passed reminded one of an express running under a bridge. We stopped at a village for a quarter of an hour at a small café, where they not only supplied comfort for the inner man, but also petrol for the motor—a convenience and luxury unknown in this country.

At Rouen we arrived at 1.20, and lunched at the Hotel d'Angleterre. Leaving there an hour later we followed the valley of the Seine for about five miles. The roads here were very trying, being thick with greasy mud, and in some places new "metal," which was almost preferable, as, on account of the traffic, one avoided skidding. We only stopped once between Rouen and Dieppe to fix the lubricating pump, and arrived at 4.30 p.m., driving straight to the Quay. Owing to the unfavourable elements the authorities would not ship our vehicle until Sunday afternoon, so there was nothing for it but to stay there for the night at the Chariot D'Or Hotel, where we found the usual conveniences for motorists. While on the quay a handsome 16 h.p. Cannstatt Daimler arrived, with M. Jeantaud at the wheel; it was Sir David Salomons' new car, and gave one the impression of being very comfortable.

Shipping a motor is an unpleasant experience for an owner, as the painting cannot escape a certain amount of scratching. That over, we crossed by the 1.15 boat, to find at Newhaven that the cargo would not be discharged until midnight, owing to another boat with perishable goods, such as poultry, eggs, and mistletoe, having to be unloaded. Rising at 5.30 on Monday, the officials kept us going until 8.30, when we at last thankfully dispensed with their services for the sum of £4 0s. 3d., to my mind an exorbitant charge for a machine weighing only about 9 cwt. and covering scarcely as much space as half a dozen crates



A REMINISCENCE OF THE SOUTHEAST RUN.

Photo by]

[R. W. Buttener.

of mistletoe. Motorists who intend coming by this route should avoid a night journey, as the drains that often cross the roads are quite enough to ensure ruined springs. It is also wise to telegraph beforehand to the London and Paris Hotel, Newhaven, for petrol, as the only agent in the town does not supply it after dark.

Starting at 9 a.m. (Monday) for London, *via* Lewes and Uckfield, at the latter place the lubricating plunger stuck fast, but by cutting the communicating pipe we managed to successfully lubricate direct, and got away again after an hour's delay. On nearing East Grinstead we pulled up for a restive horse, which retired precipitously backwards to watch our machine from a neighbouring ditch, causing a general muddle and another delay of three-quarters of an hour. Then we ran into Croydon, where the roads practically and emphatically beggared description, being regular "sloughs of despond." In spite of skids and mud baths we arrived at the A.C.G.B.I. at 2.30 p.m.

I would mention that through the whole run we had no trouble except with the lubricating pump, and as the motor was quite new we did not press at all, even up hill, but kept well up to the legal limit.

R. B. B. B.

BARON PIERRE DE CRAWHEZ, who is travelling on his 12 h.p. Panhard from Brussels to Algeria, has arrived at Marseilles. He journeyed by way of Troyes, Dijon, Maçon and Lyons; then came a pleasant zig-zag trip along the Rhône valley as far as Marseilles, where the *chauffeur* met his brother, Baron Joseph de Crawhez.

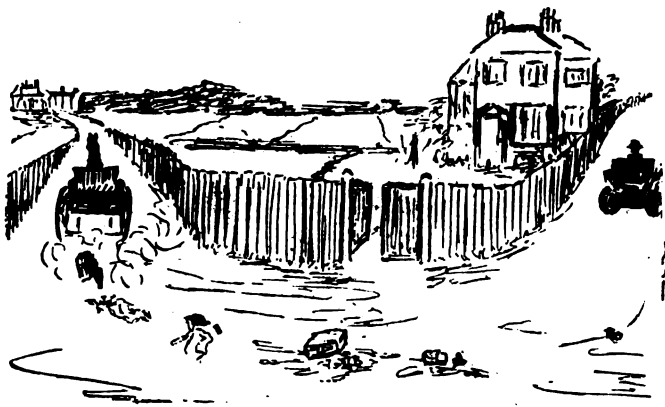
CORRESPONDENCE.

AN AMUSING EXPERIENCE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—When horses have sustained from time immemorial a reputation for giddy behaviour, why don't people provide accordingly for little idiosyncrasies in their fickle characters? In the days gone by—when I drove a mere horse, instead of a motor—I never dreamt of leaving an engine-hating gee-gee, unguarded, in charge of the dogcart, in the vicinity of a railway station or such-like place. Why are shop boys allowed to leave rampageous horses with carts in solitary state whenever they choose to spoon at back-doors with various Bridgets and Harriets? If they took them along with them, or did the spooning at the front gate, it would be more sensible; but no, they leave the perhaps flighty animal at the mercy of all strange traffic—such as motors or steam rollers, fluttering papers, or brass bands—that may happen to pass that way. The butcher-boy seems to be the worst; he never by any chance takes a *compagnon de voyage* to mind his gig when on his rounds. Then, if a motor ogre appears, the sportive unfettered one—perhaps terror-stricken—is left to his own devices, and tableau! he sometimes “takes himself off”!

The other morning I started for town in my Benz dog-cart, as usual, and when about a mile away from my home in West Kirby, and nearly at the next village, Hoylake, I saw the local wine and spirit merchant's cart, with the horse's head facing me, standing at ease outside a gentleman's residence. The “boy” was nowhere to be seen. When I was afar off the horse espied



me—I hope my engine does not make enough noise for him to have heard me such a long way—and turning sharply round, made off at a war gallop in the direction of Hoylake. He arrived there long before I did, leaving a trail of intoxicating liquors, bottles, etc., behind him on the road. Someone stopped him after about three-quarters of a mile's career, and I met him being marched back to West Kirby to find his owner. What the boy looked like, or what the wine and spirit merchant said, I do not know—but unluckily the back of the cart happened to have been left down, and that caused all the fun. Oh, dear! I haven't laughed so much for ages. To see those things go jumping out—first a dozen of beer, then a syphon of soda water, next a flagon of burgundy, then a few bottles of stout, and so on—as the cart rattled along with the back-fall hanging flackety-flack after it!

It was a rare sight, but I don't think it was my fault. The boy must have known whether the horse loved motors or not; at any rate, there are enough motor-cars in our district, of one sort and another, for him to find out by now, and not leave the skittish animal alone to brave any possible ones passing by. Therein lies one of the beauties of the motor. You can leave it at the gate while you go in and have afternoon tea with your friends, and you come out and find it there, even if an army of steam rollers has passed; and no one is likely, as yet, to run off with it. Perhaps, some day, when everyone has a motor instead of a horse, we shall have to keep a private padlock on the wheel when we go visiting or shopping.

Yours truly,

WILLIAM LEA.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. Teschemaker's letters of December 8th and December 22nd, I may mention I did not care to put myself forward, as it might be suggested I was an expert on the Werner, but as Mr. Teschemaker mentions my name and statements I think I have a right to reply. I shall be most happy to match myself against Mr. Teschemaker with his 2½ h.p. tricycle (but will permit and should prefer him to ride a 2¾ h.p.) in a ride to Brighton from London. This, I think, is a fair give-and-take road. I would use an ordinary stock size machine, fitted with 1½ h.p. engine, 62 by 72, and a pedalling gear not greater than 63 inches. Mr. Teschemaker would be at liberty to use any pedalling gear he may think fit, either high or low.

Yours faithfully,

JOHN J. LEONARD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I hope I have not conveyed to anyone the idea that I desire to disparage the motor-bicycle. Though my Werner may have been my joy and despair, may have cudgelled my brains, and may not have carried me as many miles as its cost in pounds sterling, I still incline to the opinion that it can do all that has been claimed for it, especially if it fall into competent hands.

However, I have disposed of my machine, and have seen and tested another motor-bicycle, which seems to proffer all the enjoyment aspired to, without exacting proficiency in the sciences upon which it is constructed. Thanking correspondents who have kindly assisted. Yours truly,

J. A.

MOTOR PATENT MATTERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—My company have had their attention directed to a letter in your last issue signed “W. D. Astell,” in which this gentleman makes some statements in regard to British Traction Company patents which are not by any means accurate.

My company do not propose to enter into lengthy discussions in regard to the merits or demerits of various patents, as that is a matter which will be settled in the Law Courts, and cannot be settled anywhere else, but when incorrect statements are written to your paper they think it advisable to give publicity to the truth.

Mr. Astell suggests that no foreign manufacturers pay royalty for the use of this company's patents in England, and particularly mentions the great house of Messrs. Panhard and Levassor, of Paris. In regard to this statement we will merely give two extracts from letters written by Messrs. Panhard and Levassor to customers of theirs in this country. The first one is written to the Speedwell Electric Motor Car and Cycle Company, of 83, Oxford Street, Reading, and is dated March 4th, 1900:—

“We must at the same time inform you that as we are the owners only in France of the patent for the motor which drives our carriages we should not be able to deliver in England; you would have to agree with the owners of the English patents.

“For the Director,

“(Signed) A. DE FIENENVILLE.”

The second is one dated July 30th, 1900, and is addressed to Miss Willoughby Brown, of Epsom Road, Croydon, and reads as follows:—

“At the same time we must tell you that as we are only owners for France of the patents for the Daimler motors which drive our cars, it would be necessary in order to import one of our cars into England to obtain the authorisation of the Daimler Motor Company, Limited, of Coventry, by payment of a certain sum.”

We may say that these letters constitute part of an affidavit made by Messrs. Panhard and Levassor in an action of theirs in this country. We think that if a firm of the knowledge and standing of Panhard and Levassor themselves point out to customers of theirs that they have no right to use these carriages in this country without first getting the consent of the owners of the patents, it is fairly conclusive proof of their opinion of these particular patents. At the same time it will be as well at this point

for us to mention to motor users that we have a considerable number of patents covering the various well-known motor vehicles in use in this country, and that it would be advisable for them to satisfy themselves as to their right to use them here rather than complain when the aid of the law is invoked to stop their infringement. Yours faithfully,

For the British Motor Traction Company, Limited,
CHAS. OSBORN, Secretary.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In a letter in your last week's issue Mr. W. D. Astell makes a statement there that is likely to do us serious harm. He states that no large French manufacturing companies pay royalty on patents which are owned by other people in this country. As Messrs. De Dion and Bouton, who are, we think, the second largest, if not the largest, manufacturers of automobiles in the world, never allow us to sell a motor of their manufacture in this country without the royalty being first paid, and which royalty includes the use of the carburettor, we think it right to state this very definitely, as it would be most harmful to our business if our customers thought that in buying a motor-car from us they had also purchased a legal action. Every motor or motor-carriage bought from the De Dion-Bouton British and Colonial Syndicate, Limited, carries with it a full licence to use same freely in this country without any risk of legal action.—Yours truly,

The De Dion-Bouton British and Colonial Syndicate,
CHARLES JARROTT.

PETROL AT HARROGATE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—There has always been a difficulty in obtaining petrol or even benzoline in Harrogate, as the Corporation have refused to grant a licence for its sale and storage. However, I have always petrol on hand, and shall be very glad to supply in limited quantities any automobilists who are short. We get a large number of cars here all the year round, and I have often heard of them having to send for petrol from a distance.

Burleigh Villa, Harrogate. Yours truly,
JAS. EDW. LUKE.

MOTOR-TRICYCLES AND JOLTING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. W. E. Teschemaker mentions in your issue of December 22nd that the jolting of a tricycle can be easily remedied. Now, I think motorists will agree that this is the disadvantage most have unsuccessfully fought with. I for one would be much obliged to Mr. Teschemaker if he will tell me how it can be remedied, as I wish to do it to my tricycle, which slowly rattles itself to pieces on a long ride. Mounting the body on springs and driving from the engine by chains naturally suggests itself, but is rather involved, and any simpler way of solving the difficulty will be warmly welcomed by, Yours truly,
"MOTOR-MAD."

MOTOR MEN TO THE RESCUE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have great pleasure in answering Dr. Gordon Stables' queries to the best of my judgment and ability, and will, to save space, take them seriatim:—First, as to the kind of motor, this is largely a matter of choice, but, personally, for the weight Dr. Stables requires to move, I should prefer a steam motor with cylinders about 3in. by 6in. by 6in. stroke compound, and with a water-tube boiler burning coke, two speeds—a slow speed for heavy work of about three miles an hour and a fast speed of about six miles. With the engines set to run at a moderate speed, say three hundred revolutions per minute, Dr. Stables need be under no fear of being "held up" either for bad roads or steep hills, while the boiler will need no more attention than he can give from time to time. If, however, petrol's seductive charms succeed in alluring him from the older motor, let him

unquestionably invest in either a "Napier" or "Daimler" car, and he is sure to be pleased with his bargain; but here, as to details, I am not so well able to advise. In any case the car would probably have to be specially built. Perhaps the body of the "Wanderer" could be arranged to fit the frame, etc., supplied by the motor builders. Second, he may be quite at rest as to safety in either case. Third and fourth, he can "mote" easily and well without assistance if he does not mind occasionally dirty hands. Fifth, absolutely impossible to state off-hand, but not more than a horse, and, as he progresses, much less.

Yours faithfully,
"PRECURSOR."

TUBE v. ELECTRIC IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—After eight years' experience with motors I can unhesitatingly state that for heavy cars lamp ignition is the most reliable. I often find where the two methods of ignition are fitted to the same car that the lamp ignition is used generally. There is one fault users of lamp ignition often complain of, that is, the lamps blowing out. I can safely say that I have not had a lamp blow out for two years, although I drive in all weathers, a large part of my driving being done on the exposed sea coast. I should advise anyone that is troubled in this way to remove the lamp door entirely—leaving it open is not the same as removing it.

Yours truly,
ERNEST ESTCOURT.

THE 1,000-MILE NON-STOP RUN OF THE DECAUVILLE CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to the letter under the above heading in your issue of the 8th inst., I am inclined to think that the majority of your readers will join me in advising "Amateur" to give a little more time to the study of the petrol motor and its principles before favouring the public with further witticisms on the subject, unless, of course, you propose to add a comic section to your most interesting journal; in which case, perhaps, he will be careful to place his communications in that column, and not amongst the letters to which your readers look for interest and instruction.

If "Amateur" really wishes for information I think he would be much more likely to obtain it if he refrained from utterly ridiculing the idea of a frozen vaporizer, which he would know to be quite a frequent occurrence if his experience of motors in any way equalled his assurance in giving your readers the benefit of his wit.—Yours faithfully,
A. M. I. M. E.

THE Moto-Club of Lyons has challenged the Nice Automobile Club for the Coupe du Sud-Est, won by M. Chauchard. The race will take place on April 14th over the Salon, La Fare, Aix, Avignon, Arles, Salon route, a distance of 180 kilometres.

ALL motorists use Globe Polish, and it is useful to always carry a box on the car. A lady friend of ours found a box useful at Wilton on Christmas Eve, for, having nothing to do—her husband's car being "hung up"—she set to work and made all the bright parts beautiful, and on Boxing Day we saw her similarly employed at Plymouth, and our opinion is that no car is complete without a box of Globe Polish.

WITH regard to the Gobron-Brillié car on which Mr. W. T. Pretty recently made an experimental run, using methylated spirit and benzoline as fuel, we learn that Messrs. W. T. and S. E. Botwood, of Carr Street, Ipswich, have secured the sole rights to make and sell this type of vehicle in Great Britain and Ireland. Already several orders are pending, and Messrs. Botwood hope shortly to have cars ranging from 6 h.p. to 12 h.p. on the market. For the present the chassis, or frame, complete with motor and transmission gear, will be brought over from France, the firm building their own carriage bodies and fitting them to the frames. We may add that we published an illustrated description of the Gobron-Brillié cars in our issue of September 1st, 1899.

MOTORIZING IN THE MIST.



THE AUTOMOBILE CLUB'S CHRISTMAS TOUR.

WE have been motoring through the mist, and through the mud, and over the moors, and—to continue the alliteration—over the mountains as well. For although none of the hills we have surmounted this Christmas season have been more than 900 feet above the sea level, they have been mountains to venturesome motorists. The state of the roads over those hills was dreadful indeed, and in more than one instance we have had to invite our passengers to “pad the hoof,” and have had to do the same ourselves.

When the project of a Christmas tour was first mooted at the Automobile Club several members expressed delight at the idea, and declared themselves willing participants of the trip. So the tour was arranged and the route duly made public. The effect on the size of the party was remarkable, for when they saw the distances to be covered *per diem* enthusiastic motorists brought discretion to their aid and entered not upon the winter pilgrimage to the West Country. At all events, only two cars took part in the tour—one a Darracq voiturette, with Mr. and Mrs. Johnson aboard, and Mr. R. Bruce a passenger from Salisbury, and the other a M. M. Co.'s Panhard, with Mr. and Mrs. C. Cordingley and Miss Pursehouse. The journey was intended as a holiday trip; it developed into a holiday in which stiff work, and plenty of it, were conspicuous features, as Peyton, our trustworthy and hard-working *mechanicien*, could tell.

We gently remonstrated with the genial secretary of the Club upon the long distances set down for each day's journey, especially when the nature of the country—for we should imagine the road to have been the most difficult in the kingdom—and the shortness of the day are considered; but Mr. Johnson in his usual cheery manner endeavoured to reassure us, declaring that, at fourteen miles an hour, it only meant so many hours a day—quite a light and airy task to those who had been through the 1,000-mile Trial, and encountered the ups and downs of motor travel in hilly districts. Fourteen miles an hour was an optimistic calculation; we imagined our limit would be about a dozen, but towards the end of the tour we have been well pleased at an average of eight miles an hour. And upon this average we have based the time-table of the later days. In such a festive season as the last Christmas of the century we have known what it is to get up at what appeared the middle of the night to make a start at eight o'clock in the morning—with our lamps burning fitfully in the raw air and our marrow chilled with the grey mists from the moorland. Altogether the tour was remarkable—we might say is remarkable, for, as a matter of fact, at the time of going to press we hope to be still plodding along at our eight mile an hour average, for the tour does not end till the Friday of this present week. It has been, we repeat, a remarkable journey, not by reason of any *contretemps* to the motor-vehicles engaged, but for the variations of the atmosphere we have passed through. The nature of the road, too, has contributed to the experiences of the trip, for we believe that from Salisbury to Exeter—a distance of ninety miles—there is not a single inch of level road. At all events, it was only when going downhill that we used our fourth speed, and then only by “braking” on the clutch. Under such conditions the greasy nature of the road absolutely prevented anything like fast travelling. Stretches of freshly laid stones gave increased anxiety, and these were not only long, but numerous. They were specially interesting when discovered—and there was no fear of passing them unnoticed—half way up and over the crown of 1 in 9 hills. Under the best of circumstances, with the weather pleasant, agreeable, and smiling, and the road surface favourably inclined, such hills are difficult to surmount when our car has its heavy-hooded body, four passengers, and the necessary luggage; but when the atmosphere is unkindly severe and the roads have been drowned by deluge our car ploughs its way on the greasy roads with a sinking and a slipping not unlike the floundering of a small barque at sea. The experiences of motoring are never

monotonous; they are as varied as the British climate. Although we had previously motored in all weathers and on nearly all roads, we had a new experience in running short of petrol. No charge of carelessness can be laid against us, for the most careful calculation would be upset on a journey of sixty miles absorbing eight and a half gallons—about as thirsty a mood as our motor had ever been in. And not only did petrol flow freely, but although we had a radiator, and the pump was working well, we had to fill up twice with water in the same distance—an unusual proceeding.

It must not be thought, however, that our experiences have been unpleasant, troublesome and tedious though they undoubtedly were; for it must be remembered that our car is a very comfortable one, and, well laden with rugs, secured us against many biting winds. Moreover, just before starting on the journey we had purchased from Salisbury's a new foot-warmer which lasts sixteen hours upon a single charge of charcoal brick. This we have found as warm at the latter end of the day as at the beginning. Then, too, the hotels at which we have put up have compensated for inconveniences on the road. Like most of those to be found in the West Country they have been old-fashioned, cosy, and comfortable. Hosts and hostesses have uniformly, and kindly perhaps, concealed their private opinions of our enterprise. For they must have thought strange thoughts as we drew up, like shadows from the mist, before their hospitable doors. Their sympathetic regard for our comfort was great indeed, and we have found, with Shenstone, “our warmest welcome at a country inn.”

Then, too, the outside scenes at this season of the year are not all lonely and desolate. It was novel to see and pleasant to watch the gambolling lambs in the fields—not in isolated twos and threes, but in greater numbers. In one field alone, between Crewkerne and Shaftesbury, there were quite two hundred lambs frisking about, heedless of motors and their troubles. The countryside has been enlivened with holly bushes growing in greater profusion than ever we have seen before, myriads of red berries adding a colour that has been welcome to our eyes. And the mistletoe, too, has been equally luxuriant—remarkably so this season in a locality famous for such seasonable growths.

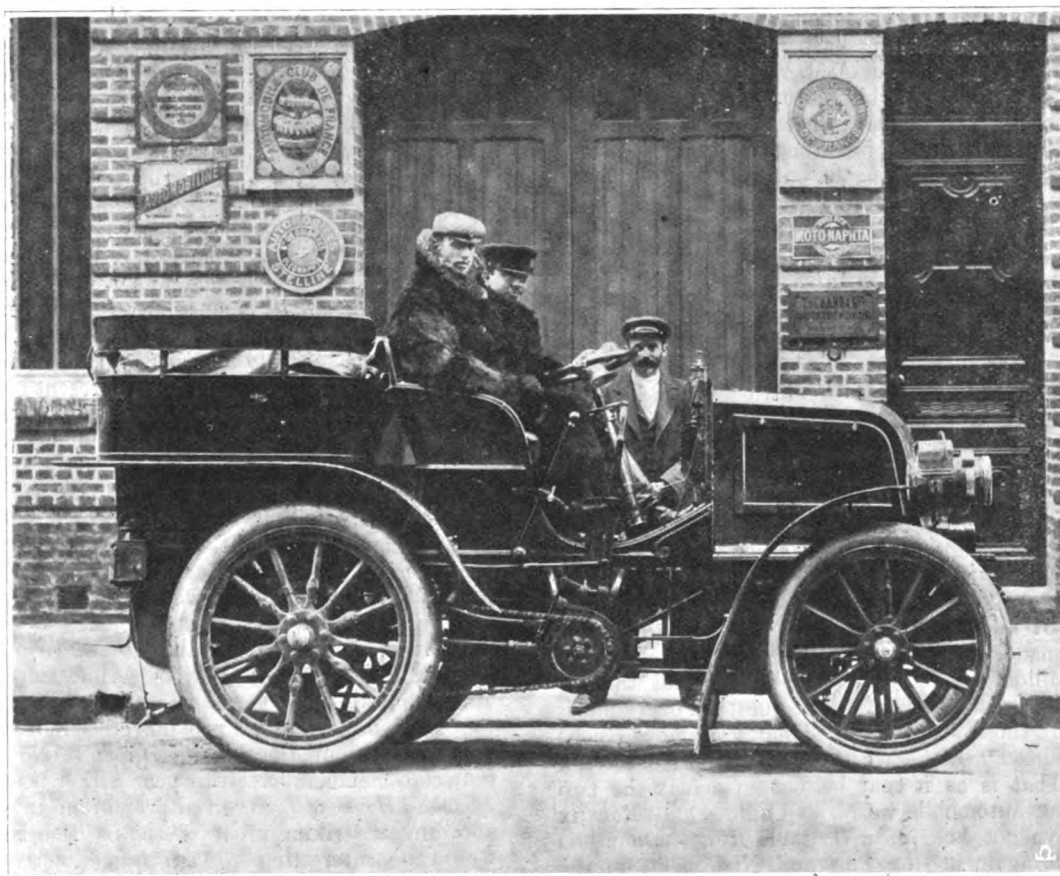
Would that we could write so glowingly of the roads. We had previously slipped along in silver frost, but never before had we had our car turn completely round on what was apparently a wet road, when, in reality, the rain had frozen as it had fallen. It is not wholly exhilarating to go through overflowed roads; but perhaps it seems colder and damper, and decidedly more awkward, to have to follow a couple of cows that will persist in keeping to the middle of the road in such a way as to prevent the passage of a vehicle behind. We came up with two such cows. They were in charge of a yokel mounted on horseback, and the three animals and the lad persisted in keeping in front of us for a long distance, until, at length, by shouting and “pipping” the horn, we drove them into a ditch where the water rose above their haunches. For the first time we learned that sheep do not take kindly to water. Nothing seemed likely to make them get out of the way of the car. They persisted in keeping to the highest part of the road, and would not turn aside where their feet would have got wet. So, alas! as a final resource in one case there was nothing left to do but get out of the car and assist in driving a flock into somebody's field that we might continue our journey at the average speed of eight miles an hour. An apple tree “in full bloom” at this time of the year was somewhat of a novelty to us, and although we have seen fields of violets in Cornwall in December, it is worth noting that between Exeter and Plymouth violets—sweet-smelling harbingers of spring—were plentiful on the banks and by the sides of the lanes; and violets were not the only fragrant flowers, for in the clusters of light-blue periwinkle the violet found a formidable rival. The cottage gardens, too, still showed roses in bloom, and hydrangea was profuse indeed, these bushy plants being almost treelike in abundance.

But this is the bright side of the picture, and there was, it must be truthfully confessed, another. Hitherto we have had the greatest faith in the Contour Road Book, but after our experience of the Exeter and Plymouth Road we are inclined to

the belief that there was a sarcastic man who wrote some portions. For instance, the book says the particular road which we have indicated "is very hilly throughout, but for Devonshire is a very fine road." The first portion of the description is correct, but to the latter part we give a direct contradiction, and the only explanation is, as we have said, it must have been "writ sarcastic." For of all the bad, atrocious roads over which we have travelled, the last twenty miles of the Exeter to Plymouth road is the very worst, without exception. We dare not trust our pen to give our opinion of this road. We had hoped to do the forty-three miles in four hours, but—alas for the uncertainty of mortal hopes!—it took us more than five hours. The highest points of the Great Western Railway, we have heard, are to be found round Ivy Bridge. The roads are certainly execrable. We found them sodden in mud and filth several inches deep. They were narrow and tortuous, turning about anyhow and in any direction,

himself the Holy Thorn of Glastonbury in full blossom. This has long been a cherished desire, but little we thought that ever its fulfilment would take place, as our visits to the West of England have hitherto been during an earlier period of the year. Yes, we are looking forward to seeing the Holy Thorn in blossom; we are also no less anxiously looking forward, at this dinner hour of Christmas day—amidst the sounds of revelry emerging from the servants' hall—to the arrival of our friend Mr. Johnson and party, who left Wilton—three miles from Salisbury—just after six this morning, and who telegraphed us from Exeter at three o'clock that "he hoped to arrive at seven or eight o'clock." We most devoutly and sincerely trust he will so arrive; but we are afraid he is a stranger in the wilderness. That, however, as Rudyard Kipling says, is another story.

Since writing the foregoing, we have seen Mr. Johnson and his party. They arrived at 8.20 p.m. in a deluge of rain. We



MR. E. M. C. INSTONE WITH COUNT ZBOROWSKI'S 26 H.P. GERMAN DAIMLER CAR AT HAVRE.
[Photo by] [C. Halkin, Havre.]

then doubling back upon themselves—apparently with no other reason than to show passengers by the railway how miserable they can make travellers who are independent of the railroad—and generally twisting and turning in a manner that is not straightforward or wise.

Another week we propose to deal with the tour in a more detailed way, and these general impressions of the last Christmas tour of the nineteenth century must now suffice. Most of the way from Salisbury to Plymouth the roads are very narrow, consequently the little traffic we met had to take to the soft grass tracks at the side. This placed the heavy carts coming our way in imminent danger of sinking in. Fortunately the courtesy of those in charge of carts and vans was universal, and they always turned aside to give us a straight and clear passage. Had we had to turn aside the result would have been lamentable, for on the soft grass track we should have certainly stuck, and might have been still there.

At the time of writing we are anticipating the pleasure of the return journey. There is one pleasing thought to the doubting Thomas wielding this pen—he will be able to see for

had all arranged to resume the trip early on Boxing Day, but the weather was so fine and bright that it was decided to postpone the departure till Thursday. We left Plymouth in good weather and early in the afternoon reached Exeter, having met with good roads most of the way. After the deluge of the earlier days the roads were delightful and the weather almost summerlike.

A NOVEL and useful form of steering wheel has been devised by Mr. L. Brooke, of Messrs. J. W. Brooke and Co., Limited, Adrian Ironworks, Lowestoft. The new feature is the incorporation with the wheel, by means of a hollow enlarged boss, of a receptacle in which maps, matches, gloves, goggles, and any other oddments can be placed and instantly got at when required. A rubber cover is supplied with each wheel, which completely protects the receptacle from wet or dust, though, of course, it is only in damp weather that it would usually be necessary or advisable to use the cover. The wheels, which are made of aluminium and polished mahogany, are being made in two sizes—for cars and voiturettes.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

The Acheres Disappointment.

DISAPPOINTED once by the postponement of the meet at Achères, our regret at learning the promoters' decision to entirely abandon the trials was intensified. These December days are very dreary, and we had been anticipating the event with an anticipation whetted by the postponement. And then to be disappointed, and for the most trivial of reasons. As explained by the *Vélo*, the Moto Club, who were promoting the meet, found themselves in the impossibility of securing the services of three officially appointed time-keepers as required by the A.C.F.'s racing rules. Of the six qualified men, the promoters were apparently only aware of three, MM. Tampier, Rousseau, and Gaudichard, and the latter of these being unable to assist, the Moto Club had no option but to abandon the trials. I may mention that the three other time-keepers living in Paris and holding A.C.F. appointments are MM. Huet, Giraud, and Riguelle, and it is certainly somewhat curious that this was not known to the organisers of the Achères meet. However, there it is, and the feeling of motor men is rather one of regret at the loss of some exciting racing than one of curiosity as to the real why and wherefore of the cancellation of the fixture.

The New Record at Gaillon.

WHEN at Gaillon upon the occasion of the recent speed trials up the famous hill of Sainte Barbe, I heard upon every side regrets at the non-appearance of the Caillois-Renault vehicle, for many present had regarded the little car as a certain winner, while others were anxious to see what it really could do. Last week its capabilities were demonstrated in a truly remarkable fashion, for, timed by MM. Gaudichard and Tampier, of the French Automobile Club, this wonderful vehicle raced up the recognised kilometre of hill at Gaillon in 1 min. 10½ secs., so beating the present best, made by M. Brasier on a Mors, by no less than 15½ secs. Just think of it! To start actually on the hill, which in places shows a 10 per cent. grade, and yet make a speed representing 51 kilometres per hour. It is really astounding, and the performance will certainly direct very considerable attention to the Caillois-Renault vehicle. What would the car have done on the level at Achères? is the question everyone is asking, and there are those who say that Jenatzy's famous record would have been buried had the weather conditions and track been favourable. That is as it may be, but evidently the two Siamese twins of the automobile world, as Caillois and Renault are often styled, have got hold of a veritable flyer. Doubtless we shall see the car again at the Pau and Nice meets in the spring.

The Lemaitre-Flotte Affair.

So, after all, M. Albert Lemaitre decided to abandon his appeal against the Versailles judges' award of £800 damages to the unfortunate engineer, Flotte, who, it will be remembered, was injured in the Paris-Bordeaux race of May 24th, 1899. This decision, however, was only arrived at very late in the day, for the Appeal Court was actually engaged upon the case when M. Lemaitre's solicitor formally notified the judges of his client's wish to withdraw the appeal. The affair is so well known that to repeat the details is quite superfluous, but I may mention that Flotte originally claimed £2,400, and that the Versailles court, after granting him a provisional £200 and appointing a couple of doctors to examine and report upon the extent of his injuries, finally assessed the damages at £800, against which verdict M. Lemaitre was appealing. From the doctors' report the sum awarded would certainly not appear to be excessive, for the unfortunate man is suffering from severe and permanent injuries to his left eye, tongue, and left arm, added to which his nervous system is seriously affected. Incapacitated from following

his employment, Flotte, who is only thirty-nine years of age, cannot be said to have made extravagant claims, and M. Lemaitre has done wisely in not pursuing the matter further.

The Automobile Club of Cognac.

FRENCH automobilists, who have no local club, evidently intend that such a condition of affairs shall no longer continue, for every week one hears of the formation of new societies. It is only a fortnight ago since I gave a list of clubs actually existing, and already two additional societies have been promoted. The creation of the first, that of Var, I have duly chronicled in these columns, and now it is the Automobile Club of Cognac whose formation I must note. Promoted by the most influential men of the district, the future of the new club is particularly bright, and in course of time the A.C.C. will assuredly attain to a high position among French automobile societies.

The A.C.F. Fete.

WHEN I entered the club-house on the evening of the 20th inst. a great number of members and guests had already arrived, and the beautiful theatre and salons presented a truly brilliant scene. The theatre in particular was thronged, for although a quarter of an hour before the time appointed for the commencement of the programme, everyone was eager to make a tour of the "house" before the entertainment commenced, and their trouble was well rewarded. Of exquisite proportions, the *salle* is most tastefully decorated, and the lighting in particular is the work of an artist. It was this latter feature which specially appealed to the visitors of last week, for although many of them had been present at the two *fetes* given during the summer, the electricity was then not in good humour, and played the audience some scurvy tricks. This time, however, all went well, and the wonderfully subdued light issuing from the lamps hidden behind the cornices was voted beautiful. The change of shade too was very effective, and as the light went from a golden tint to a rosy red the club's guests warmly expressed their admiration. By half-past nine there was not a *fauteuil* to be found, and ranged down the side gangways and along the back of the pit, shall I say? were rows of members unable to secure a seat. And what a wonderful gathering it was too. Almost everyone of note in the automobile world of Paris was there, all anxious to do honour to their fellow-members who have been decorated recently, and in whose honour the *fete* was given. No fewer than seventy-four club members have this year either been nominated to the *Legion d'Honneur* or received promotion in its ranks, a record affording a striking proof of the position held by the Club. It would be interesting to ascertain exactly how many of the Club's two thousand odd members are decorated. On Thursday the highly-prized red button or ribbon was to be seen in dozens of button-holes. But to the programme. After the usual orchestral selections, Mlle Odette Dulac, of the Boite à Furey, gave a couple of famous comic songs. Then followed M. Baldelli, of the Royal Opera at Madrid, and another well-known operatic singer in the person of M. Lasalle also claimed us. A series of dances were executed by Mlle. Blanche and Louis Mante, of the Opera, and a couple of one scene plays were performed respectively by artists from the Comédie Française and the Gymnase. The success of the evening was undoubtedly scored by Mlle. Lina Cavalieri, a new singer, who has caused quite a sensation in Paris. The other items of the programme were all enjoyable, and it was not until a late hour that the audience dispersed.

After the Berlin-Vienna Race.

WHILE chatting with some club members during the recent *soirée* I learnt of the proposed tour after the conclusion of the Berlin-Vienna race, and as I take it that probably some Englishmen will be racing in this event, particulars of the subsequent tours may be of interest. To begin at the beginning,

it will be remembered that first of all we are promised Paris-Berlin, to be followed immediately by Berlin-Vienna. Now upon arriving at the Austrian capital automobilists would probably be looking about for the most agreeable route over which to make the return journey to Paris, so it has occurred to certain members of the A. C. F. to organise a tour, leading the participants back to France by way of some of the most delightful scenery in central Europe. What a splendid run could be made via Klagenfurt, Villach, Tarvis, Udine, Venice, Padua, Verona, Milan and Switzerland. And as there will be no lack of automobilists going to Vienna, whether as racers or as tourists, quite a caravan should be formed for this tour. The idea is certain to appeal to motor-men visiting Vienna, and the subsequent details of the scheme will be awaited with considerable interest.

Paris Automobile Show.

THOSE English firms who intend to exhibit at the Paris automobile and cycle show of next month should note that no applications for space made after January 3rd will be considered by the organisers. A tremendous number of entries have actually been received, and as the committee of management are determined that the opening day shall see the exhibition ready, the allotment of space will be made immediately after the 3rd proximo, and the tardy applicants will be simply ignored. So English intending exhibitors must post their applications not later than Wednesday next, the 2nd proximo, and these should be addressed to the Commissaire Général du Salon d'Automobile et du Cycle de 1901, 6, Place de la Concorde, Paris. For those who do not know the Grand Palais, in which the exhibition will be held, let me say that it is situated on the river side of the Champs-Élysées, and that its main entrance gives on to the Avenue Nicholas II. Utilised during this year's big show for the exhibition of fine arts, the palace is still encumbered with a great number of statues, and an enormous amount of work must be got through before the Salon will be ready to open its doors. As at present arranged the automobile section will be placed on the right of the great hall, as one enters the palace, and will be known as Class 1. Here the heavy vehicles will be arranged nearest to the entrance. In the left-hand portion of the great hall will be shown the cycles, while at either side the accessories, tires, and tools will find place. No sparing allotments of space need here be feared, for the hall rejoices in magnificent proportions, and every exhibitor should be amply provided for. In the enormous rotunda, which so much excited the admiration of visitors to this year's exhibition, will be placed the retrospective section, together with the stationary engines, the carriage bodies and the products of various industries akin to that of the cycle and automobile. On the first floor the space will be given over to the exhibitors of costumes, and here also will be found the "fun of the fair." Naturally, this programme is subject to amendments, but the changes, if any, are hardly likely to materially affect the original scheme. The bulk of the organising work is being carried on by M. Rives personally, and the most cursory examination of the palace to-day gives ample proof of the enormity of his task. Outside the building itself there is also much to be done, from the testing of the cars intended for exhibition to the thousand and one details of clerical work. No wonder, then, that the exhibition staff are to be found working far into the night, and that the first floor of the club-house in the Place de la Concorde presents a scene of bustling energy, which is in marked contrast to its usual state of tranquillity. With regard to the trial runs, these are performed over the Versailles road, a duly appointed commissioner accompanying each vehicle. Constructors are required to give to the organisers four days' notice of their intention to make the trial, and the *rendezvous* is invariably before the entrance of No. 6, at half-past nine in the morning. Passing to another matter concerning the Salon I would like to draw particular attention to the retrospective section, which promises to be the most interesting and comprehensive collection ever shown. Numerous cycles which have figured in historic races, together with several examples of early efforts in automobile construction, have already

been promised by their owners, and in place of the hitherto somewhat scattered displays made at previous shows the retrospective section of the Salon of 1901 will be wonderfully complete. Indeed, everything points to success, so I strongly recommend all English automobilists to set aside a few days in January in which to visit the show.

Another "Culasse."

POSSIBLY the water-cooled cylinder head which is the easiest of adaptation to the De Dion and Bouton and Aster air-cooled motors is that manufactured by MM. Brissard et Fils, Paris, and for which a steady demand is springing up in France. Its employment on either of the two types of engine mentioned gives rise to no complications, for it is by means of the existing columns that the attachment is effected. Both the inlet and exhaust valves of this cylinder head are large, and are perfectly cooled by a steady stream of water which, coming direct from a reservoir placed some ten centimetres above them, passes around the head of the cylinder to return subsequently to the tank. This circulation of water is effected by the thermo-siphon system, and generally a five-metre radiator is carried. By the use of the radiator five or six litres of water is all that is required, but if dispensed with, the water supply must be raised to ten or even twelve litres. The cooler is placed below the level of the cylinder head, for the difference in height ensures an active circulation of the water. A number of 1½ and 2½ h.p. De Dion motors have been successfully converted into engines developing 3 h.p. by simply changing the cylinder and piston and attaching the Brissard "culasse," without in any way altering the length of stroke or weight of fly-wheels. The question of efficiently cooling ribbed motors is undoubtedly a most interesting one, for this type of engine has many advantages over the water-jacketed motor. Less expensive to build, it is much lighter than the water-cooled engine, and, in the smaller sizes, it is but during the ascent of hills, or while the car or cycle is running slowly, that its tendency to overheat is at all pronounced. It is, therefore, but a slight modification, which should render the smaller sizes, at any rate, ideal in respect of cooling efficiency, and it is more than possible that the improvement would, at the same time, make possible the construction of powerful ribbed motors. I do not think that the Brissard system has yet been tried upon large air-cooled motors, but upon the smaller sizes it is undoubtedly very efficient.

Aluminium.

WITH the ever-increasing demand for aluminium suppliers are busily engaged upon seeking an alloy which, while retaining to a great extent the qualities of the pure metal, can be delivered at a very moderate price. Whereas in 1889 the price per kilogramme (2.2 lbs) was 56 francs, to-day the cost of 98 to 99½ per cent. metal is only 3 francs 25 centimes, a truly extraordinary diminution in price. Now we are to have an aluminium of 90 per cent. supplied at 2 francs per kilogramme—such, at least, is the announcement made relative to one of the leading firms of French suppliers. A visit to one of these Parisian coach-builders, who make a speciality of aluminium bodies, affords an interesting lesson on the manner of working up the metal, for there one sees a hundred and one parts and dozens of different types of carriages all constructed of an aluminium alloy. For the more complicated and stronger classes of vehicles wood is, however, always given the preference.

THE quarterly 100-mile trial organised by the Automobile Club will be held on Tuesday next, January 1st.

THE local depôt of the Dunlop Pneumatic Tire Company, Limited, at Nottingham, has been removed to new premises at 3A, Lower Talbot Street.

MR. H. EDMUNDS was one of the many motorists in the London district out enjoying the mild weather of Boxing Day; we saw him driving a merry party on board his well-known "Antrona" through Wandsworth.

NEW STIRLING MOTOR-CARS.

THE name of Messrs. Stirling, of Hamilton, is one which was very early identified with the motor industry in this country, and for nearly half a century has been known throughout Scotland as one of the leading coach-building houses in the kingdom. Considering the well-known conservatism

on new and specially attractive cars which he had determined to produce and place on the market in the first year of the twentieth century, and some of which we are now able to describe and illustrate.

The first is the Stirling voiturette, Figs. 1 and 2, an elegant little carriage to seat three or four persons, and propelled by a 5-h.p. water-cooled De Dion Motor.

It is built on a strong tubular frame carried on tangent wheels and pneumatic tires. The motion of the engine shaft is transmitted through silent chains to the counter-shaft, from which it is communicated to the front driving axle by spur wheels, giving two changes of speed and a reverse motion. On the counter-shaft is also placed a friction-clutch, operated by pedal in the same way as on the well-known Panhard carriages. By this means the motor can be released instantly, making the handling of the vehicle in traffic an easy and comfortable matter. Two powerful band brakes are fitted, and for emergencies the reverse motion can also be brought into action. This little carriage has been designed to go into the hands of ordinary people who may not have previously had any mechanical experience. It is simple in construction, and all the parts are most accessible. What is, perhaps, the most startling thing about the car is its price, viz., 125 guineas, Mr. Stirling having decided to list it at the price named in order to command a popular market. We may add that the weight of the Stirling voiturette is only $4\frac{1}{2}$ cwt.

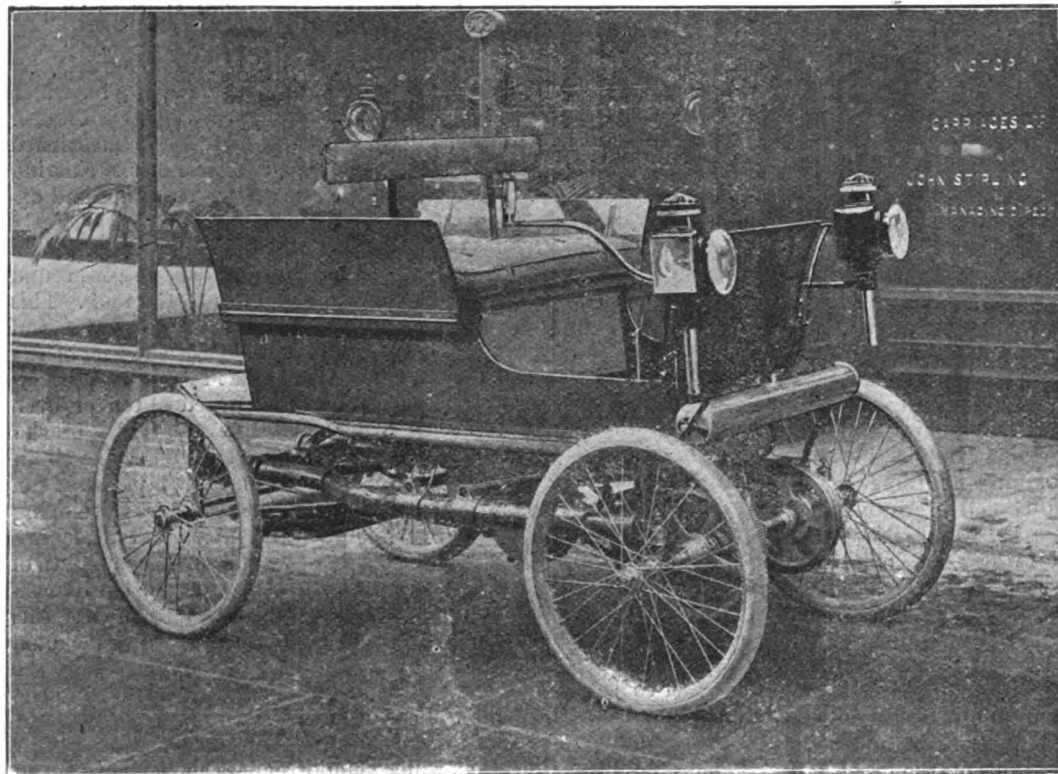


FIG. 1.—GENERAL VIEW OF THE STIRLING VOITURETTE.

of that very ancient craft, it was surprising to find a firm of coach-builders of such standing so early embracing the motor-carriage industry. As a matter of fact, scarcely two months had elapsed from the date of the coming into operation of the new Act when the first Stirling-Daimler Stanhope was running on the streets of Glasgow. This was in January, 1897. It was natural that such enterprise should meet with conspicuous success. Within twelve months from the introduction of their motor-vehicles it was found necessary to greatly extend the producing capacity of the firm. In December, 1897, therefore, Stirling's Motor Carriages, Limited, was incorporated with a capital of £100,000. Since then the company has regularly paid 5 per cent. to its shareholders, and enjoys the distinction of being the first motor-carriage manufacturing company to pay dividends. When the difficulties surrounding the introduction of a new industry are remembered these results must be considered most satisfactory. During the past twelve months Mr. John Stirling, the founder and managing director of the company, has been at work

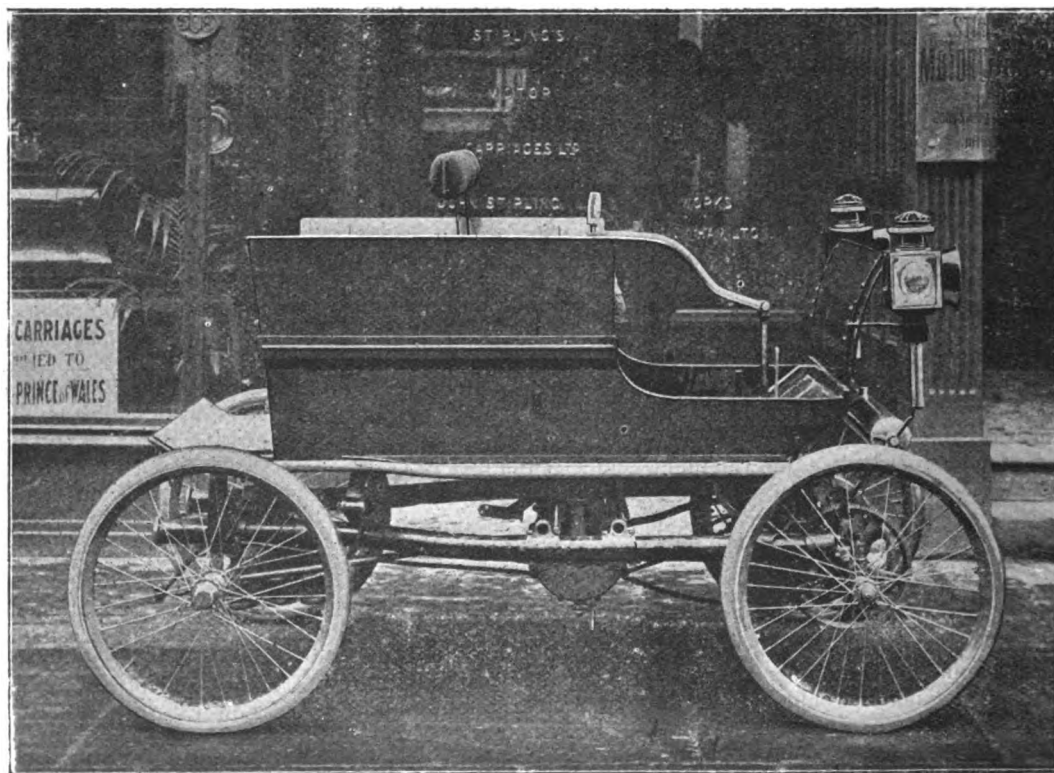


FIG. 2.—SIDE VIEW OF THE STIRLING VOITURETTE.

The Stirling Victoria de Luxe, Figs. 3 and 4, is fitted with a new 7-h.p. four cylinder motor, and is claimed to be practically vibrationless. The motor is suspended transversely midway between the fore and hind wheels directly under the driving seat. The engine shaft is extended to the off side of the frame, and carries two easy-working friction clutches, by which two changes of speed are obtained. A third, or hill-climbing gear of five miles an hour is also provided for use on specially steep gradients. On a recent 100-mile run over comparatively hilly country with this car the third speed was, we understand, never used. The motion on this car is also transmitted by silent chains to the counter-shaft, which carries the differential gear, and from thence to the driving sprockets and the rear wheels by chains in the usual manner. A reverse motion is, of course, provided, while there are two powerful brakes. The road wheels of both this car and the "Stirling voiturette" are of equal size. A special feature in the "De Luxe" car is the increased width of the wheel gauge or track. This has been made to correspond exactly to the English standard gauge for ordinary carriages, a feature which has advantages on many country roads, and must give greatly increased stability to the carriage when running at high speeds. The design of the body and the entire carriage work is handsome and luxurious, the car being most comfortable to ride in, and is very silent in running. The

weight of the car with its 7 h.p. motor is only $10\frac{1}{2}$ cwt., and maximum speeds of twenty-five miles an hour and over are easily obtainable.

A third pattern which Messrs. Stirling are putting on the market for the coming year is a light Parisian phaeton to seat

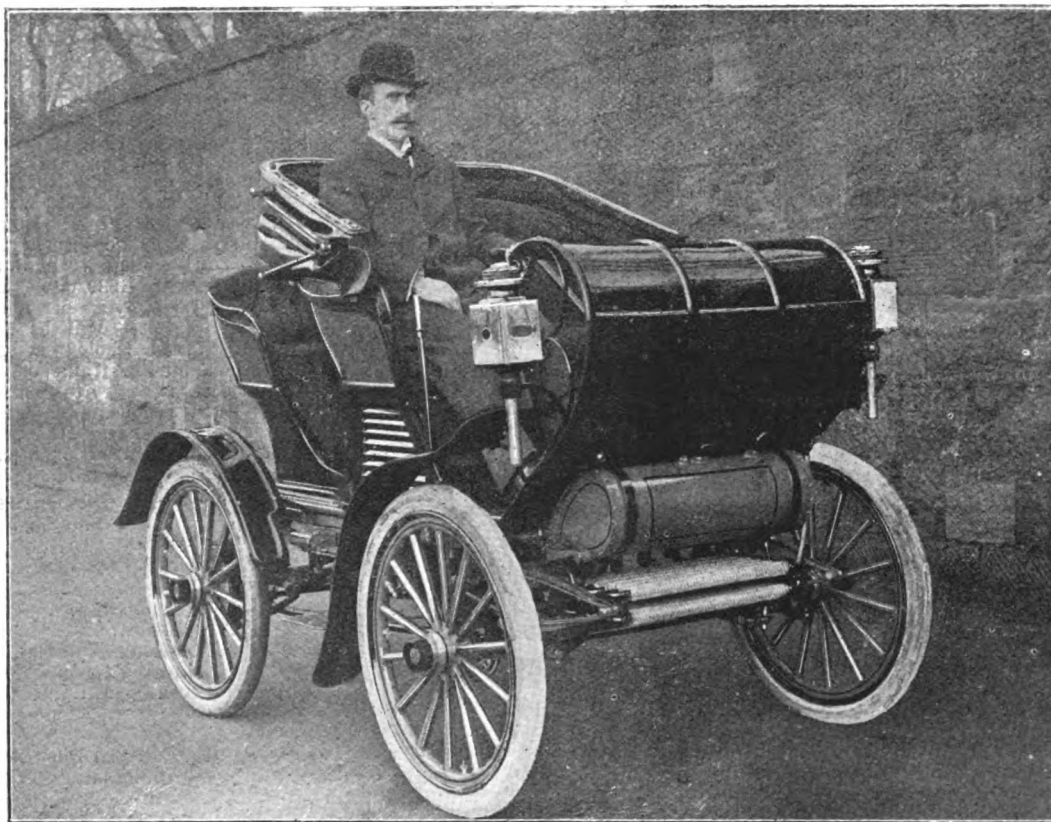


FIG. 3.—MR. STIRLING ON HIS VICTORIA DE LUXE.

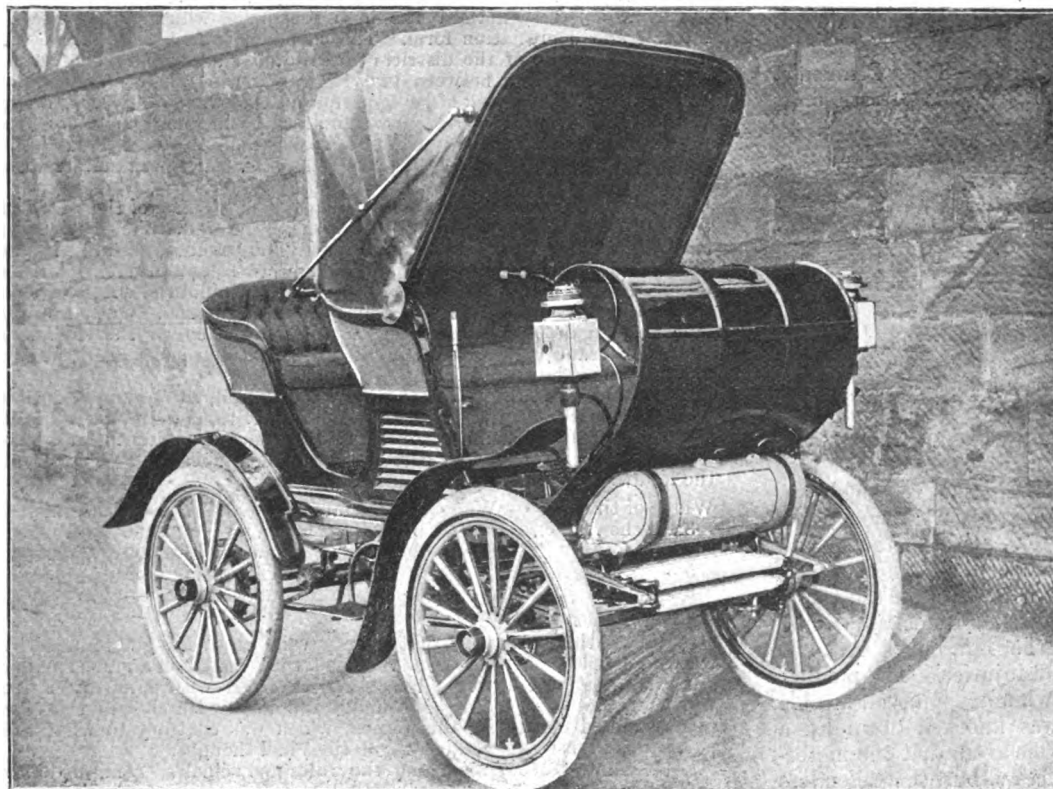


FIG. 4.—THE STIRLING VICTORIA DE LUXE, WITH HOOD UP.

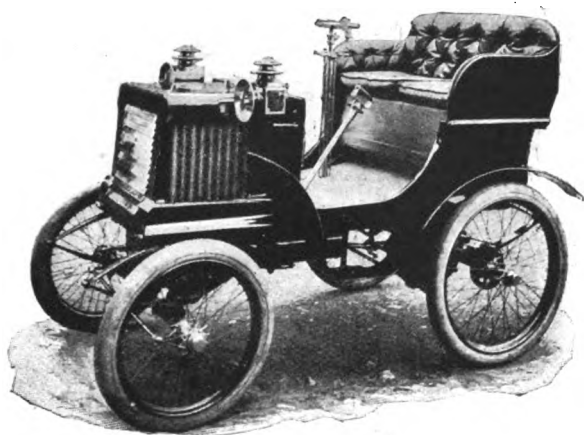
three persons, got up somewhat similarly to the "De Luxe" except that it is lighter in construction and capable of higher speeds. They are also building a light van to carry 4 cwts. and driver, and another for a load of 8 cwts. and driver. We believe it is Mr. Stirling's intention to run two of the new Stirling cars in the 1901 Big Event of the Automobile Club, which has its chief destination at Glasgow.

THE Northern Carriage and Motor Company, Limited, has been formed in Aberdeen to acquire an old-established carriage works, with which is to be combined the motor business at present carried on at 414, Union-street, Aberdeen, as the M'Rae Northern Motor Company. The capital is £20,000.

AN ingenious exhaust valve lifter and current breaker for motor-tricycles has recently been brought out by Mr. Milbrow Smith, of Handsworth, Birmingham. By twisting the right handle a quarter turn the current is switched off, whilst half a turn raises the valve and keeps it up until the handle is turned back again.

THE VALKYRIE VOITURETTE.

THE latest cycle concern to take up the manufacture of motor-cars is the Springfield Cycle Company, Limited, of Sandiacre, Nottingham, whose Valkyrie voiturette is illustrated herewith. The little car is propelled by a $3\frac{1}{2}$ -h.p. water-cooled De Dion motor, located in the fore part of the frame. The water circulation is on the thermo-syphon system, no pump being employed. Three speeds forward—six, twelve, and eighteen miles per hour—are provided, the transmission mechanism being very much on the lines of that adopted in the Renault cars. The engine drives the variable speed gear through a friction clutch; from the gear-box the power is transmitted by a longitudinal shaft, terminating in a bevel pinion meshing with a corresponding bevel wheel on the rear live axle. Three powerful band brakes are fitted, while steering is controlled by a



horizontal hand wheel. The cycle-type wheels are 24 in. diameter at the front and 28 in. at the rear, they being shod with Dunlop $2\frac{1}{2}$ in. pneumatic tyres.

AN American couple, Mr. and Mrs. Van Alen, intend to spend their honeymoon in touring through France and Italy in an automobile.

MR. ZACHARIAS sailed on Saturday for the Malay Peninsula, taking with him a Roots and Venables' car. A Thornycroft steam car is to follow.

AT Spilsby County Court last week M. W. Whirram and Co., brewers, Burgh, sued Mr. George Godson, of Asgarby, near Sleaford, for £25, depreciation in the value of a horse, and other expenses incurred through an accident owing to defendant's motor-car not being under proper control. The jury found defendant was not guilty of any negligence, and they returned a verdict in his favour.

WE regret to learn that while out with the Duke of Beaufort's hounds near Malmesbury on Saturday last Mrs. Ernest Pitman, of Bath, the wife of the owner of the 6-h.p. Daimler car No. A21, which took part in the 1,000 mile trial, collided with a gentleman rider in a dense fog, and was thrown severely, sustaining concussion of the brain. Mrs. Pitman was removed to Malmesbury, and up to Monday evening had not regained consciousness. We extend our sympathy to Mr. Ernest Pitman, who was in the field at the time, and trust that the hopeful view of the case taken by the doctors will be confirmed.

ISSUES have been ordered in the First Division of the Court of Session for the trial of an action by Sarah Renicks, residing in Broxburn, Linlithgowshire, against the Edinburgh Autocar Company, Limited, for £150 for personal injuries. The pursuer states that on the 22nd September last, while stepping off a cable car in Prince's Street, Edinburgh, she was knocked down by a motor-car belonging to the defendants. She avers that the motor-car was being driven furiously and recklessly, but the defendants deny the averment, and state that the pursuer jumped off the car right in front of the motor-car.

HEAVY MOTOR TRAFFIC IN FRANCE.*

By M. GEORGES FORESTIER, Inspector-General of Roads and Bridges in France.

(Concluded from page 720.)

SINCE the establishment of the *Poids Lourds* service, consisting of two De Dion and Bouton omnibuses for twenty-two people, and one five-ton lorry for goods, we have weights of at least eight tons, going at speeds of at least nine miles an hour. It was found that, for a distance of about three miles, where the ground was damp, ruts had been formed in the road which it was impossible to get rid of. It was necessary to carry out the drainage of the subsoil, which cost £600. It was afterwards found necessary to increase the width of the road by two feet. This additional width was indispensable in order to obviate all the inconveniences which were produced when the wheels of the lorry, having a total weight of eleven tons, passed over soil at the sides, which was not metalled. Again, while waiting for the drainage work to be carried out, it was necessary to put down fresh stones, and this cost £2160. Finally, from the estimates made up to the present, the engineers of the *Département de la Meuse* consider that the normal maintenance of the roads will now have to allow of the mending each year of 2.9 miles with 1,830 cubic yards of material. This corresponds to 163 cubic yards per year per mile, and to a wear of 0.60 inch per annum. The annual cost will be £1,040, which is an increase of £560 per annum for the whole road, or of £50 per mile. Briefly, then, in order to provide for this traffic on 11.2 miles of the National road (No. 47), it has been necessary to spend £246 per mile in widening and drainage, and to increase the annual expenses for repairs by £50 per mile.

As the number of trips per day is six, or 2,190 per annum, the extra cost of maintenance is 5.2d. per vehicle-mile.

Now the owner estimates his working costs at about £130 per mile per annum, these being arrived at as follows—

Personnel (Foreman)	£ 80
(Drivers, Stokers, and Mechanics 372)	£452
Fuel	340
Oil and Grease	48
Water	16
Maintenance of Rolling Stock	124
General Expenses of Office and Dépôts	76
Government tax on transport (3 per cent.)	16
	£1,072
Interest and Depreciation (8 per cent. per annum on buildings, 13 per cent. on rolling stock)	420

Total per annum £1,492

For the 11.2 miles of road in question, this works out, therefore, at about £130 per mile, or say 14d. per vehicle mile. Hence, the extra wear and tear on the roads, which we have seen to be £50 per mile, is about two-fifths of the actual working costs of the service.

You will have noticed the high proportion which the *personnel*, interest and depreciation form. This melancholy fact arises from the unsuitable nature of the districts worked, and the necessity of guaranteeing the connection between two railway stations, in consequence of which the service, instead of being performed by a single omnibus, doing 71 miles daily, is carried on by two omnibuses, which only do 30.5 miles per day; that is to say, only half the work which the vehicles and the staff are capable of discharging. On the other hand, the maintenance charges are very low.

Width of Tires.—A moment ago I spoke in passing of the width of tire that should be adopted if one wishes to diminish the destructive effects upon the roads. Although this very long address has already put your patience to a rude test, I think I ought to ask your attention for a minute longer in order to treat briefly this question of the width of tire, as it is a most important one in heavy motor traffic. One certainly must not forget that at a competition at Versailles, one of the engineers on the jury said, with the consent of all—"Without good roads, heavy motor traffic is impossible."

The width of tires which, according to the load, was to be put on the wheels of various road vehicles, and the effect of this width on the life of the roads, occupied the minds of the greater number of French engineers during the whole of the first part of the nineteenth century. Up to 1851 the following regulations were in force:—

Width of tire.	Waggons (in winter).	Public Service vehicles.
3.1 inches. ...	1.8 tons. ...	2.6 tons.
4.3 " ...	3.2 " ...	3.5 "
5.5 " ...	4.7 " ...	4.5 "
6.7 " ...	6.3 " ...	— "
9.8 " ...	9.6 " ...	— "

Dupuit then observed that a very wide tire soon got rounded by wearing on the edges, and that the load then rested on a much smaller area than that which would have been obtained with a narrower tire which did not change its shape under the load. He showed that the roads suffered chiefly for this reason, which was contrary to what the partisans of these exaggerated regulations had thought.

The law of 1851, regarding the rules for vehicles, confirmed this

* Opening Address of Fifth Session of the Liverpool Self-Propelled Traffic Association, being the local centre of the Automobile Club of Great Britain and Ireland. December 3rd, 1900.

view of Dupuit's. It did not insist upon any particular width of tire. It left to the people themselves the responsibility of adopting that width which experience had proved to require the least traction, which meant, of course, the least wear and tear on the road. Thus to day, in Paris, omnibuses weighing 3.5 tons have tires only 2.24 inches wide, and the heavy Delannoy lorries, weighing 12 tons, have front tires only 5.1 inches and back tires only 6.4 inches, in width.

Very wide tires should be used on soft ground, as experience has proved in the cause of steam ploughing engines. It is only under these conditions that the soft earth will stand the engine's combined driving action and weight when going round curves. On the contrary, if the soil is as resisting and hard as a stone road in good weather, curves make no difference and the tires obtain their full adhesion. For the motor-wagons with which we have to deal, it is necessary, then, to have two sets of wheels—one with very wide tires for winter, during which the road material is easily disturbed, the other with narrower tires for summer when the material is very coherent.

In order to avoid this inconvenience, some of our builders have tried to divide the total weight between a greater number of wheels. This question also has the attention of English constructors, for on page 200 of the paper on "Road Locomotion" by one of your eminent Vice-Presidents, Professor Hele-Shaw, F.R.S., we read—"It may be found economical to support a motor-vehicle upon a much greater number of wheels than at present." The following attempts have been made in France:—

As long ago as 1835, Dietz designed a traction engine with six wheels, but we have no information regarding the arrangement of this engine. Towards 1886, M. A. Bollée, a builder at Mans, had a six-wheeled traction engine at work, four of the wheels being driven. Messrs. De Dion and Bouton have, for a long time, made a speciality of a steam tractor in which the driving wheels bore part of the weight that was pulled behind it. A tractor of this kind, running alone, arrived first in the race from Paris to Rouen in 1894. Another, hauling a brake for thirty-four people, took part in the *Poids Lourds* meeting of 1897. The total weight on the driving wheels on this occasion was 4.4 tons for a useful load of 2.5 tons.

M. Le Blant has proposed to add to the number of driving wheels by keying two or four more upon an extension of the ordinary driving axle. This arrangement, which might necessitate a very small diameter, does not offer complete solution of the problem.

Driving on all four wheels has also been tried. The advantage obtained is that the total moving weight is used for adhesion, which is very useful on hilly journeys, but one cannot lessen the weight on the driving wheels without giving the steering wheels the same diameter and dividing the load uniformly. One cannot, therefore, approve the arrangements for front driving, such as those of Doré or Gandon, which move around a central bolt, and which have the same drawback as the arrangement of the multiple driving wheels of Le Blant. If combined front and rear steering is adopted, it is possible to turn in so short a radius that the wheels need not be below the platform. I should prefer, however, the arrangement of Jeantaud, where the front wheels are mounted on a forked axle and can have as great a diameter as is required if the axle is lengthened.

I have now concluded my account of "Heavy Motor Traffic in France." May I cherish the hope that your Council will not regret having entrusted the reading of this Address to a Frenchman who understands so little of your language, especially when it had such an *embarras du choix* among the many eminent members of the Automobile Club of France who are capable of dealing with this subject in English, and, in addition, with more competence and authority than myself. In any case, allow me to assure you that I shall retain all my life an agreeable recollection of the very great honour which has been done me, as well as of your kindly welcome and your gracious attention.

THE DAIMLER MOTOR COMPANY.

THE fourth annual meeting of the Daimler Motor Company, Limited, was held on the 21st inst., at the Holborn Restaurant, Holborn, under the presidency of Mr. E. H. Bayley, J.P. (the chairman of the company).

Mr. G. Foster Pedley (secretary pro tem.) having read the notice convening the meeting, the chairman in the course of his speech said: I have the pleasure to move the adoption of the report. The balance, as shown in the accounts, is considerably on the right side. The accounts before you show for the past twelve months a profit of £4,430. This is four times the amount made in the preceding fifteen months, so that at this rate of progression we ought, at the expiration of the current year, to have made a profit sufficient to justify a dividend of 16 per cent. The profit now shown would have been greater but for the fact that many cars, nearly completed, have had to be taken into account at the cost instead of the selling price. It may be reasonably asked why, if a profit has been earned, a dividend is not declared. Nothing would have been easier than to have adopted the popular course of paying a dividend, but the directors prefer to act for the permanent welfare of the company rather than for their own immediate popularity. Since the removal of the legislation which thwarted automobilism four years ago, the automobile movement has spread rapidly in this country. The engineering talent of the country has applied itself to the subject, with the result that motor-carriages can now be built here equal in every respect to the best

foreign machines, and lower in price. No finer carriages as to design, materials, and workmanship have been produced, either abroad or in England, than the latest carriages built at our works at Coventry. During the present year remarkable improvements have been worked out in our factory. The speed will be attained of one mile per minute, roller bearings are fitted, electric ignition is used, the gearing has been greatly improved, automatic lubrication has been introduced, a reversible band brake has been added, a better arrangement of the controlling and governing gears has been made, the water-cooling arrangement has been improved, the motor frame has been lightened and considerably stiffened, better forms of axles and springs has been adopted, an improved form of cylinder head and joint is used, and many minor modifications have been made which considerably improve the machine. Most important of all, by means of a simple contrivance the power of the company's standard motors has been increased about 50 per cent. This startling result is obtained without any material outlay in plant. The company's 5½ h.p. motors are altered to develop 7, 8, or even 9 h.p. on the brake, and the old 12 h.p. engines are made to develop 18 h.p. The Prince of Wales is highly pleased with the carriages supplied to him, and the Royal Warrant will be conferred on the company. In view of this Royal patronage, the fact that we have over £25,000 worth of orders in hand, and that further orders are coming in satisfactorily, I submit that the directors would have been lacking in foresight if they had not prepared for the approaching boom by incurring the outlay referred to in the report, which was absolutely necessary for improving the factory, so as to increase the output and provide extra stock. We have obtained the increased horse-power to which I referred; the Critchley car, which in its original shape had many defects, has been re-designed, and is now a practical and saleable machine; and we have obtained four new types, a one-ton and two-ton delivery van, a 12-h.p. car, and a 20-h.p. racing car. In the great 1,000-mile competition twelve Daimler cars took part, and carried off three first prizes, five silver medals, three bronze medals, and three *Daily Mail* prizes of £10 each. It is desirable that the working capital which has been used on capital account should be replaced. Two years ago the shareholders' committee suggested an issue of about £40,000 debentures, which would no doubt have been subscribed for. We have been able to carry on without this extra capital, thus saving the company £2,000 per annum. An issue may be offered of a much smaller sum than this, and as the company's assets are £20,000 more in value than they were two years ago, and its prospects are brighter, splendid security can be given for a very safe investment. I must now mention that a well-known firm of City solicitors has made an offer to purchase the Daimler Company, and have sent £250 to cover any preliminary expenses that may be incurred. The board have replied that, as a board, they can take no part in either accepting or declining such proposal, which is a matter for the shareholders. They have undertaken, however, that, provided the solicitors in question put their offer into the definite form of a draft agreement, and forward £1,000 as a guarantee of good faith—to be forfeited if the arrangement is not carried through—they will submit the proposal to the shareholders. They can do no more in the matter than act as a conduit to place the matter before you for your consideration. This is how the matter stands at the present moment. It might be useful if a small committee were appointed of the largest shareholders to confer and advise with the directors on this and other matters which cannot conveniently be discussed at a public meeting. The board would gladly welcome the appointment of such a committee.

Mr. Thomas Bayley, M.P. (director), seconded the motion. Sir Edward Jenkinson said he had been delighted to hear so good an account of the character of their motors and improvements that had been made during the year; but he regretted very much that no dividend was given, as, in his opinion, there might have been a distribution if there had been a little foresight displayed. It seemed clear that there was need for further funds, as, in a business of this sort, it was necessary to have considerable working capital. As to the general conduct of the business it seemed to him that a strong man was wanted at the head, one with a thoroughly practical knowledge who would be given large powers in the direction of the works. With regard to the negotiations for the sale of the property, to which the chairman had referred, he was glad to hear that the shareholders were to be consulted in the matter before anything was done. For his part he considered the business an excellent one, and if the capital were increased they need not think of selling it—unless, of course, they got a very tempting offer. Mr. Thomas Bayley, M.P., said that this business was just emerging from the experimental stage into a practical commercial undertaking. He had every confidence in it, and was a considerable shareholder at the present time. Mr. F. L. Rawson dealt with various points in the accounts, and in regard to the question of fresh capital expressed a hope that if any were raised it would be by means of five per cent. or even six per cent. preference shares, rather than by an issue of debentures. Mr. H. J. Lawson urged the necessity of having a strong man who had a thorough understanding of the Daimler motors to conduct the works. He had recently been to America, and inspected the works of the great motor companies there, and although there was formerly a great difficulty in obtaining men of thorough expert knowledge, he considered that was not the case now.

The Chairman replied on the points raised. As to the offer to purchase, he submitted that the directors had taken the only course open to them as practical and honourable men, and that if they had acted otherwise they might have been open to just complaint from shareholders afterwards. He repeated his assurance that the business was now

making rapid strides, and had turned the corner. The motion was then put and agreed to. The Chairman proposed the re-election of Mr. J. H. Mace (the retiring director), which was unanimously agreed to.

An extraordinary general meeting was then held, in accordance with notice, when the Chairman submitted a resolution for the conversion of the £10 shares into shares of £1 each. He pointed out that this was proposed with a view to meeting the wishes of the shareholders, who considered that the shares would be more marketable at the lower amount, and it was a matter which the board left with the shareholders. The proposal was unanimously sanctioned. The proceedings closed with a vote of thanks to the chairman and directors.

ACTION FOR THE PRICE OF A MOTOR-CAR.

AN action came before Sheriff Lee in Forfar Sheriff Court last month at the instance of James Macfarlane, cycle and motor-car dealer, Perth, against Alexander Ross French, dentist, Forfar, for the sum of £135, being the price of a motor-car. Parties were heard on the preliminary pleas, when Sheriff Lee gave judgment in favour of the pursuer. Defender appealed to Sheriff Johnston, and the latter has issued an interlocutor sustaining the appeal and allowing parties a proof of their respective averments. In a note Sheriff Johnston says that he agrees with the Sheriff-Substitute in thinking that no good purpose was served by allowing a proof in this case. But in so thinking they were not judging of the relevancy of the record, but were judging from the general complexion of the case, and from the letters Nos. 10 and 13 of process. But proof has not been led or renounced, and it is not a legitimate course to give judgment partly on a record and partly on matters learned outside the record—in fact, on a partial and *ex parte* proof. He saw very little, if any, prospect of the defender gaining anything by a proof except a heavier award of expenses against him. But so long as the defence stated is relevant he was entitled in his own discretion to ask a proof of it. He might not think the defence in *bona-fide*, but he could not proceed on that idea, which might be quite without foundation. He had therefore allowed a proof. If the parties were prepared to take a judgment on a record and productions they might obtain it, but a minute renouncing probation is necessary. His opinion was that the defence, though in the circumstances improbable, is relevant.

ACTION OVER A MOTOR-CAR.

IN the Nisi Prius Court No. 2, on the 21st inst., before Mr. Justice Madden and a special jury, the case of Mayne v. M'Taggart, which had occupied the court for several days, was concluded. It was an action by Mr. R. F. Mayne against Mr. W. R. M'Taggart, cycle and motor-car dealer, Dublin, to recover damages for alleged breach of warranty in respect of a motor-car which plaintiff purchased from the defendant, and which he averred was not of the quality which defendant guaranteed. The defence was that the defendant had not given the guarantee alleged, that the car was in good condition, and that anything that had happened to it was owing to the plaintiff's ignorance and want of skill. Mr. Blood, Q.C., having spoken to the evidence for the plaintiff, and the learned judge delivered his charge, the jury retired, and after an absence of more than an hour came out, the foreman stating they had not agreed on all the questions which his lordship had left them. They had not agreed as to whether the defendant gave a guarantee or not. Mr. Justice Madden told them that if they believed the evidence which the plaintiff had given, there was no escaping from the conclusion that the defendant gave a guarantee. But there was the evidence of Mr. M'Taggart the other way, for he said he was asked for a guarantee, and refused it. The jury retired again, and after a short absence brought out findings to the effect that the defendant did guarantee that the car was in proper working order, and capable of maintaining an average speed of twelve or fourteen miles an hour, and that it would take any hill or ordinary Irish roads; that the plaintiff bought on the faith of the guarantee; that the car was not in accordance with the guarantee; and they gave £30 damages and costs.

COLLISION WITH A MOTOR-CAR.

AT the Bradford County Court last week an action was brought by Rhodes Crabtree, butcher, of Bradford, against the Yorkshire Motor-Vehicle Company, Limited, of Bradford, to recover damages for injuries sustained to the plaintiff's horse and cart. It appeared that on September 26th the plaintiff's horse and cart, in charge of George Greenwood, an apprentice, was proceeding along Manningham Lane for the purpose of delivering meat. When the cart was opposite Blenheim Mount, between the near tram line and the causeway kerb, a motor-car belonging to the defendants came up behind. The motor-car was running on the tram lines, and when passing the cart the driver of the motor-car turned slightly to the right. The fore wheels of the car left the tram lines safely, but the hind wheels skidded on the lines, and the back part of the car struck the plaintiff's cart. The spring at the back was broken, the shafts were snapped, and the horse ran away, sustaining considerable injuries. The defence set up was to the effect that what the driver of the motor-car did was done with the intention of avoiding an accident, and could not, therefore, be negligence on his part. On the other hand, he contended that the driver of the cart was guilty of contributory negligence in suddenly swerving to the right just as the motor-car was passing. Thus

the rear of the cart and the rear of the motor-car came into collision. His Honour Judge Bompas, in summing up, explained the law of negligence to the jury. He said that if the motor-car skidded on the tram lines, and the skidding could not have been avoided by reasonable care, the occurrence would be an accident, and no one would be liable. His Honour asked the jury to consider whether they thought the driver of the motor-car tried to pass the cart too closely. If he did so that would be negligence. There was plenty of room for the motor-car driver to pass the cart at a much greater distance. The jury, after five minutes' consultation, found a verdict for the plaintiff, and assessed the damages at £12. Judgment was given accordingly.

THE stock, assets, goodwill, and contracts of the Automobile Association have been purchased by Friswell, Ltd., and will shortly be sold by auction.

THE Motor Power Company, Ltd., are putting an 8-h.p. Gladiator car on the market. The vehicle takes the form of a four-seated phaeton.

THE Hackney Carriages Committee of the Northfleet District Council has examined and passed a motor-wagonette which was submitted for their inspection by Mr. W. H. Smith, of New Road, Gravesend, and granted an application for a licence to ply for hire within the district.

MR. CHAS. T. CROWDEN, of the Motor Works, Leamington, has lately devised and patented a new instrument, which is useful in adjusting mechanical motions, such as between piston and valves, or where one motion has relation to another. The apparatus can be fitted to an ordinary steam engine indicator or it can be complete in itself. The purpose of the "Crowden" gear is to give in the shape of a diagram the exact relation between the slide valve and piston at all points of the stroke, from the engine under load, and without the use of models. The results obtained by the apparatus are not only accurate and beyond dispute, but enable the engineer to keep diagrammatic records of the relation between the slide valves and pistons of the engines. The gear can also be used for gas, hot air engines, pumps, etc., when the valves are mechanically operated, or if by vacuum or pressure if such is sufficient to actuate the pencil movement. The curves drawn would show the duration or periods of the inlet and outlet valves opening and shutting during the piston stroke. The apparatus is being put on the market by Messrs. T. S. McInnes and Co., Clyde Place, Glasgow.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editor's hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

VOL. II.]

LONDON, SATURDAY, JANUARY 5, 1901.

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COMMENTS.



THE continuation of our story of the Christmas trip of the Automobile Club is unavoidably postponed this week, but we may mention that from Exeter our car woke up and travelled splendidly. It failed, however, to pick up the Darracq, and we imagined that that car was safely stabled for the night. But no! while stretching our legs up a rise of one in eight we heard the well-known sounds of a car behind us, and looking back saw Mr. Johnson waving his hand. The hill was mounted in good style, and at the top a halt was made for explanations. Then we learned that the Darracq was missing fire. An effort was made to remedy this, but as we could not help we proceeded on our way, promising to wait at Wellington. This we did for an hour, but, time getting on, we were compelled to make our way to Taunton, enjoying the short ride by moonlight. The crossing of the borders from Devon to Somerset was easily recognisable, the roads of the latter county being hard and wide, and enabling an easy sixteen miles an hour to be made. The Darracq arrived at Taunton just before eight o'clock, the party on board not regretting stoppages for tea, etc., for they had seen a rainbow caused by the reflection of the moon—surely, a novel sight.

The Storm.

ALL Thursday night our rest was disturbed by the sound of what seemed like falling houses, tiles, etc. It was the night of the great storm, and in the morning there was a deluge. Meeting, as usual, by artificial light at the breakfast table it was unanimously decided that no start should be made that day. And in Taunton town we found much to occupy our time. Saturday opened clear and bright, the keen air making us long to be on the move, and an early start was made. The roads were capital, and our car pulled as it had never pulled before. Glastonbury was easily reached by making a detour through Langport and Somerton. Everything being so favourable the journey was continued to Reading, making a distance of over 120 miles for the day. London was duly reached early on Sunday. Mr. Johnson made a long stay at Wells, and then journeyed to Devizes, coming up to London on the following day.

Our M. M. Co.'s Panhard.

AT the last Automobile Club's exhibition at the Agricultural Hall our new car—a M. M. Co.'s Panhard—was on view and attracted considerable notice. As our readers are aware, the vehicle was entered for the 1,000-mile Trial, in the course of which it certainly did not do credit to either ourselves or the makers. Since that interesting and trying tour it has been back to the works to be properly adjusted, with the result that

its subsequent behaviour has been all that could be expected of a good car. It has been driven thousands of miles up great hills and down steep ascents, on all kinds of roads and so-called roads, and in all weathers. Only once have we been delayed, and that was owing to a spring breaking when we were touring in the New Forest. Of course, as usual, we had with us every spring but the one required, and so there was nothing to do but to improvise one. This was done, and, after half-an-hour's delay, we resumed our journey. The recent Christmas tour proved the power of the motor, for with four passengers, and in such bad weather, it was able to make an average of over eight miles an hour on the notoriously bad roads of Devonshire—a speed which, having regard to all the adverse circumstances, was, we think, highly commendable.

The Darracq Car.

THE Darracq driven by Mr. Johnson was a new car, having only recently been brought from Paris. The first day its going was somewhat intermittent through the clutch slipping—and this was the cause of the long delay at Wilton, to allow of the clutch being relined. When this was done, an early start was made from Wilton, and the journey right through to Plymouth, a distance of over 130 miles, was completed in a total time of less than fourteen hours. On the return journey the voiturette gave occasional trouble through misfiring but otherwise ran well and proved itself a thoroughly reliable and powerful vehicle, its speed up hill being especially noticeable.

Petrol Talk.

ALTHOUGH it seems incredible, it is nevertheless a fact that between Salisbury and Exeter—a distance of ninety miles—there is not a single agent stocking any kind of motor-spirit. During the recent Christmas tour this fact cost us nearly two pounds in cash, any amount of inconvenience and annoyance, and a three hours' railway journey. It was also the cause of the writer catching a chill while "kicking his heels" at the various railway stations where changes had to be made between Chard and Exeter. This want of petrol arose not from carelessness, but from the extreme heaviness and hilly state of the roads. It does seem surprising that towns like Shaftesbury, Sherborne, Crewkerne, Chard, Honiton, etc., have no petrol supplies. Where are the cycle agents who are reputed as being so anxious to cater for the wants of automobilists? It was suggested that before the end of the nineteenth century there would be stores of petrol in every village. Where are these facilities? Echo answers, Where?

More Petrol Talk.

A CORRESPONDENT with a statistical turn of mind, and having, perhaps, some basis upon which to found his conclusions, estimates that the amount of petrol used the during last year represented a total mileage of over one million was made by motor-cars in this country. This, again we are assured, represents a thousand motor-cars doing a thousand miles each per

annum. Surely our correspondent must be altogether at sea in his calculations, for one firm alone has sold over one thousand cars in Great Britain, and a man cannot much appreciate his motor unless he does over one thousand miles per annum. We have now before us a new list of the agents stocking Pratt's motor-spirit, and we are assured that over one hundred agents have been added since the last edition was issued. This, of course, is welcome news; but the list should be trebled at least, and we trust our enterprising friends, both Messrs. Carless, Capel and Co. and the Anglo-American Oil Co., will use still greater energy in adding to their lists of agents. Any readers finding a difficulty in obtaining motor-spirit are invited to send the name of the town without its agent for publicity in our columns, so that the attention thus drawn to the matter may lead to a remedy.

Numbering Cars.

THE proposal to number cars continues to arouse indignation among automobilists. Mr. E. P. Reynolds suggests that, should the numbering of vehicles be pressed for, the alternative of each car carrying a name on the engine apron, or an apron on the back of the car, be submitted. Mr. T. G. Tulloch offers the idea that members of the Automobile Club should have the badge carried on their cars, and that that should be sufficient for purposes of identification. Mr. A. P. Sennett's proposal is that, if the numbering be made compulsory, it shall be deemed a sufficient compliance with the regulations to have the number engraved on a plate covered by a flap provided with a railway carriage square hole catch, such as could be opened by a constable's key. Further suggestions from members will be considered by the Club committee.

A Marquis on Motors.

THE Marquis of Granby has been writing in the *Field* on the use and misuse of motor-cars, and in the course of half a column of print has committed himself to several glaring inaccuracies. He says there is no reasonable safety for the public in any part of the country wherein are motor-cars, and that "as for a motor-car being stopped because of a nervous, frightened horse, such an event has, I fancy, never happened yet, whatever may be the case in the future. At any rate, I have never heard of or seen such a kindly action on the part of a motor-carist." The Committee of the Automobile Club decided to reply to the letter of the Marquis, and in the course of their answer Mr. C. Johnson says:—"The Committee of the Club are in a position to offer evidence of the fact that scores of motor drivers are in the habit of stopping several times on each of their journeys on account of restive horses, in spite of the fact that the regulation which compels them to stop on the driver of a restive horse holding up his hand is frequently misused for the purpose of their annoyance by drivers of horses which are in no way restive. The rules of this Club provide for the expulsion of a member who may be guilty of failing to stop when properly called upon to do so." The Club also controverts the assertion of the Marquis of Granby that motor-cars are simply useful "to gratify the pleasure of a select number of wealthy persons and rich trading firms," and declares that automobiles will do something, as was pointed out by Mr. Balfour in the House of Commons, to solve the problem of the housing of the working classes.

The Bardon Voiturette.

ONE of our visitors this week was M. H. Ramoisy, who has just come over to England in the interest of the Société des Automobiles et de Traction (Système Bardon, of Puteaux, near Paris). M. Ramoisy, whose visit has for its object the opening up of agencies in this country, had with him a Bardon 5 h.p. car, with four-seated phaeton body, on which we had the pleasure of a short run. A prominent feature of the car is the petroleum-spirit motor employed, this having a single cylinder, there being, however, two pistons with a single central explosion chamber. As we hope to publish an illustrated description of

the car in a later issue, we will content ourselves by remarking that it has apparently been well thought out and rides very easily. In France it is already a popular type of vehicle, being used by a number of prominent *chauffeurs*.

Another Case in East Anglia.

A CASE heard at the Samford Petty Sessions, in which the driver of a motor-car was fined for refusing to stop at the request of the driver of a restive horse illustrates the difficulties which are thrown in the way of the development of automobilism. In the particular case before the Bench, there was no independent corroborative evidence, and the occupants of each vehicle stated their own version of the facts, which, it is needless to say, did not harmonise in every respect. There is nothing unusual in this, as the same incident, viewed from different standpoints, may well present a different aspect to the actors engaged. Having heard both stories, the Bench was of the opinion that the driver of the motor-car was to blame, and he was fined 10s. with 19s. 2d. costs. Even according to the complainant's story the motor driver slackened his speed—and it was not alleged that he was going at an undue rate—as soon as it was signalled to him to do so, and the whole gist of the charge was that the motor driver did not stop altogether. Upon the facts the Bench might well, says the *East Anglian Daily Times*, have taken a lenient view of the case, and dismissed the charge, but the motor-car is a new comer on our roads, and it can hardly be expected that a Bench of County Magistrates should have much sympathy with what they seem to regard as an unpleasant novelty. We recognise the fairness of our contemporary in dealing with the case as being quite refreshing after the many prejudiced comments we have read in daily papers.

Comparative Cost of Motors and Horses.

ON the question of the economy of motor-vehicles as compared with horse-drawn carriages, Dr. Hardwicke, whose general conclusions were given in a recent issue, supplies some definite data to the *Lancet* which very clearly demonstrates the saving that the former effects. The cost of fodder, farrier, and saddler for one horse is given as £44 8s., and for two horses £84 16s. The initial cost of a hooded gig, horse, and harness was £119, of a Victoria, horse, and harness, £189, and of a hooded Benz motor-car £200. The interest on each at 5 per cent. per annum is £5 19s., £9 9s., and £10. The expenses of the motor-car during the year was—petrol £10 17s., lubricant £1, accumulators 7s. 6d., pair new chains £3, pair new belts 6s.—total, £15 10s. 6d. The comparative cost of each per annum, with the interest on the initial outlay added, is therefore as follows:—

	£	s.	d.
One horse and gig	50	7	0
Two horses and gig	90	15	0
One horse and victoria	53	17	0
Two horses and victoria	94	5	0
Motor-car	25	10	6

The actual saving in cash is easily apparent, while as a coach-house is required the rent of the stable is avoided as well as the man's time in feeding horses at regular and specified times. These figures, which are taken from Dr. Hardwicke's books, may be accepted as authoritative on the matter.

A Motor-Car at Drury Lane.

IN the pantomime at Drury Lane Theatre the motor-car plays a part. The Prince is turned into a beast and his kingdom is converted into a republic, with a plausible president, who appropriates the revenue and then sends it out of the country. At this point there is a comic scene for Messrs. Leno and Campbell, who, as the King and Queen, now in very reduced circumstances, plot to get their own back again by breaking into the National Museum and seizing the Crown jewels. They arrive on a motor-car, and to get rid of a boy attendant

play golf in order that he may search for the ball. After sundry mishaps, the Queen enters by the balcony, while the King waits below. The reputed "jewels" turn out to be mere imitations, and the motor-car comes hopelessly to grief.

Motor-Vehicles for Public Services.

AMONG the guests to be invited to the Automobile Club's house dinner on Wednesday next, January 9th, are Mr. J. W. Benn, chairman of the Highways Committee of the London County Council, and Sir Alexander Binnie, the engineer to that body. Following the dinner will be a paper by Mr. Outhwaite, the secretary and manager of the Edinburgh Autocar Company, on the "Use of Autocars for Public Service Purposes." It is hoped that firms which have supplied vehicles to ply for hire in cities and towns will endeavour to arrange that the managers of such services will be present, so that their experience may be elicited in the course of the discussion. There is no doubt the provision of motor-car services will do much to ease the strain of passenger traffic in the great cities; hence the special value of the forthcoming paper and discussion. We are informed that the reading of the paper will commence at 8.45 p.m.

An Automobile Meeting at Pau.

So much attention is devoted to Nice and its automobile week that one is apt to overlook the fact that the Pau meeting precedes it in the list of this year's fixtures. The Nice races are set down for decision in March, while those at Pau will take place between February 14th and 18th. The big event, in which last year M. René de Knyff gained so brilliant a victory, will be decided on Sunday, February 17th, and the route followed will be from Pau by way of Tarbes, Riscle, Aire-sur-Adour, Saint-Saver, Dax, Bayonne and Peyrehorade back to Pau. We wonder whether the president of the Pau Club, Mr. Thorn, will be running his new 40-h.p. Daimler? When last I saw him, writes our Paris correspondent, he was in Paris, having just returned from Cannstatt, where he had been seeing after his big car. As his 26-h.p. car was then doing the kilometre well inside fifty seconds he had great hopes for the capabilities of the new 40-h.p.; and, if rumours be true, his anticipations will be realised, for the 1901 racer is likely to prove a veritable flyer.

Encouraging Industry.

WHEN it is being freely proclaimed in the press that, despite the activity now apparent in our workshops, British trade is being menaced by foreign rivals, the folly of those who would throttle a growing industry seems impossible. But it is none the less existent, and the county councils—or, at least, some of them—are not acting in the interest of the whole community in trying to prevent the progress of automobilism. This is a fact that cannot too often be insisted on, nor can it be too often urged.

Motor Coaching in America.

THE idea of motor-coaching parties from the leading London hotels to southern resorts has frequently been mooted, but has not yet been acted upon. In New York, however, the matter has gone a step further, and a number of Society people there have joined in an effort to run an automobile coach on these lines. The vehicle to be used has accommodation for nine passengers. Its motive power is electricity, and it can run about twenty-five miles without recharging. While it is proposed to put this coach on the road for a short run to begin with, probably to one of the country clubs out on Long Island, it is quite within the bounds of possibility that it will ultimately be operated to Philadelphia, covering the route of the former New York and Philadelphia public coach, which left the Waldorf-Astoria at eight o'clock daily, reaching the Stratford in Philadelphia at eight o'clock in the evening. There were many changes of horses, and several galloping stages, with a brief rest at Princeton of a half-hour for luncheon. It is thought that the

automobile could make much better time and show the coaching men of the old days the possibilities of more modern means of transportation. It would be necessary to provide fresh batteries three or four times, and the trip would be one which many people would be anxious to try.

A Public Motor-Car Service in Mexico.

THE electric wagonette shown in the accompanying illustration forms part of the service recently organised in the city of Mexico by the Compañia Mexicana de Vehiculos Electricos, a sub-company of the Electric Vehicle Company of New York. The new service runs between the National Palace and the statue of Carlos IV., and was subjected to a severe test when the streets of the city, on the occasion of a recent fête, were crowded to their utmost capacity with people on foot and vehicles of all kinds. The new service made regular and frequent trips during all that portion of the day when vehicles were permitted on the streets named. Every omnibus was filled to its utmost capacity, and, in spite of the immense crowd, thousands of people were transported from one end of the route to the other, not only pleasure seekers who were viewing the illuminations, but people who wished to go to and from their homes. The vehicles themselves presented, remarks *Automobile Topics*, a gay appear-



ance, draped with the national colours, and at night they were illuminated by red, white, and green electric lamps, which added to the festive appearance of the streets.

Foolish Litigation in Ireland.

IF ever the folly of rushing into law was clearly demonstrated it was in the case of *Mayne v. McTaggart*, which we reported last week. Plaintiff bought a second-hand motor-car from defendant, who was the Dublin agent for the vehicle in question. The plaintiff, not being satisfied with the car, sued for damages, and the defendant offered to settle the case out of court for £17 10s. The former refused to cancel the bargain for less than £25. Accordingly the case went to the courts and lasted four days. The total costs of the action are estimated at over £300. The plaintiff, though he won the case with £30 damages, will probably be out of pocket also, and he still has the car on his hands. The case has an important bearing on the buying and selling of motor-cars, and should teach makers and agents to be careful in the guarantees they give outside the ordinary implied guarantees under the Sales of Goods Acts. If any other specific guarantees are given they may be used by claimants. Curiously enough the case in question took the turn it did from the favourable evidence given by one of the witnesses of the plaintiff. This gentleman averred that he got a De Dion voiturette last April, and in his evidence swore that he had driven it over 5,000 miles on Irish roads without any trouble. He also stated that he accomplished one run of 200 miles, and

only stopped once to oil up. His evidence impressed the judge and jury very much, and they seemed to hold the opinion that a good motor-car never went wrong. Therefore, when the plaintiff told of his wails and woes, they were naturally the cause of a comparison between the two vehicles. The fact that the plaintiff was quite a novice, whilst the owner of the De Dion was an expert did not apparently receive the attention it deserved when judging if plaintiff's car was defective in itself.

Avoiding Sheep.

A CORRESPONDENT of *Madame* has seen a young lady attempting to guide a voiturette on the Bath road, a young man, who was sitting beside her, meanwhile looking on with admiration. A flock of sheep appeared on the scene, and to avoid these the fair driver steered on to the path and finally upset her car in the ditch. This was fortunately not a deep one, and the machine appeared to be much more damaged than the passengers. Ladies must remember that motor driving requires practice, and also that sheep are not very dangerous animals. In fact, they are taking kindly to the automobile, if the following paragraph be true.

An Automobile Sheepfold.

ANOTHER application of the automobile to pastoral affairs is suggested from the United States. In fact, it is said to be in actual operation at the Agricultural Experiment Station of Michigan. A pen is provided fifteen feet square built of wire, and mounted on broad flat wheels. Wires connect it with a small motor stationed at one side of the pasture, this being connected with the electric wires from which power is derived. A turn of the button and the pen slowly creeps across the field. The field in which the machine has been tried is planted with lucerne, growing thick and heavy. The pen is so arranged that it crawls the full length of the pasture in one month, travelling about two feet an hour; at the end of this time it is switched around and travels back again. As it moves the sheep eat every bit of the fodder, eagerly cropping next the forward side of the pen as it runs over new ground. A bit of canvas duck is hung over the corner of the pen so that the sheep may be well sheltered, and, when the pen has passed, the lucerne that has been cropped by the sheep immediately grows up again, and by the time the pen has made its monthly circuit the pasture is again in good condition. The advantages of this electrical pen lie in the fact that the sheep are kept from running over, half eating and tramping down a large amount of pasture, and it keeps the sheep quiet, so that they lay on flesh rapidly. This sounds very captivating, and should be utilised by some M.P. interested in agricultural depression and anxious to make a mark in the House, or among the sheep.

Motor-Cars at Bournemouth.

IN a review of the past year the *Bournemouth Guardian* says: "The motor-car service began on January 1st, and has, without doubt, proved a decided success. It began amid considerable doubts and had to face a lot of ridicule, but now the value of this quick communication between the east and west, in so extended a town as Bournemouth, is generally appreciated. There have been no accidents worth recording, and it has been proved that motor-car traffic can be as easily controlled as any other. The police action in toning down the speeds on one or two occasions, though disagreeable to the owners, has, without doubt, had a salutary effect, but it is the proprietors of private vehicles that are the chief sinners, and called from the Recorder recently a powerful lecture on their iniquity generally. While all will not agree with the sinfulness of speedy motoring where the roads are clear, reckless driving calls for general disapproval." One of the Bournemouth motor-buses, built by the Motor Manufacturing Company, was on view at the recent cycle show at the Crystal Palace.

Horse-Breeding as Affected by Motor Traction.

IN the course of an article in the "Agricultural Annual and Mark Lane Express Almanac, 1901," Mr. E. G. F. Walker, of Chew Stoke, discusses the question of motor traction in its relation to horse-breeding, and asks, "Will this affect horse-breeding as much as some persons imagine? Will the motor be more disastrous to the horse trade than the steam engine of the railway? In some respects this most certainly must be answered in the affirmative. Prominent amongst these causes must be set down the conversion of horse tramways to electric tramways. By this means a consumptive demand of comparatively recent introduction has been removed from our midst. In times gone by the city cab horse ran on as long as it had a leg to stand on, and this leg was a long time wearing out. Then came the horse cars in our streets; the frequent stoppages and restarting soon tore the horse to pieces, and worn-out 'trammers' were only good for the knacker or else to return to the land." After considering various other features of this interesting problem, Mr. Walker remarks:—"In my opinion, despite the introduction of motor traction, there still remains a prospect of remunerative horse-breeding for the British farmer. The probability is that motors will increase slowly; low powers are not in favour, and increased power means heavier motors, and consequently, much greater initial expense. At present, the cost of motors places them out of reach of the middle classes. A decent cob and trap can be secured for £70, but it is not the very best motor-car that can be secured under £170, and high-class ones are much higher priced still; and very few care to invest in a second-hand motor-car with its attendant expensive upkeep. Whereas many can purchase and own a horse, it is confined to the few to be owners of mechanical motor power, and usually in the long run the majority wins, especially as the horse can do most of the things a motor can and several things that the motor cannot do. Therefore I believe in the horse for the future."

Horse v. Motor-Car.

OUR friend, who cannot disavow a partiality for the horse, says "the horse can do most of the things that a motor can." This is hardly fair, seeing that the motor-car can make journeys of over a hundred miles a day continuously and maintain a steady pace hour after hour, whereas the natural horse would soon tire. This difference alone is sufficiently great to secure for the motor-car the public favour which, if rather long in coming, is none the less sure.

Mr. Edge Interviewed.

MR. S. F. EDGE has been interviewed on the subject of the motor-car industry, and points out that in France there have been periodical long-distance trials since 1894, with the result that great establishments have been built up like that of Panhard and Levassor, who employ 1,800 workmen, and De Dion et Bouton, who have 1,400 men. Altogether there are 200 makers in France. Mr. Edge regards with pleasure the increase of price of English cars, for with that has come about an increased quality. In some types, he says, our productions are as good as the best of the French; in a few they are better. Every year the motor-vehicle improves in quality, and Mr. Edge suggests three ways in which England can be helped forward with regard to her position in connection with automobilism. Firstly, there must be an increased demand; secondly, an alteration of the law in regard to permissible speed, and thirdly, a fuller support by the public of companies formed for the manufacture of properly-accredited types of motor-carriages. In the course of the interview it transpired that the Napier cars to compete in the Gordon-Bennett race will be geared to travel at seventy-three miles an hour at normal speed, and 103 miles an hour at the top accelerated speed.

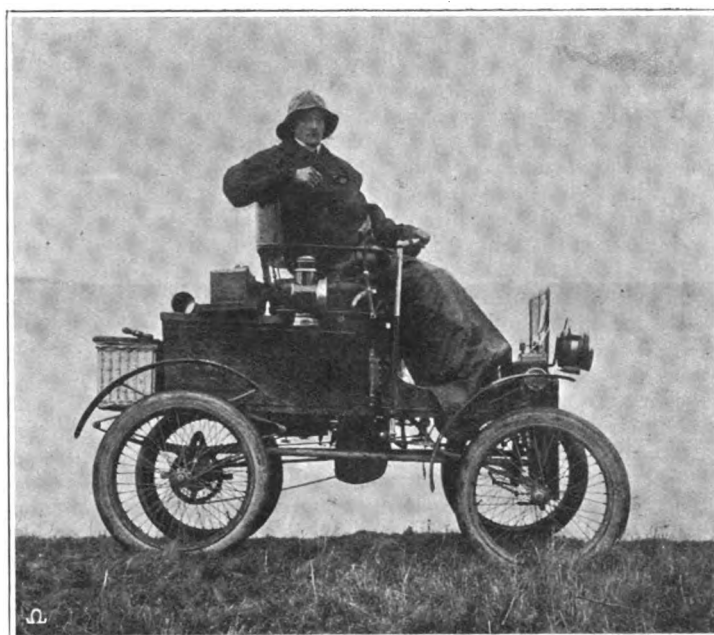
FROM END TO END.

AT the recent National Show I chanced to be talking to a visitor who seemed to think a steam car fit only for town work, and in trying to dispel this impression, I laughingly said that there should be no hesitation in undertaking a journey thereon from John o' Groat's to Land's End. Mr. Letts, who with Mr. Halsey is managing the business of the Locomobile Company in this country, and who had overheard this conversation, took the matter up, and in less than six hours from that moment it was definitely arranged that the journey should be made on a Locomobile. I left King's Cross by the night mail on Saturday, December 9th, and reached Wick safely on Sunday night. Next day, after some trouble in getting the car out of the truck, I steamed away to John o' Groat's. It was rather amusing, by the way, to see the driver of an enormous Caledonian express engine getting up steam for the sole purpose of shunting the truck containing my car into the siding. Arrived at John o' Groat's the car was housed for the night, and after poring over the visitors' book, in which I found the signatures of those who in years past had made the "End-to-End" journey on bicycles, I turned in. The weather was then quite fine, and I was very much disappointed to hear in the morning the wind whistling noisily.

We started out, but met with difficulty owing to the persistent "blowing back" of the fire, caused by the high wind. Not having had much experience with the steam car previously, and fearing damage to the fire-box, I decided to put back into shelter. Towards evening, the wind having lessened a good deal, I tried again, and though our progress was not fast, we continued on our way till we arrived at Latheronwheel, a distance of about forty miles, where we stopped the night. The next day we set out and encountered a wind of considerably stronger character than that of the day before, and as the road lay for the most part close to the sea we got the full benefit of it. We crawled on the best way we could, and presently reached the famous and much-dreaded Berriedale Hill. So much had I heard concerning the terrors of this descent that I maintained a very slow rate of speed whilst coming down it. Then came the ascent. I started with 180lbs. of steam showing on the gauge, but anticipating a sort of precipice I thought it wise to get Perkins, who was with me, out of the car. In fact, I armed him with a "sprag," consisting of a block of wood nailed on to the end of a short stick. The road winds in and out among the cliffs, and therein lies its chief danger, for it enjoys a somewhat undeserved reputation on the score of its steepness. After I had climbed about half a mile of the hill I took compassion on Perkins, who, from sheer fatigue, had fallen to the rear, and seeing a big stone at the side of the road, I partly closed the throttle and gently backed down until the driving wheel rested against it, when I waited for my companion to catch me up. He climbed into the car, and away we went again, finishing the ascent without any difficulty and at a very fair speed. We reached the two danger-boards at the top of the hill with 140lbs. of steam to our credit. The sheltered nature of the road had made the ascent much easier since the fire had full play, but once on the high ground our troubles came on again, until we began the long descent of the Ord of Caithness, where the cliffs offered some slight protection. Half-way down the hill we came across a small cairn of stones, above which was a solitary tombstone bearing the terse inscription, "Here perished Mr. Welsh; be ye also ready." History does not say whether he met his fate going "up" or "down" the hill, and its steepness warrants nothing but a guess upon the point. Our destination that night was Invergordon.

Next morning we set out early, and had by no means a pleasant drive along the coast towards Inverness. The heavy roads and the strong head wind had upset calculations with regard to the distance our store of petrol would carry us, and it finally gave out about a dozen miles from Inverness. The car was, fortunately, just opposite a small hotel in the village of Muir of Ord when this happened, so we ran it into the yard, and after telegraphing to Inverness spent the time very pleasantly until a couple of hours later, when a trap arrived bringing a fresh case

of petrol. We soon reached Inverness, and after purchasing a strong pail to facilitate the filling of our water tank from the wayside troughs which abound in that neighbourhood, we started out once more. By this time it was quite dark. The high wind was accompanied by heavy rain, and the roads were in a frightful condition. To make it worse, the next twenty-five miles were all up-hill, the road rising from practically sea-level to an altitude of a little over 1,300 feet. We took the wrong road at Moy, and found ourselves in the station yard, but were soon set right by the signalman, who came out to direct us on our way. Close to the summit we noticed a very curious crackling sound, which puzzled us a good deal, and it was not until we got down to fill our water tank that we discovered it was caused by the passage of the tires over a snow and ice covered road. It was a little difficult to get the water, as it only consisted of a very small stream a few inches wide and of no depth at all. We managed to scoop out a hole of sufficient size to allow us to get half a pailful at a time. When the tank was full and we got under way again, I soon noticed that the descent had begun. It was very pleasant to find that the car would run with the throttle shut at quite a brisk speed after the painful climb we had just completed. After about three miles



AT JOHN O'GROAT'S.—ON THE FRINGE.

of downhill, on rounding a corner we beheld, much to our joy, the Carrbridge Hotel, where we had bespoken rooms. The landlord was waiting for us and had begun to get a little anxious, as we were a good deal later than he had been advised we should be. He soon showed us where to stow the car, and then led us into as cosy a room as any weary traveller could wish to see. After supper he entertained us with many yarns concerning the famous riders who in years gone by had snatched what rest they could at his hospitable house on their way North. Next morning we were off at daylight only to find that the wind had increased, and the rain, though not quite incessant, was even more drenching than on the previous day. By the time we neared Kingussie it was blowing a regular gale. As we proceeded anxiety increased with regard to the petrol, which again seemed likely to fail. By the time we had made Dalwhinnie it became quite evident that we must get a fresh supply of petrol somewhere if we were to reach Perth. Perkins went on by rail from Kingussie to Perth, to bring back a sufficient quantity to carry us from Pitlochry, which place I hoped to be able to reach alone with what was left in the running tank. From Dalwhinnie to Blair Athol, a distance of twenty-four miles, there are practically no houses at all and nothing approaching a village. The road presents a good many

dangers at night. It is cut out in the side of the mountains and follows the course of the river, sometimes close to it, sometimes a hundred feet above it. There is no parapet to prevent one's running off the road, and there are many very sharp corners, in the rounding of which a good deal of caution has to be exercised. While travelling over this stage I met with a disaster which came near to ending my trip. Rounding a bend in the road, I saw in front of me a dark streak stretching right across the road, and a second later, by the light shed by my head lamp, I was able to make out a gap in the road. The only effect of the brake which I instinctively applied was to make the car give an angry swerve towards the edge of the cliff, and realising that I could not possibly pull up in time (I was travelling down hill at full speed), I devoted my attention to steering the best course I could. On reaching the gap the front wheels seemed to drop from under me as they went down. There was a momentary pause, followed by a frantic jerk, and the next instant the front of the car shot high into the air, balanced a moment, and then came down with a crash that nearly unseated me. Amazed to find myself safely past the danger I got the car under control, and then walked back to have a look at the cause of it. By the aid of the lamp I soon made out that a stream caused by the prevailing incessant rains had made a channel for itself right across the road, through which it was pouring. The next step was to carefully examine the car. Not much damage seemed to have been done by the violent shock it had suffered. All that was really apparent was that the frame tubes had become slightly buckled. Having set my mind at rest on this score I was soon under way again, and ran right through Blair Athole and out the other side before stopping to replenish my water tanks. I had done twenty-six miles and had still about half an inch of water left in the tank. From Blair Athole to Pitlochry is only a few miles, and it was not long before I drew up outside the post-office. Ascertaining that I could get benzoline sufficient to carry me on to Dunkeld, even if the petrol in my running tank should fail to carry me through, and knowing that there was a "motor man" in Dunkeld, I telegraphed asking Perkins to remain at Perth, instead of coming on with the petrol. On reaching Dunkeld a little later I found that Dr. Taylor was out, but I made bold to beg some petrol all the same, afterwards setting out for Perth, where I arrived at the Station Hotel earlier than I had expected, but had a good deal of trouble in getting the car stowed for the night. One rather amusing incident occurred outside the town. I had run short of water, and in exploring the private premises of the nearest house I was suddenly scared by hearing close at hand a deep growl. I carried out some very interesting experiments, which were very much facilitated by the possession of a ham sandwich. The result of these experiments was to prove that the dog's chain prevented it from reaching me provided I kept close to the hedge in passing it. I had to pass that dog a good many times, but fortunately the sandwich held out, and its successful application turned the growl with which I was at first greeted into a contented munching sound.

On leaving Perth (where I rejoined Perkins) in the morning, we had to face the roughest weather we experienced all through the trip. The rain came down in sheets, and I had occasion to bless my kind friend, Mr. E. W. Hart, of Luton, who, when he came to say good-bye to me at King's Cross, had insisted on lending me his wondrous waterproof cape. Verily, without it, I had been lost. We reached Burntisland about mid-day, and some hours afterwards arrived in Edinburgh, only stopping in the Scottish capital sufficiently long to fill up our petrol tank and stow creature comforts. That night we stayed at Carllops, and our host turned us out next morning at daybreak. We had not gone far on our road to Carlisle when we discovered that the balls of the back axle had escaped from the ball race, and were wandering about between it and the hub of the wheel. At the next inn we came to we propped the car up on a box, and while they were preparing lunch for us indoors we set about renovation. Finding that the cone was damaged past repair, I fished out a new one from the basket at the back of the car, and not thinking what I was doing slipped it on to the axle and pushed it into its

place without having first stuck the new set of balls into the ball-race. When I discovered my mistake and tried to get the new cone off I found that it would not move, and after spending a good deal of time in a fruitless attempt to dislodge it from the axle I gave it up and flung the balls over the hedge. We then filled the axle tube and ball-race with grease from injector, screwed the wheel on, and in this way travelled the remaining 600 miles on a plain bearing without any further trouble. At Gretna Green we filled our tanks at the last pump in Scotland, and a few moments later crossed the border, reaching Carlisle about nine o'clock in the evening. Next night found us at Preston, and the day following we journeyed without adventure to Bridgnorth. It was late when we got to this town, and not a soul was abroad. However, after shouting ourselves nearly hoarse we at last saw a man emerge from a house hard by. He said that the people in his house were ill and like to die if we continued our pandemonium. I told him that if he did not wish us to share their fate he had better direct us to the Crown and Anchor, and a little later we arrived there just in time to catch the Boots, who was on the point of starting for home. He turned back on seeing us and let us in. The next stage of the journey was to Bristol. One rather exciting adventure occurred on the way. We were about to pass a brougham, when, without the slightest warning, the horse, which had not shown the least fright at first, took it into its mind, probably, that our boiler was about to explode. Putting its head down and stretching out its legs, it sped past us like a flash, missing a telegraph post by about one-sixteenth of an inch. It was going at considerable speed, though apparently under some control, when we saw the last of it. At Bristol it was not easy to find a stable for the car, and it was late before we turned in that night. The next day, December 20, was one of the most boisterous days I have ever had the luck to experience.

The blowing back of the fire at last caused one of the fire-tubes to leak, of which fact we were warned by a popping sound emanating therefrom. I had much hope that, notwithstanding the bad weather, we could have got through the journey without changing the burner, and it was disappointing to have to replace it so near the end. Fitting the new fire-box took about an hour, and then we went forward again and did not draw rein till we had reached Exeter, where we stayed the night. We made up our minds to run from Exeter to Land's End without further rest anywhere, a distance of 120 miles, but the unfavourable conditions of the roads, the wind, and the hills, made it equal to twice the distance. We did our best, though our speed was by no means brilliant. When night came down we were just entering upon a very desolate stretch of road between Launceston and Bodmin. The car had been running very badly for the last few miles, and I had thought it due to tightness of the driving chain, and it was some time before we discovered that the real cause was the empty condition of the cylinder lubricators. When these had been replenished and properly adjusted, we had no further trouble and it ran its very best. That night we were compelled to wake up a good many sleepy householders in order to inquire our way, and were surprised on each of these occasions by the good nature displayed on the part of our victims. During the small hours I felt a terrible sleepiness creeping over me and at last, after several fruitless attempts to overcome it, and fearing lest I should go to sleep and allow the boiler to become scorched (a thing which would have been a terrible pity on the last lap), I decided to stop. So, the fire having been damped to give me ten minutes' rest, I fell fast asleep. Started once more, we reached Penzance about breakfast time. After a hearty meal at the Western Hotel we set about making arrangements for the shipping of the car to London, and then, when the photographer had been given sufficient start, we followed him out to the End, where we arrived about noon, thus ending a twelve days' journey through the worst and most persistent bad weather which it has been my lot to experience. No repair or adjustment was made to the engine proper from start to finish, and a plentiful supply of lubricating oil was the only attention it received from End to End. Doubtless I shall possess many another oil car, but there will always be a warm corner in my heart for the little steam

car that carried me so bravely and against such odds on this eventful trip.

N.B.—I have omitted to mention one trouble. I refer to the inability of the cross-head pump to keep pace with its work owing to the abnormally heavy load and the frightful conditions of road and weather prevailing. We had recourse on a great many occasions to the auxiliary pump, but this should never occur on fair roads and with an ordinary load.

HUBERT EGERTON.

THE RESULT OF THE FRENCH ALCOHOL COMPETITION.

IT was on October 28th last that the *Crétérium de l'Alcool* organised by the Moto Club of France, was decided over the Paris-Rouen route, a distance of 127 kilomètrés, and so laborious have been the succeeding analyses of the various alcohols employed by the forty competitors who succeeded in completing the course, and so intricate have been the calculations necessary for the classification, that the Club's technical committee only completed their labours last week. In the course of a very detailed and interesting report the committee remind the public of the elements on which they base their appreciations and the principal conditions under which the event was decided. These were—

Article 3. The competition will bear upon—(a) the consumption of alcohol for production of driving power; (b) the consumption of alcohol employed for other purposes, such as for burners, etc.; (c) the chemical composition of the alcohol employed; (d) the working of the motor and the regularity of the running. Speeds exceeding 30 kilomètrés per hour and 20 kilomètrés per hour in towns and villages will not be considered.

Article 4.—All self-propelled vehicles (carriages, voiturettes, and cycles carrying two people) will be permitted to compete.

Article 5.—The vehicles should have at least two seats, of which one will be reserved for the commissioner. They will be weighed at the finish and their reservoirs will be gauged at the start in such a manner that the commissioners will be able to control the consumption of fuel.

After dealing with the subscriptions and prizes received, the committee exposes its plan for their distribution to the successful competitors, and then proceeds to explain the system upon which the classification was arrived at. There is, first of all, the question of consumption. This was judged by the proportion borne by the total gross weight of the vehicle, when fully laden with passengers, fuel, etc., to the consumption of fuel. The number of *tonnes-kilomètre* obtained by a litre of fuel was calculated, and to the results ten points were awarded for every *tonne-kilomètre*. Then the formula applied was

$$10 \times \frac{W \times 127 \text{ kilomètrés}}{C}$$

W representing the weight and C the consumption.

As to the chemical composition of the fuel employed, the committee, bearing in mind that the essential object of the competition was to promote the use of alcohol in motors, adopted the following scale:—One point per one cent. of alcohol contained in the mixture employed; and the system has answered most satisfactorily. In connection with this point it is somewhat amusing to note that one of the forty competitors who finished the course does not figure at all in the official return, as analysis revealed the fact that the "composition secrète," as he styled the fuel upon which he made the trial, only contained four per cent. of alcohol. Perhaps, however, his motor had temperance principles. In making the classification for regularity of running the committee have disregarded all speeds exceeding 23 kilomètrés 225 mètrés per hour, and have awarded to each competitor attaining this speed 116.12 points, the calculation being based upon five points per kilomètre per hour. A penalty of one point for every minute of breakdown caused by motor or carburettor has been enforced, but, on the other hand, allowances have been made for time lost through causes other than these.

It is interesting to note that thirty-three competitors secured the maximum number of points awarded under this heading, and that, of the remaining six, four sustained long delays *en route*. I do not propose to quote the entire records made under the several headings by each of the thirty-nine competitors, but will merely give the leading cars in each class, previous to showing the final classification. In the matter of consumption the best records were as follows:—

Car.	Weight. Tons.	Fuel consumed. Litres.	Tonnes- kilomètrés.	Points.
Gobron-Brillié (No. 18) ...	1.279	15.00	10.826	108.26
Dietrich (No. 28) (carburettor Martha) ...	1.540	19.40	10.080	100.80
Gobron-Brillié (No. 11) ...	1.289	16.80	9.744	97.44

The leading Panhard representative's record was 9.562 tonnes-kilomètrés, entitling the car to fourth place. Under the heading "Composition of Fuel" four cars receive the maximum number of points, viz., 100, each vehicle having employed pure alcohol as fuel. These four cars are the No. 20, Bardon; the No. 3, Gobron-Brillié; the No. 37, Battaiellie tricycle; and No. 25, Impetus. The large majority of competitors used about 50 per cent. of alcohol to 50 per cent. of petrol.

Coming to the regularity of running, the wonderful speed made by the No. 55, 24 h.p. Panhard, at once attracts attention. All who know the route followed will appreciate the time of two and a quarter hours made by M. Giraud's car, for an average of 58 kilomètrés per hour over such a course takes a lot of doing. Following this performance there comes that of M. Girardot's Panhard, which averaged 45 kilomètrés per hour for the distance. The big Henriod and M. Schaeffer's Panhard tie for third place, their record being 41 kilomètrés per hour. And now, having given the leaders of each section, I have but to chronicle the general classification, which is as follows:—

	Prize.
1. Bardon ...	£40
2. Gobron-Brillié ...	20
3. Panhard and Levassor ...	12
4. Gobron-Brillié ...	8
5. Battaiellie ...	4
6. Vilain ...	4
7. Dietrich (carburettor Martha) ...	4

£90

This competition has undoubtedly opened the eyes of those interested in the automobile movement to the possibilities of the employment of alcohol in light-oil motors, and since the date of the trial the question has received the very serious attention of buyers and constructors alike. Here in France, where alcohol is a national product, the agricultural districts are showing considerable interest in the question, for the adoption of alcohol as the fuel of light-oil motors would open up for the farmer a new market for his produce. Little wonder, then, that this is the question of the day, and that the rural districts are manifesting an altogether unaccustomed interest in motor matters.

THE Dumbarton County Council has agreed to support the Fife County Council in its effort to secure the registration of motorists and cyclists.

THE Wheel Within Wheel Company is the name of a company which has been formed at Paterson, N.J., with a capital of £25,000, to manufacture carriages and automobiles.

LA FABRIQUE NATIONALE D'ARMES DE GUERRE, of Herstal, near Liège, inform us that they have entrusted Messrs. Cheswright and Cottam, 73, Queen Victoria Street, London, E.C., with the sale of their motor-cars in the United Kingdom.

THE Reyrol Motor Car Company, Limited, has been registered with a capital of £120,000, to acquire the business, goodwill, machinery, plant, cars, stock-in-trade, works, and assets of the Société des Automobiles, Hermes, Système Reyrol, Paris, and of the Yorkshire Motor-Vehicle Company, Vaughan Motor Works, Bradford; The North of England Motor Company, Aire Street, Leeds, and Manchester Motor Car Corporation Works, Victoria Bridge, Manchester.

CORRESPONDENCE.

CARBURETTORS FOR MOTOR-TRICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I regret delay in replying to several letters *re* my "disparaging remarks" on the triangular box form of combined petrol reservoir and surface carburettor. I have no desire to retract anything I have put in my article on the subject, but I strongly object to having my sentences twisted and their meaning exaggerated. As regards the risk of an explosion, I merely said that such a danger "exists," I did *not* suggest a probability or frequency of occurrence, merely a *possibility*. Two of your correspondents admit hearing or knowing of one or two cases; I have experienced another; therefore, it is somewhat unnecessary for me to further contest this point.

That there are one or, perhaps, two advantages in a surface carburettor properly constructed I freely admit, and I quite agree with Mr. Stocks that such a form as the "Ariel," in which there is a separate container in which the carburation takes place, is safe and superior in other respects to one in which the bulk of the liquid and vapour are in one box. Regarding his query as to whether the gauge discs were in their place at the time of the explosion to which I referred, I do not think they could have been properly so, otherwise I do not see how it could have occurred. My idea is that vibration had loosened the nut which held the clamping rings, and that owing to a leaky induction valve, small explosions, hardly noticeable, first took place frequently in the pipe between it and the discs until they became displaced, and then occurred an explosion which was decidedly and unpleasantly noticeable. It is obvious that, contrary to the statement of Mr. Charles Jarrott, electric ignition in this respect did not mitigate the chance of an explosion. Electric ignition is safe in as far as it prevents risk of a flare-up in the event of an upset or the spilling of petrol near the motor.—Yours truly, A. E. S. CRAIG.

MOTOR-CARS FOR MEDICAL MEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With all due deference to the opinion expressed by Mr. Truman, in the *Journal* of December 22nd, the motor wanted by a medical man is identical with that required by a commercial traveller (with the exception of a few minor details); both want a car that will go in all weathers, and all the time; that will stand wear and tear, and that is offered at a reasonable price. These requirements are what the trade has not been able yet to give us. It is not speed that is wanted, but lasting power, which is only to be obtained from good sound and honest work. Voiturettes are all very well to play with in dry weather, but are not fit to rough an English winter season. The car that is wanted is one possessing the following characteristics:—

(1) A good well-made 5 or 6-h.p. engine, water-cooled, carrying sufficient spirit and water to last 50 miles, without belts, which are affected by the weather, and if possible without chains. (2) Starting handle sufficiently near the seat, so as not to necessitate getting out of the car. (3) Good large solid rubber tires, artillery wheels, and easy springs (pneumatic tires are productive of unnecessary anxiety, which far outweighs the little extra comfort experienced). (4) Tonneau body, with movable brougham top or leather hood, cloth lined. (5) Levers so arranged as not to interfere materially with a good leather apron made to fit. (6) Tube and electric ignition, with wires thoroughly insulated, and lamps so fitted with electric lights to show red lights behind. (7) Three speeds forward and reversing gear. (8) Body sufficiently high from the ground to avoid catching dust in dry weather and mud in wet weather, and all machinery likely to be affected by the weather, dust, or mud, covered in; all parts easily accessible, and central lubrication.—Yours truly,

W. W. HARDWICKE, M.D.

THE WERNER MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—If Mr. Leonard will kindly refer to my letter of December 8th, he will see that I offered to ride thirty miles over

hilly Devonshire roads against a Werner without the assistance of pedals.

If he, or any other "expert," likes to take up this offer, I shall be pleased to meet him; but this appears to me to be a somewhat slender peg on which to hang a challenge to ride a pedalling race on the Brighton road. Apart from the fact that this road is not to be named in the same category with our west-country gradients, we all know that a pedalling road race never yet did more than show the strongest rider; and we also know the comparative results produced by pedalling a Werner bicycle and a roadster tricycle.

If, however, Mr. Leonard really desires a fair and square trial between a 2½ h.p. De Dion and a Werner of 1900 model (the latest model, the capabilities of which I do not know, is barred), he has only to accept the following conditions and I think I shall be able to oblige him very shortly when I am in town:—1. Chains off; 2. Route to be selected by me; distance not more than twenty miles; start not more than ten miles from London.—Yours truly, W. E. TESCHMAKER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having purchased an up-to-date Werner motor-bicycle three months ago I have found the machine everything it should be, with the exception of belt troubles. Could your recent correspondents give me a wrinkle as to what strap they use, and also where to get one? The V-shaped strap seems a failure, as it continually breaks at the joints. I should also be glad to know of any contrivance to reduce the noise that could be easily attached to the exhaust.—Yours truly, SIDNEY E. SILVERTHORN.

TUBE v. ELECTRIC IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In thanking Mr. Estcourt for his kind information *re* above, I want to ask what kind of burner he uses, the kind of oil it burns, the material of which his tubes are made, and also the makers' addresses. Would he kindly say if he uses a timing valve in conjunction with tube ignition? Coming from such an experienced source, I am satisfied that the above information will be very acceptable to a large number of motorists.—Yours truly, TWENTY MILES FROM THE RAILWAY.

QUERIES RE BELT-DRIVEN CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be glad to know if lacing a belt would be more advantageous as a fastener than the usual iron clips, which have repeatedly come loose, the belt being left on the road unknown to the driver of the car. I should also be obliged if any reader could inform me where to obtain belting suitable for a 3½ h.p. Benz car.—Yours truly, PERPLEXED.

THE 1,000-MILES NON-STOP RUN OF THE DECAUVILLE CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. Tregurtha allow me to say I have owned a motor for more than a year, and never found any frost about it. My carburettor is evidently sufficiently heated from the exhaust, but on large cars, as noted by Mr. Edge, it is necessary that it should be heat jacketed; and I have never heard of this before, nor seen anything of it in any specifications. I am exceedingly obliged to Mr. Edge for pointing it out.—Yours truly, AMATEUR.

MOTOR PATENT MATTERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The advertisement itself of the British Motor Traction Company would lead most of people to believe that the Motor Protection Society was a useful combination, and the correspondence in your issue of the 22nd ult. confirms that view. Mr. Ernest Estcourt will find that a carburettor patented some fifteen years ago by Mr. Ed. Delamare Deboutville, the inventor

of the "Simplex" gas engine that figured so largely in the Paris Exhibition of last year, cannot be beaten for the work that he requires one. Mr. Delamare Deboutville is a charming man and would, I feel sure, if he could not furnish a carburettor, give Mr. Estcourt the necessary information to get one made here.

Yours truly, CUSH.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was surprised to note in your last issue that my simple letter on motor patent matters seemed to be of such burning interest to the various gentlemen who have written to your paper on the subject. I have no doubt that a great deal they say on the subject is true, particularly when looked at from their own point of view, but really they have in many cases entirely misunderstood my remarks. My reason for writing the letter was in the first place to explain my personal position in the matter and not in any way to lead others to do anything against their judgment or inclination. Personally, from every point of view I believe in supporting good patents, or at any rate not indulging in the somewhat unsatisfactory pastime of breaking one's head against a wall.

The suggestions of some of your correspondents as to the amount of royalty that should be charged is interesting no doubt, and will, I suppose, have due consideration from the owners of the patents, but I venture to think the royalty value of the patents will be settled by the owners and not by the users. I hardly imagine it is the usual commercial arrangement for the buyer to settle the price he will pay for an article, but it is usual for a would-be buyer to refuse to purchase if he considers an article is far too dear, as seems to be inferred in this case. Surely under these circumstances they should discontinue to use patents the property of other people, or if they do use them in an illegal manner they should not complain if the proprietors of the patents issue legal proceedings against them. Mr. Estcourt's letter is interesting reading, and coming from him I must take it that all he states are facts; but, at the same time, I must say if this is so, his arrangement of these facts, no doubt unintentional, is somewhat misleading to the ordinary reader.—Yours truly,

S. F. EDGE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have noticed a great deal of correspondence in your paper in the last two or three weeks in reference to the British Motor Traction Company's patents; it seems to me that this looks very much like the case of the Dunlop tire over again. The Dunlop tire patents were disbelieved by everybody who thought they knew anything on the subject, and yet to-day they stand in an absolutely unassailable position. Looking at the value of the shares of the British Motor Traction Company, it seems to me that it would be cheaper for the trade to combine to buy these shares and run the company themselves for whatever it is worth, thus protecting themselves against foreign invasions, and at the same time reaping the benefits from the royalties of new companies.

I think if someone, who has been connected with the electrical business for the past few years, would speak, they would very quickly throw a new light on this question of patents that would probably be a surprise to some of the firms at present in the motor-car business. A rather well-known member of the Automobile Club, whose car recently won a prize for cleanliness, could give some information on patent matters that would be somewhat interesting to many of your correspondents.—Yours truly,

P. BRADSTOCK.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the various correspondence which appears in your issue of December 29th, Mr. Jarrott and Mr. Charles Osborne must think the motor-buying public are a set of greenhorns if they cannot see through their very poor proofs (if they may be termed such a name) of the honest, royalty-paying concerns. To take them in group as per the advertisement of

the British Motor Traction Company, will the secretary of that company kindly inform me through your columns if the following statement is not correct—that the Daimler Motor Company and the Motor Manufacturing Company are the offsprings of the owners of the said patents, and that all the others, the Napier, De Dion Syndicate, Motor Power Company, the Ariel Motor Company, and Panhard and Levassor for England are not all partly owned and directed by Mr. Du Cros, who is also part and principal owner of the British motor traction patents.

Without further going into details, Mr. Jarrott or Mr. Osborne would greatly oblige me and your readers, I am sure, if he would give the name of any individual manufacturing concern that is paying royalties in which Mr. Du Cros or the offspring of the Lawsonian group are not interested.—Yours faithfully,

C. FRISWELL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read the letters in your last week's number signed by Messrs. C. Jarrott and Chas. Osborne on behalf of their respective companies. Evidently, my letter, which appeared in your issue of the 22nd ult., has been misread. Your readers will recollect that my letter was in reply to one from Mr. Edge in which he quoted the names of several large French firms. What I wrote was "Mr. Edge has quoted the names of several large French firms in his letter. Can he inform us if it is a fact that not one of these is paying a royalty on the carburettor which is to-day the burning question between Mr. Edge's company and the public, and whether it is not a fact that the firm of Panhard and Levassor have refused to pay any royalty for using Daimler's patents, including the carburettor?" My question applied to France, this must have been obvious to everyone. I never for a moment thought of who was or who was not paying in England. It may, however, be of interest to state that for all practical purposes our own and the French patent laws are the same, that there is a Maybach patent in France and that 95 per cent. of French cars use carburettors, which are obvious infringements of this patent (that is, if the patent is a good and novel one), and that so far no one has attempted to stop them.

Yours faithfully,

W. D. ASTELL

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—My board have noticed a great deal of correspondence from motor-car users in the last issue of your paper which has arisen in answer to a letter written by one of our directors, in which he has set out his personal position in regard to this company and the patents owned by this company. My board venture to think that the idea of these various correspondents as to what constitutes a reasonable royalty for the use of the Maybach carburettor and other patents which my company control is one that must be left entirely to the owners of the patents to settle.

If these patents are of so little value as some of these correspondents seem to suggest, surely the common-sense view of the matter will be for them, after they have paid us the necessary damages, if we obtain the judgment of the law courts against them, to use some other type of carburettor, or some other method of doing these various things in connection with motor-carriages which my company's patents cover. My board hardly think that the infringer of the patents should become the assessor of the damages, and that seems to be the position that your various correspondents seem to wish to assume.

In regard to the Motor Trades Protection Association, Mr. W. D. Astell suggests, with what authority my board are unaware, that this society should agree to be bound by a verdict taken against the society on some infringement. Providing this society is sufficiently financially strong to bear the burden of a patent action my company will have great pleasure in falling in with Mr. Astell's suggestion, and my company are now waiting to hear from this society and the names of their solicitors, so that an action may be commenced.

In regard to Mr. Friswell's letter, surely his experience in patent litigation should make him aware that the proposition as

to the settlement of infringements must come from the person who has infringed, unless they are prepared to accept the terms laid down by the owners of the patents. It would, perhaps, be as well for me to remind your readers that Mr. Friswell at present has no manufacturing interest, but his chief business is the importation of unlicensed foreign cars, and moreover his judgment in regard to patent matters has not been a singularly correct one.

There is another very important point in regard to my company that seems to have been overlooked by every one of your correspondents, and that is, through their agreements with the original owners of the patents, such as Daimler, de Dion, Bollée, etc., they are entitled to all improvements which these firms bring out from time to time. This point has a greater bearing on the question of infringement than many people at present seem to realise. They must not imagine that my company only have one or two patents. If they do think this they will be very rudely disillusioned.—Yours faithfully,

FOR THE BRITISH MOTOR TRACTION CO., LTD.,
CHAS. OSBORNE, Secretary.

A MEETING is to be held in Birmingham on the 11th inst. to arrange for the formation of a Midland Centre of the Automobile Club of Great Britain and Ireland, and at this meeting an executive will be elected.

AT Aberdeen, last week, James Reid, motor-car driver, was charged with having, in Market Street, driven a motor-car recklessly and carelessly. Accused pleaded not guilty, but was found guilty, and fined 20s., the option being ten days in gaol.

THE International Motor-Car Company, Limited, has been registered with a capital of £1,000 to take over the business carried on by Mr. F. O. Seyd as the International Motor-Car Company. The registered office is at 116, Great Portland-street, London, W.

MR. J. H. PATERSON, of the Caledonian Motor-Car and Cycle Company, Limited, Aberdeen, has received his appointment from the De Dion-Bouton Foreign and Colonial Syndicate, Limited, London, as official repairer for Aberdeen and the north of Scotland.

THE MIDDLESEX MOTOR-CARRIAGE COMPANY, LIMITED, has been registered with a capital of £3,000 to acquire the business carried on by W. J. Colville at Station-parade, Willesden-green, N.W., and to carry on the business of cycle and motor-car manufacturers, &c.

"HECNUM," the non-corrosive metal invented some years ago, has been found to be a remarkable substitute for nickel, and several tests have proved that exhaust valves made from it answer exceptionally well, while their price being considerably lower is a factor which should make them very popular. Messrs. Brown Brothers, Limited, of Great Eastern Street, London, are sole agents for these exhaust valves.

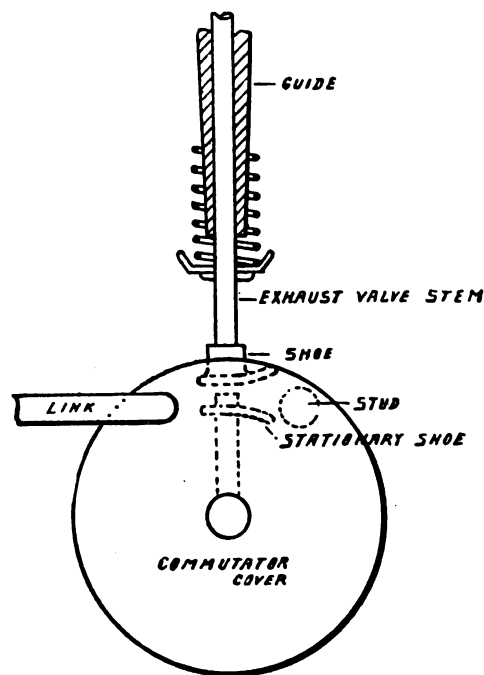
THE Steam-Car Company (House's System), Limited, has been registered with a capital of £10,000, to carry on the business of engineers, steam and other motor-car and accessory manufacturers, carriage builders, carpenters, joiners, rubber manufacturers, &c., and to acquire the option for the exclusive use of certain patents of H. A. House. The registered office is at 84, Chancery-lane, W.C.

THE Westchester Automobile Club is the name of a new organisation which has been formed by a number of well-known motorists in New York, many of whom own country seats in the northern part of Westchester and along the northern shore of Long Island Sound. The club purposes to establish supply stations for motor-vehicles on the country roads leading to the Ardsley Casino, the Knollwood Country Club and the Westchester Country Club.

THE Cambridge and Newmarket Autocar Company, Limited, has been registered with a capital of £2,000, to acquire the business carried on by H. A. Bedwell, G. C. Bedwell, E. C. Crisswell, and F. W. H. Hitchinson, at Cambridge, as the New Town and Newmarket Motor Company, and to build and deal in motor-cars, cycles, flying machines, launches, &c., whether worked by electricity or other power.

THE CREST EXHAUST-VALVE OPENER.

THE Crest Manufacturing Company, of Cambridgeport, Mass., a concern which is devoting considerable attention to the construction of small motors for motor-cycles and voiturettes, have lately introduced a new device for opening the exhaust valve on starting, so as to relieve the compression on machines that are started by pedals. An illustration of the device, for which we are indebted to the *Horseless Age*, is given herewith. The arrangement consists of a stud on the commutator box of the motor, and is so arranged that when the lever controlling the speed is operated to retard the spark, by moving the commutator box in a direction contrary to the direction of the motor, this stud passes under a foot on the exhaust valve stem and thus holds the exhaust valve open and relieves the com-



pression. An exhaust-valve opener is useful not only in starting but also when running down hill, for the exhaust valve can then be held open, so relieving and cooling the motor.

AMONG the papers announced for reading at the Society of Arts is one on "Some Experiences of Motor Bicycles," by Mr. Joseph Pennell, which is set down for the 6th February.

UNDER the title of Die Sudddeutsche Benzinwerke Gesellschaft, a company has been formed in Ludwigshafen on Rhein, Germany, for the purpose of making petrol for motor use. It is intended to produce it on a very large scale, and on a new system, which will, it is claimed, enable the makers to sell it cheaper than hitherto.

CALLING in at the London Autocar Company's dépôt the other day, Mr. Rush showed us a useful and interesting device of French manufacture he has lately put on the market in this country, in the shape of a water-circulation indicator. It consists of a glass tube, inside which is a white enamelled disc; the glass tube is arranged to be introduced in the water-circulating system between the pump and the engine in such a position on the dashboard that at a glance the driver can discern whether the pump is performing its appointed task or not. So long as the water is circulating properly the small disc, which works around a central spindle, will remain about the centre of the glass tube, but so soon as the circulation lessens in velocity it will begin to descend, and when the pump fails will fall directly to the bottom of the glass tube. In view of the trouble so frequently experienced by the owners of cars driven by water-cooled motors by reason of the obstinacy or failure of the water-circulating pump, the little fitting should meet with a large adoption.

HERE AND THERE.

WITH regard to the Automobile Club's offer to arrange for demonstrations of the reliability of motor-cars, it is probable that the first will take place next month at the invitation of the East Suffolk County Council. Another is in contemplation for Worcestershire, and others will be provided in any county where a month's notice is given. By the way, in connection with the forthcoming conference in London, it is probable that the Marquis de Chasseloup Laubat will read a paper on the speed question in France, where thirty kilomètres, or nearly nineteen miles, an hour has been fixed for the open country road, and twenty kilomètres, or twelve and a half miles, for towns.

WHAT the bicycle has done for the "press-the-button-and-send-your-negatives-to-be-developed" photographer, the motor-car will do for the photographer who prefers a stand camera with the necessary accessories. One of my friends is a keen photographer, whose paraphernalia weighs about twice the weight of a couple of St. Bernards. He regards the automobile as a splendid assistant in the pursuit of his art and his victims. There is no doubt a close connection with automobilism and photography, and the devotee of the motor-car already regards the camera as indispensable to the full enjoyment of a holiday. With its help scenes of ever-recurrent pleasure can be made permanent, while its effect on the industry is another point of importance, for by the aid of the photograph the public can be familiarised, and those automobilists who have sent out seasonable greetings made picturesque by photos of themselves and their cars have, in some way, contributed to the popularisation of the sport.

To describe the language of the man who has something go wrong with his motor-vehicle when about ten miles from everywhere, and who is unable to locate the cause of his trouble, is really impossible. But probably the following is about the most succinct account of his utterances on such an occasion:—
 "_____! * * * * _ _ _ _ _!! * * * * * _ _ _ _ _!!
 _ _ _ _ _!! * * * * _ _ _ _ _!!!! _ _ _ _ _ _ _ _ _ _!! _ _ _ _ _!! *
 _ _ _ _ _! _ _ _ _ _!! * * *"

Probably readers can supply their own keys to the foregoing.

It is impossible to ignore the close association existing between good roads and good vehicles. As the former are perfected the running of the latter will be improved and Macadam's axiom should not be forgotten by carriage and motor-car constructors. Road surveyors should also bear it in mind. "The making of good roads," said the great road engineer, "should be considered before carriages fit for them can be considered." In view of this the efforts of makers of vehicles—both mechanical and horse-drawn—deserve all the more praise.

WHEN a man gets a new car his friends consider it quite the thing to investigate every part and become inquisitive unto the most infinitesimal decimal or sparking plug. It is curious how the bicycle and motor fraternity feel a common interest in the other fellow's concern—a concern that is not always well appreciated, and a Boston motorist is said to have revived an old idea with a view to discourage those individuals who persist in fingering the various portions of the mechanism of his automobile when he leaves it standing by the curb. He has added a galvanic battery, which he has attached to the various levers. When he leaves his vehicle he turns on the current. The result is obvious.

A COMBINATION of goods transport with effective advertisement is now threading its way in and out of the London traffic. This is a motor-van, beautifully painted with panels in each side, upon which are reproduced the specialities of the H. J. Heintz Company on their packages, bottles, etc. On the top of the van is a large model of a gherkin illuminated by an electric lamp at night. This van is the second motor-vehicle owned by the

firm, the first having proved satisfactory after a trial of eighteen months. Both vehicles have been supplied by the Motor Manufacturing Company, Ltd., and the second van is capable of carrying a load of from 15 cwt. to one ton. Although motor-vehicles are becoming fairly familiar sights in our public thoroughfares, they are still sufficiently a novelty to cause their utilisation to prove exceedingly attractive advertisements, especially when designed in the form for which the Motor Manufacturing Company, Ltd., are responsible.

MR. F. S. WEROTTE has taken over the premises and plant of the Times Cycle and Engineering Works, in Upper St. James' Street, Brighton, and has re-started them as the Grafton Engineering Works. He has a good plant for motor-car work, and has facilities for the storage of vehicles. Keeping petrol, etc., in stock, Mr. Werotte is a man whom motorists visiting the southern resort may find it well to know.

THE Christmas mails of 1899 between Lincoln and the village of New York were carried by motor-car—as duly recorded in the *Motor-Car Journal* of exactly a year ago. The vehicle did the work well within the scheduled time, and was able to do what in the ordinary way would have required five mail carts with horses and drivers. The success of the experiment warranted the postal people continuing the motor-service as a regular thing, but that was not done. Recognising, however, the abnormal traffic of Christmas time, the Lincoln authorities again requisitioned a motor-vehicle from Messrs. Gilbert and Son, Ltd., during the recent Christmas season. Previous success was repeated; everything was got through in record time, and there was not the slightest hitch. Seeing that on both occasions the authorities were well satisfied, the wonder is that motor-vehicles are not allowed to become a recognised feature of the regular postal service.

ACCORDING to the *Financial News*, "faith in the ultimate usefulness of the motor-car is demonstrated by the many more or less important registrations in that particular industry." Certainly there have been a good many motor-car companies registered during the past month or two, and, seeing the hostile attitude of the financial press in the past, we must be grateful for even this halting recognition.

DR. GORDON STABLES, who recently wrote asking for advice with regard to motor-cars, may be interested in the fact that Messrs. Marshall and Company have just completed a motor touring caravan which will probably be on the road by the time these lines appear in print.

AT an automobile auction sale in Paris, an electric "run-away" has been put up for sale. The motor-car that proves obstinate at times, the vehicle that won't go, and the American "runabout" I know, but the "runaway"—what is that?

EVER watchful and wakeful, it would seem that the United States is before this country with regard to an automobile racing track—a matter that has been frequently advocated in these columns. From Newport comes tidings that before the summer season arrives an automobile track will have been built there for the use of racing and other motor-vehicles which will be used by the millionaire owners in Newport during the summer. Colonel John Jacob Astor has gone in for racing, and will have three machines there ready for track work. When the season opens there will be several attempts made to break the automobile records between Newport and New York, and in various other ways activity is promised. It is to be feared, however, that the intended track will be a rather exclusive affair, and that it will not be on the broad lines that would be a necessary condition of success in this country.

LOLLIUS.

MESSRS. R. M. WRIGHT AND CO., of Lincoln, the makers of the "Stonebow" car, are, we learn, at work on a new type of motor-bicycle. They have also been appointed sole district agents for the De Dion and Progress voituresses.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

Passing an Examination.

THE method adopted by M. de Lorme of Orléans, in the course of his examination as *chauffeur* on the 23rd ultimo, cannot be recommended to aspirants of drivers' honours; indeed, I will go so far as to say that its adoption would in every case be detrimental to the success of the candidate. When on the dreaded day the examiner takes his seat beside you it is but politic to show yourself solicitous of his welfare, and not to project him violently from the car, as did M. de Lorme. The Orléans candidate must have had somewhat confused ideas of what was expected of him, for not content with the roadway he directed his car on to the footpath with so rude a shock that the examiner was simply bumped out of the vehicle. Has any aspiring automobile driver ever done the like? I fancy not, but if one exists, his motor aspirations doubtless came to an end with the achievement. As for M. de Lorme, he probably awaits the recovery of his victim before submitting himself for a further examination. Do you think that he will receive his *brevet*?

A Municipality's Neglect.

As the result of the December rains a sort of fissure made its appearance on the main road at Antibes, in the south of France, and unmarked by the local authorities, it brought about a nasty accident to M. Mrozwicki, a well known automobilist of Nice. Mounted on a 3 h.p. tricycle and travelling fast, it was not until within close proximity to this fissure extending right across the route that the *chauffeur* perceived the danger. Quickly springing from the saddle M. Mrozwicki escaped scatheless, but his machine came hopelessly to grief in the hole, which measured nine feet in width by three in depth. It seems incredible that such a danger to the public was left unrepaired and even unmarked, and that, too, after many complaints had been addressed to the authorities. It is the intention of M. Mrozwicki to claim damages, and I wish him luck in his endeavour.

The Union Automobile.

So the new Moto Club of France no longer exists! That is, so far as its name is concerned, for the committee have not failed to impress upon members that if the original name disappears the original programme remains, and that under the new title of "Union Automobile de France" the society will carry on its work of promoting the welfare of the industry in exactly the same manner as it has done since the day of the famous scission from the A.C.F. But why the change, you will ask. Well, the committee say because the term "club" does not correctly represent the society, because Moto Club too closely resembles "Auto Club," the telegraphic address of the big society, and because there are too many Moto Clubs. To these another reason may be added, and that is the too English-like style of the title. All sound reasons, I think you will agree, but the best of all, and one not given prominence, is the fact that a Moto Club already existing in Paris the new society has no right whatever to the name. When one learns of this, the other reasons sink into insignificance, and one is tempted to ask why they should be mentioned when there exists another so powerful. But there it is, and since Wednesday, December 17th, the Union Automobile has commenced an existence which will, it is to be hoped, do much to advance the prosperity of automobilism. Let the Union work conscientiously for the whole movement, and nowhere will it find heartier approbation than at the A.C.F., but if its existence is simply to be devoted to antagonism with the older organisation then it will receive but scanty consideration. I am bound to admit that as the Moto Club it kept studiously aloof from any such proceedings and worked energetically in the interests of the industry. May it always continue to do so!

Petrol Cabs in Paris.

I NOTICED in an English paper the other day an article dealing with the recent strike of the drivers of the small red cars which are familiar to every visitor to Paris, and it surprised me to learn that during the exhibition the men earned from 120 to 150 francs per day. Even under the depressing conditions now existing it would appear that these fortunate *chauffeurs* clear about a pound a day, and yet they actually strike for a reduction of five francs per day on the hire of their car. That is, they wish to pay daily ten instead of fifteen francs. As the profits quoted seemed to me considerably exaggerated I questioned one of the men, whom I know, and from him had a somewhat different version. To-day with the prevailing weather the open cab, such as the little red Peugeot, cannot be hired out, and those *chauffeurs* courageous enough to take their cabs return to the *garage* in the evening usually without having gained a sou. With the covered vehicle, such as the company is actually preparing, business can be done, but with the present car it is out of the question. During the Exhibition there were days when £6 and £7 were earned, but these were counterbalanced by the time lost on repairs. The driver paid the full day to the company if he took out a car, no matter whether he was struggling with repairs all day long. These *pannes* were frequent, for the cars are lightly built and the treatment meted out to them is not always of the most careful nature. My informant charged sixty francs per day for the hire of his car, or ten francs the first hour, eight francs the second, and as he paid the company only twenty francs, he could, with luck, make a big sum for his day's work. But the *pannes* were the difficulty, and by the end of the Exhibition the men's net gains were nothing out of the common. Such at least is the men's version, and I think that it about represents the actual state of affairs.

The New Tax in Paris.

PARISIAN automobilists resent strongly the action of the Municipal Council, who, at a recent meeting, definitely decided to impose upon all self-propelled vehicles *de luxe* a tax equal to that already imposed by the State. Thus at one fell swoop the total sum payable on an automobile is doubled, and instead of the following tariff

Motor-cycles: One place, 12 fr.; two places, 24 fr.
Carriages: Two places, 60fr.; exceeding two places, 110 fr.
this one is in force as from January 1st—
Motor-cycles: One place, 24 fr.; two places, 48 fr.
Carriages: Two places, 120 fr.; exceeding two places, 220 fr.

The reason of this augmentation is that the *octroi*, or city dues, upon certain goods entering into Paris has been suppressed, and the councillors are therefore busily engaged upon finding new channels through which to make good the deficit. Of course, one of the very first things they stumble across is the unfortunate automobile, and as all motor men are rich, and the self-propelled vehicle is an *article de luxe*, the council quickly decide to make the new industry carry a portion of the burden. But what those interested in automobilism are enquiring is, how are the authorities going to define the vehicles *de luxe*. I am strongly of opinion that with but very few exceptions all owners of cars will be required to pay the new tax, for the collector will be hard to convince of any motorist's right to exemption. It is said that the carriages of commercial travellers, doctors, and solicitors, in addition to those used by commercial firms for business purposes, will not be taxed, but it is obvious that it will be no easy matter to draw the dividing line, and that if the collector errs in judgment it will not be on the side of the automobilist. No, the question as to what constitutes a carriage *de luxe* and a carriage of utility is a very nice one, and to my mind the distinction is an impossible one. When the good, kind councillors talk of it their idea is merely to sooth motor-men in their first outburst of indignation, but in actual practice all private owners will feel the effects of the new tax. Moreover, the official text of the council's resolu-

tion makes no mention of *de luxe* in relation to motor-vehicles, the words only appearing in connection with horses, and the collector can best act upon this. Obviously the verbal declarations of councillors are valueless under such circumstances, so Parisian motorists one and all can resign themselves to bear their portion of this new infliction. Oh, the poor motorist! What inflictions he has to submit to. Will they never end?

List of Mechanics.

WITH the advent of the season in France the demand for capable mechanics will greatly increase, and as in previous years the *garages* will be besieged with inquiries for suitable men. But these establishments are seldom anxious to furnish the owner with a thoroughly competent man, generally preferring to retain him for their own use, and the automobilist finds it necessary to search high and low for his *chauffeur*. It is in order to facilitate this search that the new sporting daily, *L'Auto-Velo*, proposes to publish a weekly list of drivers seeking employment, and of owners desirous of engaging men. It is a happy idea, and one sure of a cordial welcome from master and man alike. Oh, those long wearisome searches for a driver, which I, in common with hundreds of other automobilists, have made, and which might have been diminished by half, had the proposed list then been even in existence. Nothing is more worrying than a protracted search of this kind, but now a glance at the list will acquaint one with the names, addresses, and qualifications of the men at liberty, and simplify the work enormously. If the *Auto-Velo* could at the same time hit upon a practicable plan of augmenting the number of competent men, motorists would be doubly grateful. This is the great difficulty, for the supply of good drivers is extremely limited, and, aware of the fact, the men are exorbitant in their demands. With an increase in their ranks the mechanics would find it necessary to moderate their conditions, and the result would be that many people who find the extravagant cost of a man the great drawback to the use of an automobile, would purchase a car. Then strenuous efforts should be made to ameliorate this condition of affairs, which is so prejudicial to the industry.

MESSRS. PANHARD AND LEVASSOR, of Paris, are reported to have a new type of petroleum-spirit motor on the stocks.

To the last number of the *Journal* of the Camera Club Mr. J. H. Knight, of Farnham, contributes an article on "A Three Days Run on a Motor-Car."

At the Otley Police-court last week, Mr. Graham White, of Bradford, was fined 2s. 6d. and costs for driving a motor-car without lights at Baildon, on December 13th.

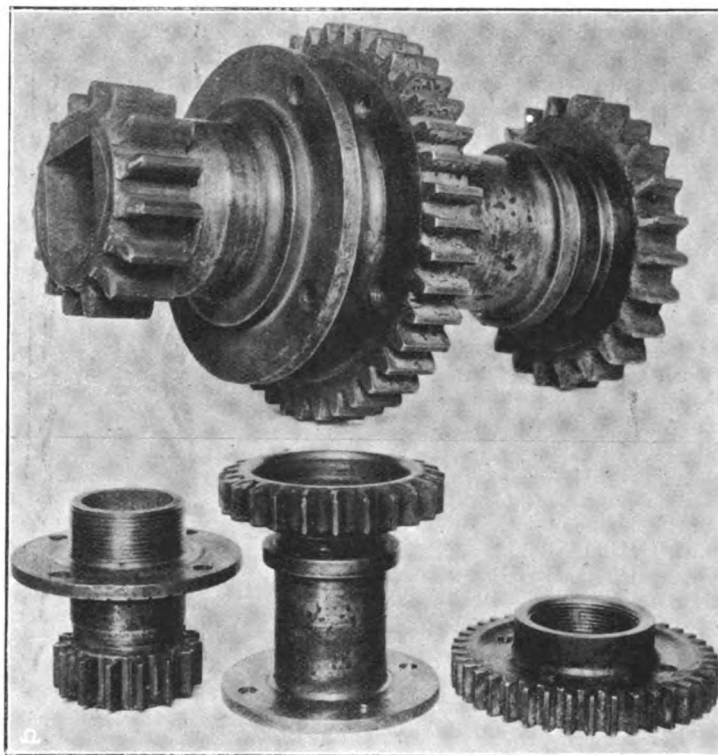
THE Automobile Club de Nice have sent us a copy of the programme and regulations of the "Nice week," which will extend from the 24th to the 29th March. The programme is quite a bulky book, extending as it does to over eighty pages.

THE Walters Motor Syndicate, Limited, is the name of a concern which has been registered with a capital of £5,000, to manufacture, let on hire, and deal in motors, cycles, carriages, and launches, and to carry on the business of mechanical engineers. In a recent issue we made a brief reference to the Walters motor, and illustrated a launch to which it has been fitted.

PASSING along Long Acre the other day we called at 48 and 49, where the Automobile Manufacturing Company, Ltd., is making a good display of motor-vehicles. The premises seem admirably adapted for the purposes of the business, and in addition to a splendid basement and a lofty ground floor comprise two upper stories—all well lighted for show-room purposes. The premises have a good depth, giving accommodation for about thirty cars on each floor. In addition to the large assortment of motor-vehicles—Darracq and Savoy voitures, Cleveland cars, Delahaye and Richard cars with various bodies, etc.—the company have a complete collection of accessories. We understand a new steam car is almost ready, and that business has been exceedingly active.

AN IMPROVED PANHARD VARIABLE SPEED-GEAR.

USERS of Daimlers and other cars fitted with Panhard type of gearing will be interested to know that the third speed can now be renewed on the sleeve, and that the sleeve need not be thrown on the scrap heap when the first and second speed are in good condition, as hitherto. The accompanying illustration shows a method of renewing this speed which has been devised by Mr. C. H. Gilbert, of Messrs. Gilbert and Son, Limited, of Lindum Works, Lincoln, and which this firm has adopted for the past twelvemonths with great success. It will be seen from the illustration that when once the sleeve has been altered the third-speed ring can be replaced as easily as its fellow on the top shaft. The system is well worth the attention of managers of public service companies and all large users of cars, as a great saving in cost of running is claimed to be



effected. We understand that some sleeves which have been treated in this way have been in use twelve months on hire and public-service vehicles, and have given entire satisfaction. The new wheel is made from a mild steel forging and is case-hardened.

THE Automobile Patents Exploitation Company has acquired the American rights, under the "Lifu" steam vehicle patents, of Mr. Henry A. House, of Bridgeport, Conn.

WE learn that the United Motor Industries, Limited, 40, Holborn Viaduct, E.C., have opened a free registry of motor drivers. Any drivers seeking engagement can send their names and qualifications, with rate of wages required, to the company, and they will keep a record of these particulars free of charge. This register is placed at the service of any automobilist on the look out for a driver, and whether he secures a driver or not there is no fee of any description to be paid.

READERS are reminded that the English Motor Club's run to Brighton starts to-day (Saturday) at 1.30 p.m. from the Westminster Bridge end of the Embankment, and that the route is via Mitcham Common, Wallington, Coulsdon, Crawley and Hickstead. All automobilists are cordially invited to join in the run. The headquarters at Brighton will be the Star and Garter, where dinner will be served at 8 p.m. The return is on Sunday, but there is no fixed programme as to the time of starting.

MOTOR-TRICYCLES.—SOME DEFECTS AND REMEDIES.

By A. E. S. CRAIG.

(Concluded from page 693.)

THE radiating ribs in air-cooled motors—which are well worth discussing, at all events, for tricycles and voiturettes—if not looked after soon become very rusty and choked with mud and grease in places. This is very detrimental to the cooling, and consequently the efficiency of the motor, and should be guarded against by well brushing the interstices with a stiff brush until clean, and then if blacklead is applied it will not only improve the appearance of the motor, but will considerably assist radiation. The coating of blacklead should not be polished; merely worked on with a painter's "sash tool" or similar brush, after being made into a thin paste.

The interruption of current through breaking of wires carrying it, or terminals shaking loose, is often more frequent than pleasant, especially in tricycles that have been run some time, and in which the vibration has rendered the wires brittle at sharp turns and near terminals. The best remedy is a new set of wires, but a method I have adopted for connecting them up has, I think, one or two advantages. To the ends of the wires I solder split pins, through the eyes of which the ends of the wires pass, and are turned back and twisted before soldering. The split pins are then sprung open a little and are electro-coppered. The terminals I drill with holes, which the split pins can be forced tightly through. I find joints made in this way never shake out, are quickly fastened and undone, prevent wires breaking near terminals, and do away with all clamping screws which might shake loose or break in tightening. Accumulators should have their terminals greased; this will not interfere with contact, but will prevent corrosion. Small accumulators are easily spoiled by having too large a current put through them in charging. The correct rate should be ascertained from the makers, and a label stating it attached to the cells when sent to be re-charged at a new place.

The excessive vibration and jolting of motor tricycles over rough roads militates against their adoption by people who desire a certain amount of comfort on their travels. To reduce this by means of enormous pneumatic tires would give a tricycle an undesirable appearance, and unless, even then, they are only partially inflated the result would not be attained, and in no case are worth the weight and cost. The only remedy that will have the desired effect is the insulation of the frame from the rear axle by means of springs. This, of course, involves a certain amount of initial expense, and, it may also be objected, complication. These would, however, in time be repaid by the longer life of the tricycle and the reduction of the repair accounts.

The saddles at present fitted are too much like those used for cycling. What is required is a light, springy seat, with little or no peak, and a back-rest at least 15in. high, so that one can lean against it when required. This combination need not be by any means heavy if properly designed. In conjunction with this I advocate the abolition of the ordinary bicycle handle-bars and the substitution of tiller steering brought conveniently near the rider, and on which all the necessary control levers can be mounted. Some

people may say, "Why not have a voiturette instead of making a tricycle more comfortable?" My reason is that a tricycle is the motor-vehicle reduced to its simplest practical form, the most convenient as regards size and weight, and capable of being produced at a little over half the cost of a four-wheeled voiturette. For although undoubtedly prices of these latter will eventually be considerably reduced, the same remark applies to the tricycle in proportion.

To prevent the constant shedding of bolts and nuts through vibration, sometimes with serious results, all screws should be provided with either a lock nut, split pin, or other efficient preventive, according to the position and nature of the joint; this is done on first class motor-cars where the vibration is comparatively slight; why not on tricycles? Sometimes a lot of noise is occasioned by the aluminium box covering the gear wheels, but it is a great mistake to remove this and run the pinions exposed to mud and grit. The casing is of necessity made a close fit to the wheels sideways, and therefore the slightest warp in the casting or side motion of the large pinion causes considerable noise. The only remedy is to take the case off, find out exactly where the point of contact is, and ease the case at that point. I think it would be an advantage in at least two respects if the sides of this casing were made of celluloid. Another cause of noise is the fitting of a fresh small pinion; this is

often very "talkative," and can only be cured by careful adjustment of the mesh, usually by lessening the depth of contact.

Holding open the exhaust valve going down hills is better in theory than in practice. The object sought is, of course, to relieve the compression, and at the same time cool the motor. The compression is effectually relieved, but the air drawn into and expelled from the cylinder alternates between it and the heated exhaust box, often charged with a certain amount of dust and loose char. Of course a certain portion of fresh air is drawn in, but the cooling effect is retarded, and is nothing

like so rapid as it would be if the motor were made to draw in cold air direct, filtered through fine gauze.

Free motors for tricycles are undoubtedly a step in the right direction, and will, I think, dispose ladies and others who cannot stand the strain of starting the fixed motors to try to manipulate them. When, nearly two years ago, I suggested the desirability of free motors for tricycles, I was told that they were an "unnecessary complication." The band is playing a different tune now.

THE Locomobile Company of Great Britain, Limited, has been registered with a capital of £100 to manufacture and deal in vehicles (whether worked by animal traction or by steam, oil, electricity, or other mechanical power), motors, motor-cars, cycles, etc. Registered without articles of association.

For young engineers and amateur mechanics Mr. Percival Marshall has prepared, and Messrs. Dawbarn and Ward, Limited, have published, a useful little work entitled "Practical Lessons in Metal Turning." Some idea of its scope may be gleaned from the headings of the various chapters which deal with tools and tool-holders, measuring appliances, chucks and mandrels, how to centre work for the lathe, driving work between lathe centres, turning work between centres, chuck and face plate work, drilling and boring in the lathe, and screw-cutting.

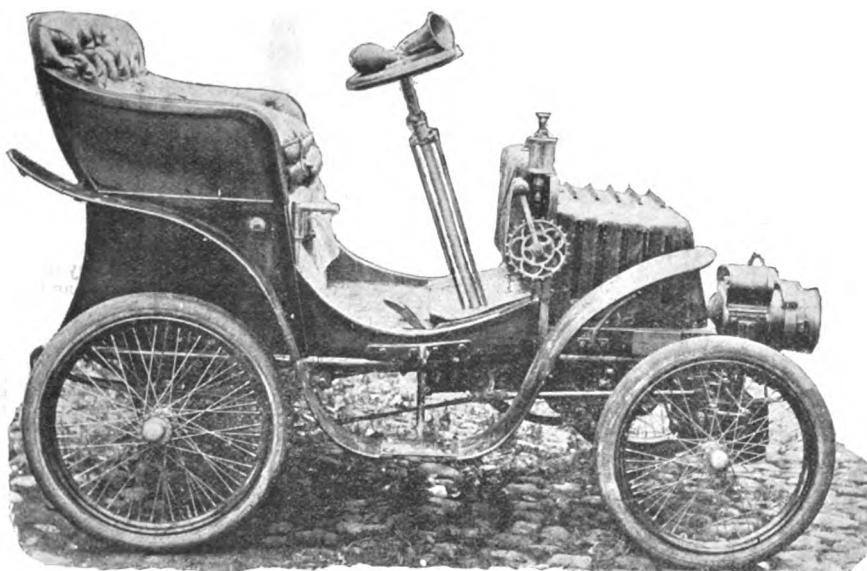


FIG. 1.—GENERAL VIEW OF THE SIMPLEX VOITURETTE. (See opposite page.)

THE SIMPLEX VOITURETTE.

HEREWITH we publish an illustration of the Simplex voiturette, which, after many experiments, has lately been put on the market by Messrs. Ernest Hutton and Co., Limited, of Ohm Works, Northallerton. The frame of the car, which is built up of steel tubing, carries the whole of the motor and transmission gear; the body, being thus entirely independent, can take any desired form, the makers offering a choice between two, three, or four seated designs, while it can also be fitted with a parcels-van body for light delivery purposes.

The motive power is supplied by an M.M.C. De Dion 5 h.p. engine; this is, of course, of the water-cooled type, the circulation being maintained by a pump. A large radiating coil is fitted below the motor in the fore part of the frame. The engine parts are of ready access, the bonnet being so arranged that it can be quickly detached when necessary. A De Dion float-feed carburettor is employed, while the handle controlling the electrical ignition is conveniently located on the steering column. Another usual feature is the provision of an arrangement whereby the engine may be started from the driver's seat; this consists of a handle attached to the side of the dashboard and connected by a free-wheel clutch and chain gearing to the engine.

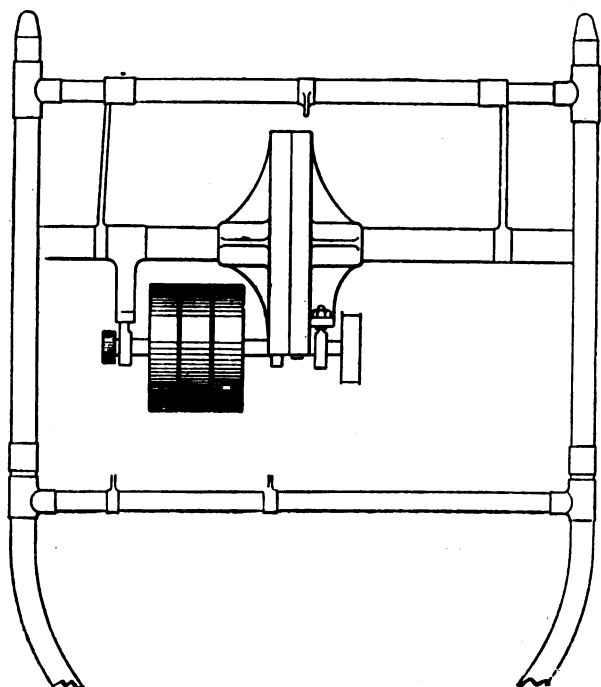


FIG. 2.—PLAN OF REAR PORTION OF FRAME OF SIMPLEX VOITURETTE.

As regards the transmission, two speeds are, it may be mentioned, provided. The engine shaft carries at one side a wide belt pulley, which is connected by a single belt to a small countershaft at the rear (Fig. 2). This shaft carries three equal-sized light wood pulleys, the two outer ones being fast and the central one loose. The inside fast pulley is not mounted direct on the countershaft, but on a hollow shaft surrounding the same. On the inner end of this hollow shaft is fixed a small pinion. The outer fast pulley is keyed on the countershaft proper, at the inner end of which is fixed another small pinion. The pinion on the countershaft is of a different size to that on the hollow shaft; they are located, however, side by side, and each meshes with a corresponding spur wheel fixed around the differential gear on the rear live axle. Thus, by shifting the belt on one or other of the two outer pulleys the high or low speed can be readily obtained, while, when the belt is placed on the central loose pulley, the engine is cut out from the driving gear. The pinions and spur wheels on the countershaft rear axle are enclosed in an aluminium grease-containing case, while provision is made for taking up any slack of the belt from the driver's seat.

Inclined hand-wheel steering is provided, while a small press-the-button switch is fitted on the same, by means of which the electrical circuit can be instantly broken when riding through traffic, etc. The road wheels are of the cycle type, and these are fitted with Dunlop pneumatic tires, while two foot brakes acting on the back axle are provided. The car complete weighs between five and six cwt. Although it has only been on the market a few weeks it has attracted considerable attention, probably by reason of its excellent performance in the Hindhead Climb in the recent run to Southsea, when, with two persons up, an average speed of 15.2 miles per hour was attained. Among those who have already ordered Simplex cars are Mr. J. Hargreaves, of Norwich, a gentleman well known in automobile circles, and Major Bower, Chief Constable of the North Riding. We trust that the example thus set by the latter gentleman in becoming a *chauffeur* will be followed at no distant date by many of his *compères* in other parts of the country.

FURIOUS DRIVING CASES.

AT Wilmslow Police Court, last week, Mr. Percy Prestwich, of Pendleton, was charged with driving a motor-car at a furious rate at Wilmslow on the 18th December. He pleaded not guilty. Inspector Robinson deposed that shortly before four he was in the Wilmslow Police Station, when he saw the defendant on a motor-car. He was coming down Grove-street at a great speed, and when opposite the Police Station there was a smash. He was going at the rate of 16 or 17 miles an hour. Witness was looking through the window, and before he had time to get out the car ran against the kerbstone, and the two wheels on the footpath side, after grinding against the kerb for about ten yards, collapsed and became quite a wreck. If defendant had gone a few yards further he would have run over a child in a bassinette. Witness spoke to the defendant, and he replied that the machine had skidded. Witness, however, pointed out that there was no sign of skidding on the road. Clerk: You have no doubt as to the speed?—I never saw any machine go so fast before. Mr. Levi Brown, builder, Wilmslow, said he was in Swan-street when the car came round from the direction of Grove-street. He never saw any conveyance go so fast except that it was a runaway. Clerk: Can you judge as to the speed?—No. But you say it was going faster than any carriage?—Yes. Defendant denied that he was travelling at the speed mentioned. He sounded the horn, and he was not going more than 8 or 10 miles. The chairman (Mr. E. H. Greg) said the point where the accident happened was a dangerous one, and drivers should have the good sense not to travel at a high rate of speed there. The Bench looked upon the case as a bad one, and defendant would be fined 40s. and costs.

AT the Lambeth Police Court, on January 1st, William James Twigg, of Denmark Hill, answered to a summons for furiously driving a motor-car in Norwood Road. Police-constable Grayling, 301 P, said the defendant shot past him "like a flash of lightning," and when near Thurlow Park Road, applied his brake so suddenly that the motor-car swerved round and very nearly knocked down a lady who was alighting from a tramcar. He estimated the defendant's speed at fifteen miles an hour. The defendant said the statement was ridiculous, his pace was not more than six miles an hour. Mr. Hopkins: Which is probably slower than the tramcar. The defendant: The tramcar runs at five miles an hour. Mr. Hopkins: But a man can walk at that pace. There is a good deal of reckless driving of motor-cars, but I should be sorry to convict the defendant merely because one is prejudiced through this. The summons was dismissed.

LONDON ELECTRIC OMNIBUS COMPANY.

THE report for the period of November 30th states that the efforts of the present board have been entirely devoted to the object of placing the company in such a position so that a definite and feasible working scheme could be submitted to the shareholders. The future existence of the company now depends upon the response received to the circular dated December 18th. This circular states that in the opinion of the directors electricity as applied to street traction (except as regards tramways) has not been developed sufficiently to warrant their advising the shareholders to experiment further with it, but they consider that a system of street cars capable of carrying fourteen passengers could be made a success. If a sufficient number of shareholders agree it is proposed to reconstruct the company, the shareholders receiving one £1 share in the new company for every share held in the old company, the new shares having a liability of 5s. per share.

The fourth ordinary general meeting was held on Tuesday. Lieut.-Colonel Thomas Turnbull, managing director, presided, and, in the absence of a quorum of shareholders, moved the adjournment of the meeting till that day week, at the same place, at 2 p.m. Colonel Lewis seconded the motion, which was carried. The chairman subsequently referred to the circular which the board had issued suggesting a scheme of reconstruction. He said that although electricity, as applied to heavy

omnibuses, had not yet been sufficiently developed to warrant the company undertaking further experiments, the board believed that a type of street car to carry fourteen passengers, suitable for London streets, could be procured for about £450 each. The directors had devoted a great deal of attention to the matter and felt sure that such cars could be run on a commercial basis. He reminded the meeting that the company's financial resources were practically exhausted before he joined the board, and said that, if the proposals with regard to reconstruction were supported by a sufficient number of shareholders, he and his colleagues would take the necessary steps to carry them into effect.

EDINBURGH AUTOCAR COMPANY.

A MEETING of the directors and shareholders of the Edinburgh Autocar Company, Limited, was held on Friday, the 28th ult., in Dowell's Hall, Edinburgh. There was a large attendance. Mr. John Macdonald presided, and read the first annual report, which stated that the profit and loss account showed a debit balance of £2,542 9s. 8d. Some discussion took place over the auditor's report, which referred to some clerical errors. The chairman admitted that it was very bad book-keeping, and further pointed out that they were a pioneer company, and had to pay for their experience. He also referred to the training of men and said that till lately they had always been training men. They had never been able to have the twenty cars they aimed at running at the same time; in fact, the average number was never more than eleven or twelve. It was not a very satisfactory account. As to the future, the directors had been considering the matter, and had been able to give a better service and to gradually reduce the working expenses. The report was seconded by Mr. Edwin Adam, advocate, who said as a retiring director he had no wish to return to the Board, as it seemed to be a very thankless job. They had tried to reduce the expenditure, and had only a clerk and an office boy. A shareholder asked what was the salary of the manager, and the chairman replied that, to tell the truth, the manager had drawn no salary for the past nine months.

A shareholder said that there was a general feeling of dissatisfaction with the management of the company, and he thought that, as the directors had proposed, there should be a committee of investigation appointed. If they accepted this report they could not go back on it again, so he thought that the investigation committee should be appointed. A great amount of discussion took place over the alleged neglect of the car drivers to supply tickets, some alleging that the conductors only supplied a ticket when they were asked for it. Others, however, said they had travelled every morning and had always received tickets. The Chairman replied to the several questions, and said that they would have had boy conductors, but the magistrates would licence no one under eighteen years of age. They had tried to overcome the difficulty by altering the shape of the car, and having the passenger entrance by the drivers' seats. The manager explained his absence from the office, stating that he had been out acting as inspector. The chairman said the public were too ready to act in collusion with the driver in the matter of not getting a ticket for the fare. It was moved and seconded that a committee of investigation, consisting of six, be appointed. The mover of the resolution said they did not wish to cast a slur on the directors; all they wanted was an explanation. On being put to a vote, it was agreed to appoint a committee of six. Only three were nominated, however, and Messrs. Hay, Milne, and White were appointed. After some discussion the report was adopted, and it was agreed to hold a meeting after March and hear the report of the directors and the committee of investigation for the six months beginning October 1st and ending March 30th. Mr. Edwin Adam was re-elected a director, and the auditors were also re-elected.

REFUSING TO STOP.

AT the Samford Petty Sessions, held at Ipswich, on Tuesday, Harry Bennett, Ipswich, was charged with being the driver of a light locomotive and refusing to stop when requested by the driver of a restive horse, at Chelmondiston, on December 8th. Mr. E. P. Ridley defended. Frederick Patridge, coachman to Rev. Fredk. R. Wood, Erwarton Rectory, said he was driving Mrs. Wood in a carriage on the Ipswich Road, Chelmondiston. They met a motor car driven by defendant. The horse witness was driving was a light cob, and became restive on seeing the motor-car, so he held his hand up for defendant to stop. The latter slackened his speed and then cried out, "Come on." Witness replied that he dare not unless the car was altogether stopped. Defendant continued to approach, and the horse began to rise on its hind legs. Defendant was again asked to stop the car, but he said that he had no time to stop about the roads all day. When the car was quite close, the cob made a plunge, and attempted to turn round and bolt. The car was obliged to stop then, the road being blocked. The horse eventually became quiet, and the car proceeded on its way. Defendant, on oath, said he saw the coachman hold up his hand at a distance of about ten yards. He stopped as soon as he could put the levers on. The coachman got down to the horse's head. Witness called to him to come past, but he said he could not, having to stop. Witness thereupon replied that he had important business to do, and must go on. This he did. Ernest Dallaston, Luther Road, Ipswich, corroborated. The Bench inflicted a fine of 10s. and 19s. 2d. costs.

A WARNING TO DRUNKEN WAGGONERS.

AT Brentford Police Court, last week, Robert Woolridge, thirty-four, of Twickenham, a carman, was charged with being found drunk whilst in charge of two horses and a waggon at London Road, Twickenham. P.C. Sangster said that in consequence of a complaint made to him he went towards Isleworth, where he met the prisoner driving a pair of horses attached to a wagon. He seemed to be dazed, and witness found him to be drunk. Mr. Montgomery Napier, of Whitton, said that on Saturday he was driving a motor-car through Whitton, when he saw two vans coming towards him at a place where half the road was up. As they were on the same side as himself, he pulled up to allow them to pass. The first van passed all right, but the second one, which the prisoner was driving, came straight on, and, despite witness' cries, the prisoner did not pull off to the right as he ought to have done. The result was that the van came full into the motor-car, completely smashing it, and throwing witness and a lady he had with him out into the road. The motor, which he valued at £175, was completely ruined. P.S. Gordon said he took the charge against the prisoner. There was no doubt that he was drunk. The prisoner denied the offence, and said that the driver of the motor did not pull up as he said he did, but came on full tilt. The Bench sent the accused to prison for fourteen days' hard labour without the option of a fine.

THE Chief Constable of Derbyshire is an automobilist.

ONE of the new knights—Sir Hiram S. Maxim—is a member of the Committee of the Automobile Club.

MORE than four thousand county councillors have received the Automobile Club's recent letter.

A HUNGARIAN automobile club has been organised in Budapest. The members of the club had a meeting the other day and elected Count Paul Szapary as president.

A PROPOSAL is being discussed that the English Automobile Club should present to the A.C.F. an International Cup for a race of commercial carriages over a portion of the Gordon-Bennett course.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editor's hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



PEDESTRIAN CYCLIST—1818

AN automobile club for the Midlands is in contemplation at Birmingham, and such an institution for Wolverhampton and district was inaugurated on Friday last week at a meeting over which Mr. S. R. Rhodes presided. There are about thirty owners of motor-cars in the town and suburbs, and about half of them have promised to join the club, the annual subscription to which will be one guinea. Alderman Marston is to be asked to become president, with Alderman L. Johnson as vice-president, Mr. S. R. Rhodes as hon. secretary, and Mr. A. E. Jenks as hon. treasurer. The rules are largely based on those of the Nottingham club. Mr. Rhodes is to be congratulated on the result of his efforts to form the club, which should be a useful association, as well as a centre of friendship among automobilists.

Lincolnshire Automobile Club.

LINCOLNSHIRE also has its automobile club, a very successful meeting having been held on Friday last week at the Saracen's Head Hotel, Lincoln. The Mayor of Lincoln, Mr. Councillor C. W. Pennell, an ardent motorist, was in the chair, and there was a very representative attendance. Mr. G. J. Wilkinson, who convened the meeting, explained the scope of a county club and what it could do, and urged the desirability of affiliating with the A.C.G.B.I. He suggested that the club should carry out the following objects:—To popularise, assist, and encourage the use of motors throughout the county; to provide a centre of information and advice; to support or oppose alterations in the law affecting automobilism, and to take such steps as may be necessary; to defend, or take proceedings on behalf of members; to organise lectures, with discussions and demonstrations, on matters of interest to the members; to arrange meets and tours and inter-club meets and generally to further the movement. Mr. C. Johnson, secretary of the A.C.G.B.I., also spoke, going over the formation of the Automobile Club and its growth, and the opposition that had to be fought, especially that of the County Councils, just now. He congratulated Lincolnshire that one of its county councils—Kesteven—had refused to assist in the agitation. He would like to see the county the pioneer of a movement which should be exactly opposite in its effect to the present agitation. He thought that these local centres of the big club—for he hoped they would become centres—could very effectively carry out the local work, and in larger matters stand shoulder to shoulder with the other automobilists in the land, and under one banner present a solid front to prejudice and opposition. Mr. Johnson suggested that before long agriculturists would throw away their prejudice, and be engaged in producing alcohol for the purpose of running motors. On being put to the meeting the decision to form the club was unanimous, and by the close of the meeting over thirty members had given in their names, so that the club starts well. A committee with a

small sub-committee was formed to draw up rules and objects and to do other work, and Mr. G. J. Wilkinson, of 18, York Avenue, Lincoln, was elected as hon. sec. *pro tem*.

The Gordon-Bennett Cup.

THE Automobile Club of France has selected the first week in May as the date, and the Paris-Bordeaux route as the course of the 1901 race for the Gordon-Bennett Cup. Nothing definite is known as to who will comprise the French team to defend the cup, but the *Auto-Vélo* gives publicity to a rumour that Charron and Levegh will form two of the three starters. Our contemporary adds that the German Daimler car entered for the race will probably be driven by M. Lemaitre. As regards Belgium, it is said that M. Jenatzy has a "dark horse," in the shape of a combination electrical and petrol car, of which great things in the way of speed are expected.

Motor-Vans for Municipalities.

WHY will the borough surveyors persist in asking for electric motors for cartage purposes? The City authorities some time ago invited tenders for the supply of electric motor dust vans, and the borough surveyor of Fulham has been similarly courting refusal. He reports that the price quoted for an electric motor capable of moving one ton at the rate of eight miles an hour is £750, and he therefore opposes the purchase of electric motor-carts for borough purposes. It is believed that the borough council will decide to continue the use of horses, although in Chelsea and other places steam motor-carts are proving more expeditious and economical. Perhaps the Automobile Club could render useful service in calling the attention of the borough councils of London to the fact that steam motor-waggons are being profitably employed in many districts, and asking the surveyors, when inviting tenders, to be less insistent upon the electric motor.

The Carriage Tax.

WE advise automobilists to pay the tax on their motor-cars without delay—even if they do not pay it with a good grace. For should they get into the hands of the police—and no motorist can be assured that such an eventuality will not arise—it may go hard with them when the discovery is made that no tax has been paid. We know the law, and in the present state of public opinion the smallest breakage of the same should be avoided.

The Durability and Wearing Power of Cars.

AUTOMOBILISM is so recent an innovation that little data is yet to hand with regard to the life of cars. Hence the value of such particulars as those given by "Teuf-Teuf" in the *Daily Express* of Tuesday. It appears that the Hon. C. S. Rolls has travelled about 4,000 miles on his 12 h.p. Panhard, and has never been stopped for anything more serious

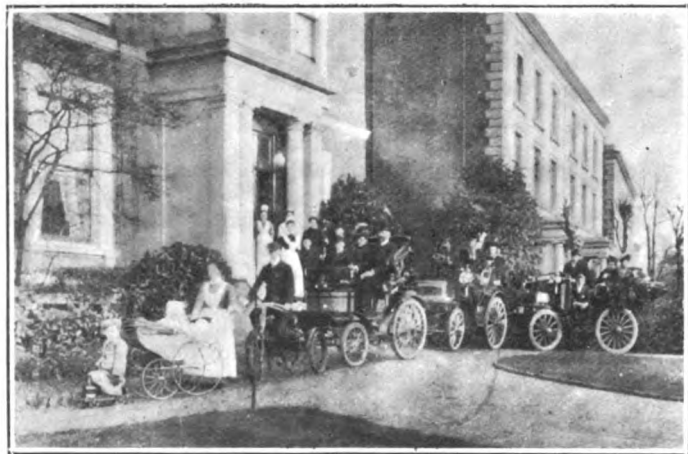
than choked burners or a nut slipping. The Hon. J. Scott Montagu's 12 h.p. Daimler has done well over 16,000 miles, the chief item of trouble being the blowing out of the lamps on windy days—a fault that appears to be remedying itself. During the time that Mr. J. A. Holder owned a 12 h.p. Daimler his total mileage run was 4,000, and a defective pump and a broken governor hammer constituted his only drawbacks. Supplementing this information we may mention that Mr. S. F. Edge has driven 9,000 miles on his Napier without inconvenience, and that, as mentioned last week, our own experience has been equally satisfactory, the breaking of a spring being the only mishap in connection with the machinery. We shall be pleased to receive from readers monthly returns of the miles they run so as to keep a record that will be of interest and value.

Facilitating Renewals.

So long as motor-cars are used, the working parts of the same, as in all pieces of machinery, will, in course of time, become worn and require renewal. One of the features of the present time is the attention which is being paid to the question of facilitating these renewals when they become necessary. It should be the object of motor-car designers and builders to so arrange the various parts that each and any one of them can be taken out and replaced with a minimum of interference with the other parts, thus not only saving a large amount of time, but also obviating needless expense in the unnecessary renewal of parts still in good condition. A case in point is the renewal of the gear wheels in the Panhard type of variable-speed gear, and last week we illustrated the method introduced by Messrs. Gilbert, of Lincoln, for renewing the third speed without it being necessary to have a new sleeve. Since then we learn that Mr. Crowden, of Leamington, has also devised a simple method of renewing the wheels in Panhard gearing, in which arrangement screwing is entirely obviated. Mr. Crowden tells us that he has applied the arrangement to a car of his own, on which it has proved very successful.

Horseless Carriages.

THE accompanying group of horseless carriages is from a photograph by Mr. Howard Edmunds, and represents a merry party who spent Christmas with Mr. Henry Edmunds at Antron, Upper Tulse Hill, S.W. Here we have the evolution of the motor-vehicle from the locomotive upon which the young gentleman in the foreground of the picture is



disporting himself. The perambulator supplies the next link, and then the motor-tricycle leads the way to a Marshall car. A Daimler is succeeded by another vehicle of the same type—the famous Antrona, which made such a clean journey into Southsea that it won recognition by the judges who awaited the arrival of the cars.

Motor-Cars and Health.

IF we are to accept the conclusions arrived at by Dr. Waldo, medical officer of health to the parish of St. George the Martyr, a considerable proportion of the mortality from diarrhoea, one of the most fatal of diseases among town children, is due to the pollution of milk and other articles of food with street dust, in other words with dried horse dung highly charged with deleterious micro-organisms. Filthy street dust we must always have with us, unless we have streets that we can wash. It is probably to the facility with which asphalt can be washed that we must look for the explanation of the largely diminished death-rates which have been noted in certain towns after the introduction of this material as a paving. It is claimed that in New York the death-rate has gone down from 38.37 per 1,000 in 1892, to 26 per 1,000 in 1896, when the cleaner streets due to the large extension of asphalt pavement had begun to show their influence on the health of the population; and although we can hardly doubt that the introduction of asphalt was, in this case, only one item in a general improvement in sanitary conditions, the benefits which have already resulted in London, in Paris, and in many other large towns, from the use of asphalt in courts and alleys have been such as to show how great would be the advantage of its more extended use. Not until all our streets are provided with a hard smooth surface which can be thoroughly cleansed shall we even begin to see what town life might be made. It is to the motor-car that our contemporary, the *Hospital*, looks to bring this much-needed reform within the range of practical politics.

Notes in the "Mail."

IN a very different style to that in which they commenced, the "Automobile Notes" in the *Daily Mail* have been resumed. They are not meant "for the inner circle of motor men but for the general public." Among the items of news chronicled is the fact that "the cab-owners of Naples are taking the bull by the horns," which apparently is the *Mail's* way of saying that they are starting some motor-cabs. We are also told that the ship, which did not contain the Shah's motor-cars, did not sink, and that Mr. Still can drive his electromobile through more than 2 ft. of snow. These items and a reply to the Marquis of Granby constitute a beginning which, as the writer says, "takes very little for granted."

Tricycle and Trailer.

SIX miles an hour is not a furious speed, but when this is exceeded by a "light locomotive" to which a "carriage" is attached, it is done in contravention of the regulations of the Local Government Board. Such is not the view of the Weston (Bath) Petty Sessions, where Mr. William Whiting appeared on Saturday in consequence of having driven a motor-tricycle with a trailer attached, at a speed estimated by the police at twenty miles an hour. Mr. Whiting declared he could not possibly exceed fourteen miles, that being his limit of speed. It has previously been held at Grimsby that a motor-tricycle and a trailer is one vehicle; and after hearing the evidence the Weston magistrates dismissed the case, so that we are to recognise the motor and its trailer as one vehicle, which is a wise and reasonable decision.

The Motor-Car on the Stage.

AN organisation of young American society men, known as "The Strollers," who have been presenting their new play, "The Cruise of the Summer Girl," at the Waldorf-Astoria, New York, recognised the hold which the automobile has upon society by introducing a motor-car on the stage. It is in the third act of the play, the scene representing the grounds about the Casino at Newport. One of the characters in the play, represented by Miss Elizabeth Donaldson, is a well-known society woman, who, to get ahead of her deadly rival,

comes into view on an automobile. It is a ladies' Marie XII. Victoria, provided by the New York Electric Vehicle Transportation Company, with a professional *chauffeur* in attendance. She certainly wins, for the chagrin of her rival, who has nothing but an ordinary coach and four, is unmistakable. The automobile, with Miss Donaldson in a black and white gown, comes rolling merrily on the stage, and stops in the centre long enough for Miss Donaldson to sing a song. Then it goes away, off the side entrance, and there Miss Donaldson leaves it. The scene was, according to *Automobile Topics*, an undoubted success.

Motor-Car Repairers.

ENGINEERS in country towns will do well to watch the progress of the automobile industry, and to take something more than academic interest in its development. For there is no doubt that, as motor-vehicles become the recognised means of travel in the country, there will be a large amount of overhauling and general repair work required from time to time. Already the supply of good repairing firms with the requisite knowledge of motor-cars is hardly so universal as it should be, and we hope in a year or two to be able to chronicle that every small town and large village has its motor expert capable of setting motor-cars on their way after mishap. The shoeing forge was a feature of our countryside which has suffered from the competition of towns from whence firms have endeavoured to secure trade for miles around. In its place, with extended prestige and greater possibilities, the motor-car repair shop will soon be seen up and down the land.

The Recent Trials of Electrical Vehicles.

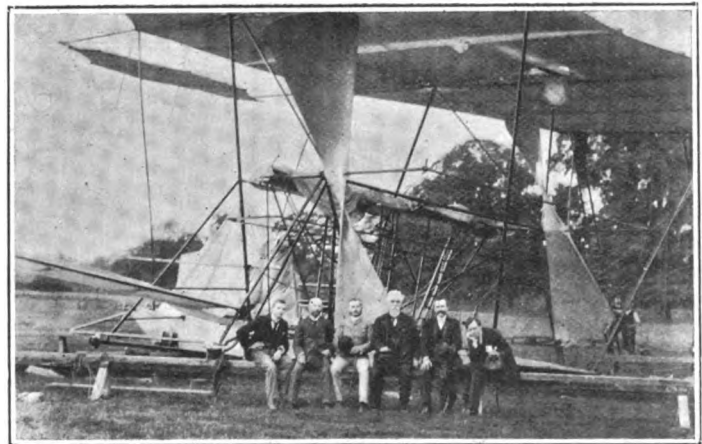
IN the course of an article on the recent Automobile Club trials of electrical vehicles, a writer in the *Electrical Review* remarks:—The tests do not seem to have been scientific in their nature; apparently they only roughly indicate that one car as a whole is better than another, but wherein, or to what, the superiority is due cannot readily be ascertained from the results. A poor battery may serve a very finely-constructed car, and, on the other hand, a good battery may waste its energy working a badly-constructed vehicle, and even the personal factor in the shape of the driver may come in. Motors are so well made now that there is no reason why all cars cannot get them equally efficient. But the traction battery is in a transition stage from the stationary form to the traction type, and there is reason to believe that some of these later forms are much superior to others, but no information is forthcoming of a reliable nature from road tests as recently carried out. For the purposes to which electric cars are most suitable and desirable, long runs with one charge are not necessary. These light small pleasant vehicles admirably fill the want for medical and business men making daily trips not exceeding twenty miles, often less than ten. It seems, therefore, absurd to drag about a battery heavy enough to go fifty miles when one able to do twenty-five would be ample. The fifty and hundred-mile charge may have some advantages, but most people who want to do business would go on long journeys by rail. There is, however, a great field for a light car for city and town travelling with short daily trips never exceeding twenty miles per day, which, at a pinch, could do its twenty-five miles. At any rate, it is a fact that many cars making runs of fifty or more miles on one charge as a display of power, are, when taken over by a customer, in most cases condemned to carry about a battery far too heavy for their actual requirements. The lighter battery will go as fast with the same weight, but for a shorter time, and if we deduct the weight saved in the battery, it will be found that we can nearly reduce the battery by one half, by reducing the time over which the charge is to last by one half. There is room for an enterprising movement in this direction. We have had plenty of attempts on the pattern of a steam road roller; we want something on the style of a light gig smartly drawn by a pony.

Where the Motor-Car Scores.

THE foregoing remarks may be commended to the consideration of builders of electrical vehicles. In concluding his article, the writer referred to points out that it is not necessary to try automobiles as we try horses, that is, as a whole. Although the comparison is interesting it is not of much profit, for, as he aptly points out, a horse must run as a whole, and if he has good legs he may have bad lungs; we cannot replace the lungs with a better set, but in a motor-car we are able to remove a faulty organ and put in a good one. Hence the necessity on the part of automobile engineers to locate the good features and the faulty parts, and to remedy the latter.

Hidden Defects in Automobiles.

LAST week there came before the Paris courts an appeal by a M. Caplain against a judgment of the lower court, whereby the sale of an automobile made by him to a M. Bertrand-Taillet, was declared null and void upon the ground that the vehicle sold had a hidden defect, or *vice caché* as it is called in the French civil code. This car, of 6-h.p., changed hands for £760, and no trial trip having been accorded to the purchaser, he only discovered the vehicle's insufficiency of hill climbing power some time after the completion of the transaction. Claiming cancellation of the bargain, he won his case, and M. Caplain, dissatisfied with the judgment, appealed, but without the result hoped for. The court held the former finding to be perfectly just, inasmuch that the vehicle's defect was a hidden one, the expert appointed to make an examination having only ascertained the fault after a very careful inspection. It is interesting to note that the defect was localised in the carriage work, the expert holding that it was much too heavy and very badly arranged.



SIR HIRAM S. MAXIM AND HIS FLYING MACHINE.

Photo taken]

[August, 1894.

The Automobile Club of America.

NOTWITHSTANDING extremely cold weather eight cars conveying members of the Automobile Club of America and friends participated in a run from New York to Bridgeport the other week. The trip was one of the club's regular runs, and was in acceptance of an invitation received from the newly organised Bridgeport Automobile Club. The roads were in fine condition, and the members and their guests were in the best of spirits when they arrived. Mr. Albert C. Bostwick was the first to appear in Bridgeport. With his twenty-four horsepower Panhard he had made the run in less than three hours and twenty minutes, including all stops. In the evening the Bridgeport automobilists entertained the visitors at dinner. The return journey was made the following day

over snow-covered roads, snow having fallen during the night. The club has at last taken definite quarters on the second floor of the Plaza Bank Building, Fifth Avenue and Fifty-eighth Street, New York, to which the headquarters will be removed from the Waldorf-Astoria about February 1st. The new quarters, while they will give more commodious and comfortable rooms than at present enjoyed, are in all other respects than, perhaps, location, hardly, remarks the *Motor World*, what one would expect an organisation seeking to be the premier of its class in America to occupy. In fact, for a vehicular club to choose second storey accommodations seems even worse than it would be for any other kind of a club. The rooms are now being renovated and furnished, and a housewarming will mark the formal possession by the club early in February.

Accidents in France.

DURING the month of November last there were only ten automobile accidents throughout the length and breadth of sunny France, but, strangely enough, the percentage of fatalities was higher than usual. Upon consulting the *Velo's* return for the month we find that these ten accidents gave rise to three deaths, two occurring at Paris and one at Saint-Germain-en-Laye, but in no instance would it appear that the driver of the self-propelled vehicle was to blame. The number of motor-men prone to indulge in reckless driving has been wonderfully diminished, and last summer's war against *chauffeurs* has undoubtedly had a salutary effect. Compare this record with those of the other means of locomotion, and one can the more readily appreciate the safety of the automobile. The train gave rise to 117 mishaps, in which forty persons lost their lives, and 151 suffered more or less serious injuries. The bicycle's record stands at thirty-two accidents, bringing in their train a couple of deaths. As for the horse, he can show for his month's work no fewer than 274 mishaps, and sixty-three deaths must be laid to his charge.

The Snap of Cold Weather.

THE snap of cold weather experienced during the past week has forcibly impressed itself on the minds of numerous motorists who have been suffering from frozen carburettors and other troubles. On the occasion of the English Motor Club's run to Brighton on Saturday last, we noticed that one motor-cyclist had swathed his float-feed carburettor in flannel with the view of preventing it from freezing, a precaution which other motorists might follow with advantage. With the temperature at freezing point users of petrol vehicles would do well to see that all the water is emptied out of the tank cylinder, jacket, radiator, and piping when leaving the vehicle to stand for any great length of time. A failure to do this may result in such unpleasant things as a cracked cylinder, burst pipes, or damaged tanks.

Useful Discussions.

Now that so many local automobile clubs are in existence in various parts of the country we shall doubtless have many useful papers prepared for discussion, and some of the societies on this side might take a hint from the Long Island Automobile Club of Brooklyn, which has arranged a course of lectures with the following subjects:—"Automobile Propulsion by Electricity," "Experiences with Different Types of Automobiles," "Operating Automobiles," and "The Transmission of Motive Power." Practical points such as these can be usefully discussed and be made to afford very valuable information.

THE Riker Motor-Vehicle Company, Limited, has been registered with a capital of £1,000 in £1 shares, to manufacture, sell, let on hire, and deal in electric motors, cycles, launches, cycle and motor parts and accessories, etc. The registered office is at 31, Walbrook, E.C.

A GLANCE BACKWARD.

THE past year was one of steady advance for automobilism, and the last days of the century found the public less prejudiced and the industry more flourishing than at any time since the memorable year 1896. Elsewhere we commence a brief summary of the leading events and incidents in connection with the motor-car world during the twelvemonth, and a glance thereat will reveal considerable activity, as well as several events of passing interest. Our summary does not profess to be complete; but as a synopsis of what has been done will be useful for future reference.

Standing out prominently in the history of the period is the great 1,000-Mile Trial—an event which testified to the fact that the motor-car was a practical and reliable vehicle. Sixty thousand miles were travelled by the various cars taking part in the tour and no accidents occurred. So successful as a means of public education was the Trial that its repetition on a large scale this year is being eagerly anticipated by motorists. During the latter part of the year the interest of county councils in the automobile movement was shown in many ways, notably by the threatened restriction of the speed limit to ten miles an hour, and also in the compulsory numbering of cars. These attacks roused the Automobile Club to action, with the result that a vigorous propaganda was commenced with a view to reassure councillors and educate the public. Already the fruits of that work have been seen in the chastened attitude of several important councils and the general acceptance of the invitation to attend the forthcoming conference and demonstration in London. In connection with this we are glad to observe the formation of local associations and clubs in various towns to further the interests of motorists.

Several new English-built vehicles have been introduced, and some have done exceptionally well. In voiturettes advance has been made and in larger vehicles, too, the formation of public services have given great encouragement. Municipalities have done something to help makers of vehicles for heavy traffic, and steam, dust, and water carts have proved that there is a future for heavy automobiles in that direction, while the adherence of the Prince of Wales to our ranks was further evidence of the popularity of the motor-car in another direction. Altogether British manufacturers have cause for satisfaction with the year that has gone, since it augurs so well for the future.

Among notable developments was the increased attention given to motor-cars by the military authorities of Europe. Early in the year the German authorities placed orders for cars with the Daimler Company of Cannstatt, and in February Major Crompton sailed for South Africa, where he was able to so demonstrate the value of traction engines that the War Office was impressed, and he is now engaged in advising the permanent department on the subject. In the spring, too, trials of motor-carriages for field guns were made by the French military authorities, and at the autumn manoeuvres automobiles were freely employed. Italy has realised the possibilities of the motor-car in warfare, and a commission of officers was appointed to inquire into the application of the automobile to modern warfare.

Space prevents anything like a complete reference to the events of the year, but sufficient has been said to indicate some of the directions in which progress has been made. Everything points to an early development in many ways, and the forthcoming exhibition at the Agricultural Hall will give evidence of the enterprise and intelligence which are being employed on modern motor-cars. In extending the popularity and influence of automobilism the *Motor-Car Journal* may claim to play its part, as a glance at its subscribers' book reveals. Hardly a post fails to bring inquiries from every part of the world, and one of the most pleasing features is the frequent budget from Australia and from other colonies. In the distant parts of the Empire our manufacturers will have a faithful market ere long, and the long list of subscribers we have already obtained in Canada, Australia, and the great Dependency of India demonstrates how usefully this *Journal* can serve the trade—both home and Imperial.

BY MOTOR EXPRESS TO BRIGHTON.

BY PHANOMEN.

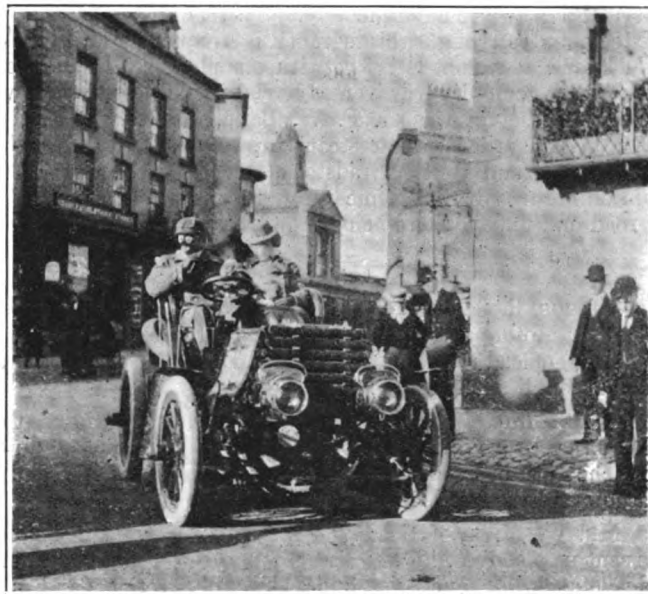
LIKE many more motorists I have often longed for a run on the much-talked-of 16 h.p. Napier car, and at last my longing has been satisfied, for on Saturday I received a telegram to the effect that a seat on Mr. S. F. Edge's vehicle was at my disposal in connection with the English Motor Club's new century run to Brighton. It was a case of touch and go, however, for the telegram did not reach my domicile in the suburbs until just about the hour fixed for the start on the Embankment. For a few minutes it seemed as if I was not, after all, to enjoy the experience of a run on a fast car, but soon a brilliant idea struck me. I remembered that the route decided upon lay over Mitcham Common—this being doubtless chosen in order to miss the stiff climb up Brixton Hill and the crowded Croydon High Street. Cogitating with myself, as it were, I argued that the direct way to Mitcham Common was *via* Clapham and Tooting, and the latter being my nearest point, I quickly hied myself thither behind a hay motor. A wait of a quarter of an hour at Tooting corner, with no sound or sign of a motor-car, ensued. Cold and disappointed, I was just making up my mind to return home when, lo, in the distance, a motor-car hove in sight, and as it quickly approached I saw it was the very one I was looking for. Not only so, but there was my seat still vacant. Putting up my hands, as a policeman did later, but with more success than the man in blue, I was soon comfortably ensconced in one of the rear seats of the *tonneau* body, with which Mr. Edge's car is now fitted.

And now what shall I say of our trip to Brighton? Really there is very little to write about. When I got accustomed to my new surroundings I noticed that the houses and fields were flying past us at an unusually quick rate, and yet we did not appear to be travelling at an excessive pace, so smoothly and free from vibration did the car run. Across Mitcham Common we went, overtaking Mr. Schlentheim on a 6 h.p. M.M.C. phaeton, and soon afterwards had to pull up to allow a mounted policeman, whose horse was inclined to be stupid, to go by. Troublesome horses were one of the features of last Saturday's run; they were dancing and prancing all over the place, a noticeable feature being that it was not those between shafts that gave the trouble, but the high-spirited animals ridden by ladies and gentlemen. The mounted policeman safely by, on we went again, quickly reaching Wallington, where I had a demonstration of the capacity of a high-powered car as regards hill-climbing, the long hill at this point being taken with no apparent diminution in speed. At the top of the gradient Mr. Edge stopped a couple of minutes to examine the clutch, a country waggoner the while likening the low row of lubricators in the front of the dashboard to a refreshment bar! Soon we were on the Downs and on a long drop, with the clutch out, into Stoa's Nest, the vehicle making its way so quietly down the hill that we came as a surprise on a party of female lunatics who were being taken out for a constitutional in the keen frosty air. And it was keen too, on Saturday, especially when travelling at the speed the Napier car is capable of. So well were we all wrapped up that there was only a small portion of our faces visible, this, however, not being of its usual colour! At Coulsdon, a foolish guinea fowl, which probably thought itself capable of blocking our path, came very near to losing its life, but at the last moment, and just in the nick of time, decided to discontinue its attack. Through Merstham we went, but ere Redhill was reached another stop on account of troublesome horses was necessitated. A lady and gentleman were both riding towards us; the former signalled to us to stop, which Mr. Edge did immediately. The animals had a strong objection to passing our car, but the lady, who was an accomplished rider, did not mean to be beaten, and turning the horse back for twenty yards, brought it quickly round again, and with a little coaxing, yet with a firm hand, got it safely past, thanking us as she went by. The gentleman rider was, however, not so successful in his efforts, or rather not so happy in his methods, for, despite continuous kicking of his heels into the horse's sides, the animal was not to be thus got by, and

it was only by a little coaxing from our party that it eventually galloped past.

The town hall clock at Redhill was striking three as we went through that town, and once on Earlswood Common we again began to travel at an exhilarating rate. Only for a few minutes, however, for in the distance we saw a party of horsemen returning from the hunt, a red-coated gentleman having his hand up. If I remember rightly it was the Marquis of Granby, who wrote the other week to the *Field* saying that no motorist ever pulled up because of a nervous, frightened horse. That such a statement is untrue on the face of it need hardly be remarked; but if his lordship had been with us on Saturday he would have seen sufficient to cause him for ever to hold his peace on this score. For no sooner did Mr. Edge see the uplifted hand than he pulled to the roadside and came to a standstill. And once again were we regaled with an exhibition of expert (?) horsemanship. These troubles over, no further incident barred our way, and soon we ran into Crawley, where tea and a large fire allured us to desert the car for close upon two hours.

Not having been able to get to the Embankment, I cannot give a list of those hardy motorists who put in an appearance at the starting point of the run of the English Motor Club, but our car being the first to arrive at Crawley, I was able to note the names of those who turned up at the latter place. Half an hour after us came Mr. Schlentheim and friends on the 6-h.p.



MR. EDGE ON THE 16 H.P. NAPIER CAR.

M.M.C. car, followed by Mr. G. D. Barnes on a Renault voiturette, with Mrs. Cheel as passenger. Seven minutes later Mr. C. Jarrott (who in his Arctic costume was taken for a lady!) put in an appearance on the De Dion skeleton racing machine which attracted so much attention on the run to Southsea in November last. Subsequent arrivals, in the order given below, included a Locomobile driven by Mr. Ginder, of the Locomobile Company, Messrs. Cecil Edge, Maltby, Moyle and Parton on motor-tricycles, and Mr. Cheel and another gentleman on a New Orleans voiturette. All beat a hasty retreat to the tea room, and as the big fire once more brought life into the voyagers, the incidents of the journey began to be recounted. Mr. Cecil Edge, who was riding a 5 h.p. trike, had been delayed by reason of trouble with his carburettor, the exterior of which, at the time I examined it, was thickly coated with snow. News was also brought that Mr. G. H. Smith, on a Gladiator car, was *en panne* at Redhill, his troubles being connected with the tires.

It was not till close on five o'clock that a move was made from Crawley, and when the roll was called it was found that only Mr. Edge's party, which, by the way, consisted of Mr. and Mrs. Edge, Mr. A. J. Wilson and self, Messrs. Jarrott, Barnes,

Cecil Edge, Malthy, and Moyle were going on to Brighton. The lamps being lighted and all of us again aboard, the Napier car soon got into its paces once more, Jarrott, on his 10 h.p. skeleton, being on our heels. A few minutes' ride brought us to the top of the well-known Handcross Hill, down which we travelled at a speed greater than I have before experienced, but which I cannot give in figures, seeing that it was too dark to time the miles by the watch. Quick, however, as we went, I was pleased at the way Mr. Edge handled the car; never did he go past a crossing without a sound of the fog horn—I mean the hooter—and without slackening speed. At Bolney we found Jarrott, who had gone on in front of us, his little machine going strongly—stopped at the roadside. As we passed him by he informed us that it was merely his lamp that had gone out, and that he would soon be after us. It was not long ere he was, but we kept on his heels, and passing through Hickstead, Patcham, and Withdean, were quickly at Preston Park, a few minutes later seeing us pulled up at the door of the Star and Garter Hotel, where the worthy host gave us a hearty welcome. I have heard much of the Napier car, now I know what it can do. Although I hope and trust that it will not be the last, I shall long remember my first ride on a fast car in the early days of the new century.

Little remains to be said of Saturday's event. One by one the other motorists who had carried through the programme began to arrive, and shortly before eight we sat down to an informal but welcome dinner. We were only a small party of thirteen, and although this number is frequently said to be an unlucky one, it did not interfere with our pleasure. In addition to those whose names I have given as having left Crawley there were present at the dinner Mr. F. W. Baily, who said he had come down by steam-car, which steam-car, however, proved, to be a railway train, and Messrs. Bradstock, Duck, and Harris. The last train on Saturday brought me up to town, the others returning by road on Sunday, there being, however, no fixed programme.

MESSRS. R. SCAIFE and Co., engineers and motor experts, Reliance Motor Works, Armley Road, Leeds, have been appointed official repairers to the De Dion-Bouton British and Colonial Syndicate, Limited.

A MEETING of gentlemen interested in motoring is to be held at the Alexandra Hotel, Bath Street, Glasgow, on Friday next, the 18th inst., for the purpose of forming a motor club for Glasgow and the West of Scotland.

MR. WM. LEA, of the Liver Motor-Car Works, Birkenhead, has sent us a copy of his new price list. It consists of a number of leaflets clipped together, giving clear illustrations and particulars of the new English model Benz cars which Mr. Lea is turning out.

MR. F. C. BLAKE, of the Ravenscourt Works, Dalling Road, Hammersmith, W., has issued his catalogue of motor-cars, motor-cycles, and accessories. It is well arranged, and should be extremely useful to those who at any time may require motor parts. On the first page is an illustration of Mr. Blake's heavy machine shop, and among the special features is a full account of the Blake ignition coils, accumulators, etc. It contains, in addition to illustrations of a number of cars complete—including Mr. Blake's own—particulars of parts, both finished and in the rough, suitable for repairs to most of the standard cars now sold. This is particularly handy for reference.

THE fifth edition of Messrs. Brown Bros.' motor catalogue has been issued, and they will be pleased to send a copy to all inquirers writing to 24-30, Great Eastern Street, E.C. Prominence is given to the Brown-Whitney steam-car, which is said to have been greatly improved. De Dion motors and De Dion motor parts occupy several pages, and the Brown motor tricycles and quadricycles are illustrated and described, as well as some trailing cars of good design and an excellent fore carriage for a tricycle. Petrol reservoirs, lubricators, dry batteries, volt, ampère, and densimeters, chains and chain wheels, automobile bells, horns, bags, tool carriers, lamps, pumps, tires, etc., also find a place in this new catalogue.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

From Paris to Toulouse.

GIVEN fine weather there should be a goodly crowd at the Porte Maillot, Paris, on Monday morning next, when at eight o'clock the well-known *chauffeur* Bertin sets out upon his self-imposed task of endeavouring to beat the existing *voiturette* record between the capital and Toulouse. Mounting a light car constructed on an entirely new system, Bertin hopes to cover the distance of 831 kilometres in less than thirty-three hours, which, if accomplished, would give him the respectable average of 25 kilometres per hour. The itinerary selected is by way of Chartres, Vendôme, Tours, Châtellerault, Poitiers, Ruffec, Angoulême, Bordeaux, Marmaude, Agen, and Moissac. One would hardly select January as an ideal month for attempts on records, but doubtless the approaching automobile exhibition is the cause of Bertin's trip, for constructors are now especially eager to bring their productions before the notice of the public, and are looking round for means of advertisement. And certainly no better means exists than that of a practical demonstration.

The Police and Speed.

IN common with all automobilists I have always regarded Béconnais' record of 39½ sec. for the kilometre with flying start, which he accomplished at Nice on March 31st last, as being a truly wonderful performance, and utterly beyond the scope of the ordinary touring motor-cyclist. But, dear reader, this has been quite a mistaken idea, for upon the highest authority—that of a Parisian policeman—at least one motor-man is capable of doing much better than this. What do you think of the kilometre being made in 34 sec., or at the rate of 106 kilometres per hour? And achieved quite recently, too, in the Bois de Boulogne, the roads of which were then heavy with continuous rain. Something to be proud of, I think, and yet the performer had the bad taste—or modesty, which?—to question the agent's veracity. It is extraordinary how some men insist upon hiding their powers from the public's gaze; and Béconnais at least has cause for self-congratulation, for his position as the *roi des motor-cyclists* would assuredly be doomed were the hero of this performance in the Bois to commence to race. Considering the pace I do not think that the fine of two francs, to which the *chauffeur* was condemned, can be considered as excessive. What say you?

The Tax at Roubaix.

LAST week in these columns I referred at some length to the new tax on automobiles in Paris, and I have now to mention the name of a provincial town, which has determined to follow the example of the capital and establish a municipal tax upon the self-propelled vehicles registered within its boundaries. As in the case of Paris, the *octroi* upon certain goods has been abolished at Roubaix, and the mayor of that northern city considers it impossible to make good a portion of the deficit by better means than taxing the automobile. Now hitherto the local motorists have paid to the State twelve francs on their motor-cycles and fifty francs on their two-seated cars, but the mayor having broad, expansive views, proposes to make but a single category of these two types of automobiles and advises the municipal council to impose an annual tax of 50 fr. upon each machine. If, then, his proposition be carried out, owners of motor-cycles will be required to pay in all an annual sum of 62 fr., which really is a little too stiff. Needless to say, the local *chauffeurs* strongly resent the proposal, and the newly-formed Northern Automobile Club has already lodged a formal letter of protest with the authorities. In this it is very properly pointed out that in any case the motor-cycle cannot be regarded as a *voiture de luxe*. If any councillor desired conclusive proof of this statement just let him try a machine over a stretch of that *pavé* so frequently found in

Northern France, and I feel sure that he will be convinced. For the sake of the automobile industry at Roubaix it is to be sincerely hoped that the club's appeal will have the desired effect.

The Driving School Question.

I have from time to time in these columns insisted upon the importance of founding schools in the various countries where automobilism is at all extensively practised, for the purpose of instructing would-be drivers in the management and construction of different types of self-propelled vehicles. It has been left to Belgium to take the initial step in this direction, for a new society has just been formed at Brussels with the special object of affording both amateurs and mechanics opportunities of becoming thoroughly acquainted with different systems. Presided over by Monsieur Bertrand, the society has its headquarters in the Rue d'Arlon, and it already musters nearly forty members. If the need of such institutions is felt in Belgium, Germany, and England, one can well believe that in France the question is of vital importance. Here, in the home of automobilism, there exist numbers of industrial concerns and commercial men who would gladly make use of the motor-vehicle for business purposes, but for the difficulty, or, indeed, one may say impossibility, of obtaining competent drivers at reasonable rates. The demand is so great and the supply so small that the really qualified men are pretentious to the highest degree in their conditions, and many a private owner lives in fear and trembling of his imperious engineer. The slightest disagreement, and off goes the *chauffeur mecanicien*, confident in his ability to secure another billet in forty-eight hours. On the other hand, there exist any number of men with but the slightest knowledge of automobiles, and who hope to extend that knowledge at the expense of the unfortunate owners. If this class of man admits at all to his prospective employer that he is ignorant of the particular type of car in question, he invariably qualifies the confession with the assurance that every other existing system is well known to him, and that consequently no trouble may be apprehended. But the trouble comes all the same, and an unskilful diagnosis by the engineer (?) leads to the doctoring of one part when another is actually at fault. And so it goes on until the miserable proprietor is driven desperate, and finally gives automobilism up in disgust. With a school conducted by thoroughly capable instructors much of this would be avoided, and the institution of regular examination and the granting of certificates would enable the owner to estimate the capabilities of any applicant for the post of driver.

THE first of the 50 h.p. Napier racing cars is expected to be completed early next month.

MR. OPPERMAN'S new electric Victoria was outside the Automobile Club on Wednesday and attracted considerable attention.

THE Discount Motor-Car Company, Ltd., has been registered with a capital of £5,000, to take over the business of a motor-car, cycle, and vehicle manufacturer, repairer, and agent carried on by A. Dunhill at 51, Clock Terrace, High Road, Cricklewood, as the Discount Motor-Car Company, and the monthly publication called the *Motor Mart*.

SEVERAL weeks ago we chronicled the fact that Mr. Tousey, who will be remembered as having assisted Mr. Johnson in the organising work entailed by the 1,000-mile Trial, had been appointed secretary to the American Automobile Club. That gentleman has nominated Roper, who has been assistant-steward at the A.C.G.B. for some time past, to the position of steward to the American Club. Roper, whose quiet, gentlemanly manner has commended itself favourably to the members of the English Club, sails next Wednesday.

THE New Century Motor Syndicate, Limited, has been registered with a capital of £3,000 to adopt an agreement between Susie Adams and W. L. Adams of the first part, R. O. White of the second part, and E. M. Davey, for the company, of the other part, and to manufacture and deal in motors, vehicles, cycles, etc. The registered office is at 93-94, Chancery Lane, W.C.

THE BARDON MOTOR-CAR.

AS mentioned in our last issue we had a brief run recently on one of the cars of the Société d'Automobiles et de Traction (Système Bardon), of Puteaux, near Paris, in company with M. H. Ramoisy, the representative of the company. Through the courtesy of this gentleman we are now able to give illustrations of the vehicle, together with a brief description of its leading features.

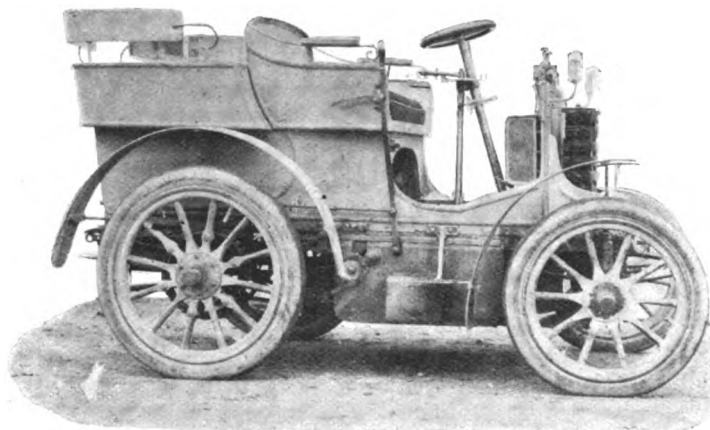


FIG. 1.—THE BARDON 7 H.P. TONNEAU.

To deal first with the engine, this is located under a bonnet in the fore part of the frame. It is of the horizontal petroleum-spirit type, and while having only one cylinder there are two pistons, with a common explosion chamber centrally between them. Only one inlet and one exhaust valve are provided, the lift of the latter being controlled by a centrifugal governor connected with one of the fly-wheels. The engine is made in four sizes, 5 h.p., 7 h.p., 8 h.p., and 12 h.p.; the 5 h.p. engine has a cylinder 88 mm. diameter, by 100 mm. stroke, the 7 h.p. motor measuring 100 mm. by 100 mm. The normal speed is 1,000 revolutions per minute; by means of a foot-controlled "accelerator" this can be increased up to 1,200

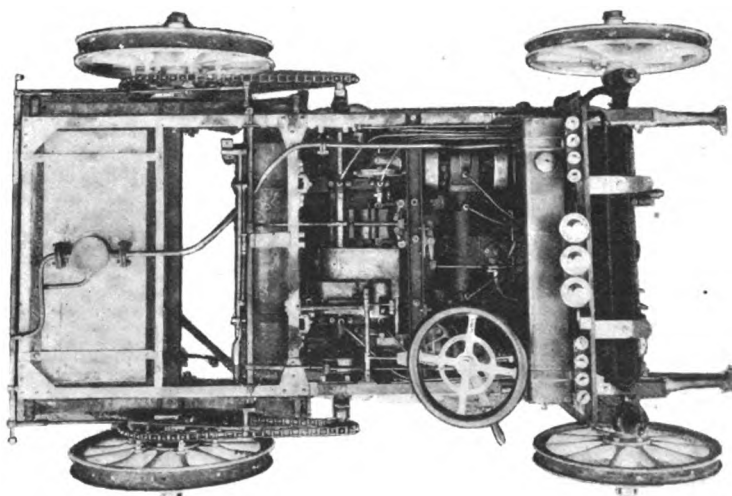


FIG. 2.—PLAN OF BARDON CAR.

revolutions. The cylinder is cast in one piece with the water-jacket, the latter also extending round the valve chamber. Each of the piston rods is connected up to a separate crank shaft, each of which in turn carries two small fly-wheels. Electrical ignition is, of course, adopted; while the cylinder is water-jacketed. The circulation is maintained by a pump driven by frictional contact with one of the fly-wheels. A large quantity of water is carried, and this, coupled with the well-exposed radiating coil located in

front of the dash, not only keeps the engine cool, but the water never gets too hot, so that little is lost by evaporation.

Coming now to the transmission mechanism, the 5 h.p. cars are fitted with three speeds forward—the maximum being twenty miles per hour—and a reverse motion, the higher-powered cars having four speeds ranging up to twenty-six miles per hour. In all, the system of transmission, which is on novel lines, is the same. As already mentioned the engine is located transversely in the fore part of the frame. The rear end of each crankshaft terminates in a bevel wheel, meshing with corresponding bevel pinions on the ends of a cross variable-gear shaft running at the same speed as the crankshafts. Mounted loosely on the cross shaft is a sleeve which can at will be connected with or disconnected from the shaft by a special double friction clutch. On the sleeve are mounted a train of spur wheels, any one of which can be brought into engagement with corresponding pinions on the differential shaft. The reverse motion is controlled by means of a foot-pedal, the depression of which causes a small pinion to be interposed between the two gears giving the first speed. From the differential shaft the power is conveyed to the rear wheels by the usual duplicate set of chains and chain wheels.

The petrol tank, which is located behind the dash, has a capacity sufficient for a run of eighty miles; the water tank is at the rear, and holds thirty-five litres. Special attention has been devoted to the lubrication of the working parts, lubricators in the dash, in full view of the driver, conveying oil, as will be seen from the plan (Fig. 2), to the crank chambers and main bearings. Steering is controlled by an inclined hand-wheel, around which the various control levers are grouped. A foot-pedal operates a hand brake on the differential shaft, while there are band brakes, operated by a hand lever, acting on drums attached to the hubs of each of the rear road wheels. The frame of the car is built up of channel steel, and carries the whole of the motor and transmission gear. It is suspended on the axles by plate springs; artillery-type wooden wheels are fitted, and these are shod with pneumatic tires. The frame being entirely independent, any type of carriage body—spider phaeton, phaeton, *tonneau*, etc.—can be fitted, according to the desires of the customer, the Bardon Company also supplying complete frames minus body to coachbuilders and motor-car dealers. Fig. 1 shows a 7 h.p. car fitted with the popular four-seated *tonneau* body.

As mentioned last week, we had recently an opportunity of a trial run on one of the Bardon cars, and were struck with its smooth running. That the engine and the various parts are well balanced was indicated by the absence of vibration when, with the car standing still, the motor was put in operation.

THE last issue of the *Electrical Review* contains an interesting article from the pen of Mr. H. F. Joel on "Electric Automobiles—a Retrospect and Forecast."

MULLINER'S Carriage-Building and Motor Company, Ltd., has been registered with a capital of £12,000 to acquire and carry on the business of coach and carriage builders, harness makers, motor-car manufacturers, etc., carried on by A. F. Mulliner at Northampton.

ALTHOUGH the U.S. Post Office Department at Washington in its recent advertisement for proposals for carrying the mails through cities, between post offices and railway stations, incorporated a special invitation to builders of motor-vehicles to compete, not a tender for motor-cars was sent in. The *Motor World* remarks that if for no other purpose than the moral effect thereof, it does seem as though at least one manufacturer might have put in a bid for a contract of this kind.

THE Sussex Automobile Company is the style of a new concern which is being established at 163, Western Road, Brighton, by Messrs. Duck and Harris. In addition to having secured the local agency for, among others, the Ariel motorcycles, the Progress and Pieper voitures, and the Locomobile, the firm are putting down plant to undertake repairs, while a stock of petroleum spirit and motor-car accessories of all kinds will be carried. There is undoubtedly an opening in Brighton for an enterprising concern, and we wish the new firm every success.

HERE AND THERE.

ALTHOUGH the War Office does not consider the time ripe for the creation of an Automobile Volunteer Corps, it is willing to consider how to utilise the services of available cars. The secretary of the Automobile Club will be glad to hear from automobilists willing to join such a corps as to the horse-power and speed of their vehicles.

VARIOUS have been the devices suggested to the police for ascertaining the speed of motor-cars when travelling at a seemingly rapid rate. One of the easiest has just been adopted by a policeman at Widford, near Chelmsford, who noted the time a motor-car passed through, and then telephoned to Ingatestone, where the driver was stopped. The distance between the two points is four miles and three furlongs, and the journey was performed in 12½ min.—well over the legal limit. Surely the telephone is not to be added to other annoyances.

MOTORISTS have a sturdy champion in Mr. J. T. Hereford, J.P., of the Garlands, Mordiford, near Hereford, who has arranged to take a committee of his county council on his car with a view to smoothing down any delusions they may be labouring under. "Should any motorists be arrested by the police in the Hereford Petty Sessional Division I would on receipt of notice attend on the bench and do what I could to ensure justice." Will readers take a note of Mr. Hereford's address.

I HEAR that Dr. Frost, of Bournemouth, has become a motorist being the owner of a De Dion voiturette. Automobilism is becoming increasingly popular with the medical profession, and as a rule doctors are enthusiastic with regard to the subject. Besides being a medical man, Dr. Frost is a member of the Bournemouth Town Council, so that his accession to our ranks is to be welcomed on more grounds than one.

MR. F. C. GRIMSLEY, of Belgrave Road, Leicester, will be pleased to render assistance to any motorists who may need it when passing through that busy town. He has good storage room for motor-cars, as well as a good plant for repairs and an inspection pit. Mr. Grimsley is on the De Dion repair list and also among the firms stocking petroleum spirit.

THE Duke of Manchester has been refused a licence to drive a steam car in New York. It appears he has not been naturalised, and that only native engineers can obtain a certificate of competence in that very exclusive city of New York.

PROBABLY the most important event of the week has been the weather. Whether it has been enjoyed by everybody we know not; but we do know that it has enabled motorists in many places to give further evidence of the value of the motor-car. For while it has been excessively difficult for horses to plough their way through the snow and slush, motor-vehicles have been out and about in goodly numbers. The omnibus traffic at Bournemouth was partially suspended during the height of the storm, but the motor-car service was maintained fairly regularly throughout the day, although once or twice the cars were blocked by the snow, a fact which, of course, caused immense delight to the cabmen. Despite the fall of snow, the buses of the Lincoln Motor 'Bus Company were serenely pursuing the even tenour of their way. At the same time the trams were compelled to run two horses in place of one to each vehicle. The opening out of the High Street route by this company has been greatly appreciated. Such facts as these should be reassuring to those interested in the future of automobilism.

MR. E. A. ROSENHEIM, of Chelmsford, is endeavouring to get some of the leading automobilists to drive down to Chelmsford on the 13th prox., when Mr. E. Shrapnell Smith will give his illustrated lecture on motor-cars. Colonel R. E. Crompton will preside.

LOLLIUS,

CORRESPONDENCE.

THE WERNER MOTOR-BICYCLE.


TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. Teschemaker's letter of the 5th, I fail to see how he can consider my offer of a match against his tricycle as a pedalling contest. To avoid this question arising, I distinctly stated I would ride an ordinary stock motorcycle with a gear not higher than sixty-three, knowing full well when saying this, that I should be unable to follow the pedals when the machine was running at its average speed of twenty-five miles an hour. However, I shall be most happy to reduce my gear to anything Mr. Teschemaker desires, but I must certainly decline to ride without a chain for starting, or any other modification, as I wish to demonstrate the capabilities of the Werner as it is sold to the public.

Mr. Teschemaker wants to ride 20 miles only; why not London to Brighton? Is Mr. Teschemaker afraid that after 20 miles his motor would be overheated and practically out of the running? I think the Brighton road is a good test, and if Mr. Teschemaker really wants a ride, I don't see what objection he can make, as it would necessitate only four or five hours' absence from town.

If Mr. Silverthorn will send his address to me at 47, Holborn Viaduct, E.C., I shall be most happy to forward a portion of belt joined in a manner that I think will give him but a very little trouble.—Yours faithfully, JOHN J. LEONARD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent, Mr. Silverthorn, finds two difficulties in connection with his Werner which I have overcome. First, the strap. I have this long enough to turn up the two ends thus—, then through these ends I pass a bolt with a stout washer on each side. I find this stands well; to take up stretch cut one end off and make fresh hole. The washers should be rounded off so as not to cut the strap. Secondly, the silencer. Inside the present box I have fixed a brass tube, closed at the bottom, and drilled with holes on one side of rather larger area than the holes in the present box. This tube is tapped into the exhaust pipe, and hangs down inside the outer box; when fixed the holes of the inner silencer should be on the opposite side to the holes in the outer silencer. Even when working up hill only a dull thud is perceptible.—Yours truly, T. FREDK. HUNT.

MOTOR-CARS FOR MEDICAL MEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am afraid I scarcely feel sufficiently "crushed" at Dr. Hardwicke's criticism of my remarks. Without wishing to obtrude my opinion unduly, I think I may venture to express my belief that the requirements of a commercial traveller and of a doctor, in "matters motorial," would hardly, I think, be identical. Surely the traveller would want more space for his "samples," etc., than the medical man, whose chief anxiety would be easy starting.

The presence of six inches of snow on the ground suggests the advisability of a certain amount of reserve power for those who want to use their cars in all weathers, and a momentary glimpse of Mr. Mark Mayhew speeding by, as I write, on his 16-h.p. Napier as easily, despite the raging blizzard, as a butterfly in summer, is a very fair answer to a dismal question, put by an unbelieving friend of mine this morning: "Where are the motors now?"—Yours faithfully,

CLAUDE A. P. TRUMAN,
Hon. Sec. Reading Automobile Club.

QUERIES RE BELT-DRIVEN CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—"Perplexed" should obtain a belt of best orange tan from any engineering shop. This ought to be used for top speed. It is best to put it on fairly tight over night, and pull a

block of wood, say 2in. square, between the belt and pulley. Leave it all night. Then take off, shorten, and repeat till all the stretch is taken out. Finally, the belt should be secured with Harris's belt clasps; there is nothing better or more handy for taking apart should the belt require shortening.

For the low speed, use Dicks' canvas belt, which does not stretch or slip. Avoid resin, or any sticky material. Put a little castor-oil on the *outside* of the leather belt—not on the canvas belt—to keep it soft and pliable.—Yours truly,

A. J. ALDRED.

ELECTRIC IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been waiting for some weeks to see if any of your numerous subscribers would reply to the letter of Mr. Henry Edmunds in your issue of December 15th on the above subject. As no one seems to have done so, however, I feel bound myself to write, if only to express my thanks to him, for, in my opinion, he has solved one of the greatest problems in this ignition difficulty. I bought an Ariel tricycle six months ago, and never had the slightest trouble until, one damp misty day in November, I started on a 50 miles' run. The firing was erratic when I started, but gradually became worse, and progress was only maintained by vigorous use of the pedals. Then came the stop, 5 miles from home, where I spent three mortal hours testing the machine at every point where trouble was supposed to arise, but all to no purpose. Now for the mystery (the cause of which has been explained by your correspondent). The machine would fire easily enough with the compression tap open, but cease instantly when closed. Had I seen the letter of Mr. Henry Edmunds before starting on that journey I should not have said half as many wicked things as I actually did. I may say that a later similar experience was remedied in five minutes by closing the platinum points as suggested.—Yours truly,

JOHN BREESE.

CAR CONTROLLING CAPACITY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The agitation that is being propagated by some legislative bodies for the reduction of maximum speed for motor-vehicles, and thereby restricting the latter's usefulness, is out of all keeping with the times. Experience shows that it is not so much the matter of speed wherein danger sometimes lies, but in the capability and adaptability of braking power. Those persons who are so kind as to look after the man in the street should make brake power and application their study. Incidents have occurred to the writer where, had he been driving his motor slower, serious mishaps would have arisen. The idea of limiting speed to 10 miles per hour is absurd to all automobilists, and would be laughable did it not mean a serious repulse to motor industries.—Yours truly,

F. J. HORTOP.

MOTOR-TRICYCLES AND JOLTING.

TO THE EDITOR OF *The Motor-Car Journal*.

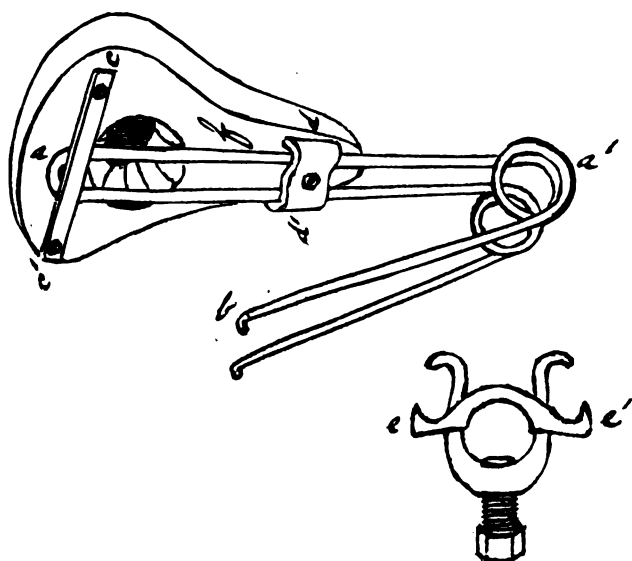
SIR,—In reply to "Motor-Mad," I enclose a rough sketch showing how I have overcome the jolting difficulty in my tricycle. The vibration is of three different kinds:—(1) The tremor caused by the engagement of the pinion and gear wheel; (2) The vertical jolt, where both driving wheels meet an obstacle simultaneously; (3) The lateral jolt, when one driving wheel is lifted and not the other. The pulsation of the piston at very high speeds and the jarring of the handle bar are minor matters.

After trying many saddles, including the "Multispiral" mentioned by Mr. Jarrott, I came to the conclusion that a pneumatic would absorb No. 1, but that none of them would remedy Nos. 2 and 3. I then tried various saddles of my own design, including spiral springs up to four inches diameter, but none of them answered the requirement of allowing considerable rise and fall and yet be rigid in a fore and aft direction. I then designed the following, which, after several months' trial,

appears to me to be a distinct success. It is a "Guthrie-Hall" pneumatic saddle attached by two plates and three nuts to a steel spring made of one piece of finely tempered steel 4ft. 6in. long. For a rider not exceeding 10 stones the diameter should be $\frac{3}{8}$ in., and for one over 12 stones $\frac{1}{2}$ in.

The rise and fall of this saddle is about 4 in., but it is as well to strap it down a little at first until one is accustomed to the peculiar motion; also to sit well down and bring the weight low when rounding corners; also to be considerate for one's machine on rough ground, for, as the rider feels no vibration himself on this saddle, he is apt to forget the strains his machine is undergoing.

Of course, this is only a remedy for vibration as applied to the rider, not to the machine, and I notice that "Motor-Mad"



DIMENSIONS.

a—d	13 in.	b—d	9 in.	c—e	7½ in.
d—d	2 in.	e—e	2½ in.	b—f	3½ in.

complains that his tricycle "rattles itself to pieces." Perhaps he would tell us what goes wrong in particular! My machine is all right after two years' hard work.—Yours truly,

W. E. TESCHEMAKER.

MOTOR-CARS ON THE HIRE SYSTEM.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With the commencement of the new century I consider that it is high time that financiers, capitalists, and manufacturers turned their serious business attention to developing the motor-car industries. English visitors to France and to the Paris Exhibition cannot but be impressed with the fact that we are a very long way behind the times with this remarkable invention, and that the time has arrived when prejudice, ridicule, and doubt were placed on one side, and earnest, thorough, and extensive business established.

To my way of thinking one of the greatest mistakes made by manufacturers is the arbitrary terms they all seem to make as regards the "cash with order," or "cash on delivery" payments. How many sewing machines are sold for cash?—about thirteen per cent. How many pianos?—roughly speaking, only ten per cent.; and so on with carriage builders. If the hire system has been so very successful in the aforesaid articles, and which deal with much smaller amounts, why should it not be immediately extended to this particular industry? Not all professional or business men have hundreds of pounds by them ready to invest in a car, or have the confidence to part with ready money to the require 1 cash amount.

There is immense business in the future and success assured to any company which has a large capital and a good commercial board of directors, that can place on the market reliable, up-to-

date cars on the three years' system, and having, in connection with the business, a school of instruction and an exchange bazaar. It is thus that a better feeling of confidence would germinate in buyer and seller.—Yours truly,

DANDO HARPER.

A SUBSTITUTE FOR PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will Mr. Pretty kindly inform me, through the medium of your columns, if a mixture of methylated spirit and benzoline (in the proportion of 4 and 6) can be used, instead of motor-car spirit, in any car now driven by the latter, as, for instance, the Benz or Daimler? Or is it necessary to have a specially constructed engine? It would undoubtedly be a great boon, even at 50 per cent. more cost, to be able to get rid of the unpleasant smell attending the former means of driving.

Yours truly, W. W. H.

TUBE v. ELECTRIC IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Twenty Miles from the Railway," the lamp I was speaking of is the usual pressure-feed lamp as supplied by the Daimler Company; there is no timing valve and the tubes are of the usual type.

I also take this opportunity of thanking "Cush" for the information regarding carburettors; should I require one I will make inquiries. I presume M. Delamare Deboutteville lives in Paris; his address may be useful to others besides myself if "Cush" would oblige with it.—Yours truly,

E. ESTCOURT.

MOTOR PATENT MATTERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to Mr. Friswell's letter in last week's issue of the *Motor-Car Journal*, I have to say he is incorrect in stating that the Ariel Motor Company, Limited, is partly owned and directed by Mr. Du Cros. Mr. Du Cros does not hold a single share in the Ariel Motor Company, Limited, and never has done. He is not a member of the board and never has been; neither is he connected, either directly or indirectly, with the Company.

Yours faithfully,

H. R. ELDERFIELD, Secretary.

PORTABLE BUILDINGS FOR CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can you inform me whether there are any portable (i.e. "tenant's fixtures") motor-car houses to be obtained, which shall be as damp and weather-proof as good brick-built ones, and if so, let me know the firm or firms who make them, and the approximate price for such a one measuring about 13ft. deep and 15ft. wide, to accommodate two motor quads or a quad and a voiturette, etc., with room to get round one at a time for cleaning, adjusting, etc.; also attached, and communicating, a room the same depth (13ft.), and about 8ft. wide, for workbench, vice, shelves, cupboards, etc., as workshop and store in connection with the motors? I desire to take a permanent house in Southport, but cannot come to terms in respect of any which has accommodation for my quad, and unless I buy a house, I do not see how I can continue to keep my quad except I can get a thoroughly good portable building at a moderate price. At my late home, in another town, where my quad now remains, I had any amount of accommodation in a permanent building, but have no experience of the portable ones.—Yours truly,

THERMO.

AN American contemporary defines a patent as a sort of thing that gives one person the exclusive right to all the litigation in connection with some sort of a thing for a certain number of years.

AUTOMOBILE NOTES FROM PARIS.

THERE is an enormous difference between this time and last year with regard to the number of automobiles in circulation in Paris. Then, they were frequently to be seen; now, they are constantly in sight. Hardly a second passes during which the eye fails to see a motor-vehicle, should one be walking almost anywhere in Paris. Even in side streets they are to be constantly met with, whereas processions of them follow each other down the main thoroughfares. At all times of the day does one hear the singing hum of motor-cars, except when a cab or other horse-drawn vehicle passes by with a rattle and a clatter which drowns all other sounds; and how inspiring it is to hear the cheerful toot-toot of the horns answering one another in the distance.

In the Champs Elysées and the Avenue de la Gare are to be seen most of the motor-cars, while a fine morning will bring them in swarms, like bees in a hive, to the Bois de Boulogne. I am glad to see that a sober rate of speed is the fashion by general adoption. No scorching or showing off of any kind have I noticed. Motor-cars now take their place sensibly in the traffic, and are accepted as units of the same. No one pays any attention to them beyond bestowing possibly a casual glance. The astonishing number of motor-cars one sees in the Bois de Boulogne, at this time of the year, too, is most gratifying to the bosom of the ardent motorist.

There is a marked improvement in quality. By far the greater number of motor-cars seen are of the very best and most expensive type. This time last year the cheaper ones were more common. I have only seen one solitary car have a "break-down." That, however, was a bad one. I mean both the car and the "break-down." It was of a make which, I should say, has done more damage to the cause of automobilism than any restrictive regulation. A friend of mine had a similar one not very long ago, and the story of his adventures with it was very funny. He assured me its normal condition was that of being *en panne*. It was not from lack of knowledge how to work it on his part. Once, he told me, he wished to impress some friends, and thinking—not without reason—that his car was perhaps a bad one, he went to the agency, and borrowed the best car they had for the occasion. It was supposed to be extremely good, this car, it being the one on which all prospective buyers were taken out for a trial run. The car was brought round to his house by a mechanic and arrived an hour late. He had promised to take his friends out for a grand run in the country, outside Paris, and they all started in high spirits. The car went beautifully for 100 yards and then something went wrong; halt and hard work. To cut a long story short, I may as well say at once that although he got it going again, oh dear yes, many a time, they never got beyond the length of the street. They had fourteen "breakdowns" in as many hundred yards, and after spending an afternoon going the length of that avenue, they thought it wiser to push it into a stable which happened to be handy. There it was left to be called for, and my friend having packed off his party on a "hippomobile," returned home, where he proceeded to pen an indignant and sarcastic letter to the company.

There are plenty of fine Panhards to be seen, of 8, 12, and 16 h.p. The three branches of motor-vehicles, cars, voiturettes, and motor-cycles seem fairly equally divided. The Rochet-Schneider Company are now turning out an excellent car similar to the Panhard. As I was examining their motor the other day, I thought to myself patents are valueless, or else Panhard sleeps. Of the voiturettes, the Renault is much to the fore, and so is the Darracq. I think they divide the honours in number. Gladiator voiturettes come next. De Dion voiturettes are often seen, but are by no means so common as might be expected.

There are lots of other good voiturettes rarely seen, owing to the limited output of the firms concerned, among which must be mentioned the Soncin and the Vinet. One or two firms are turning out very successful voiturettes, fitted with the Buchet engine. This motor has won several races lately, among which was the Cote de Gaillon, in the voiturette class. One firm in Paris is making a voiturette to be fitted with a two-cylinder

water-cooled Buchet engine, which gives 14 h.p. on the brake. Quite a graceful voiturette is the Renault latest model. I am, however, greatly taken with the small light Renault coupé or brougham, which I have several times seen. This little car has a brougham body, and is steered and worked from within. The engine remains under a bonnet outside with the radiator as usual. There is a small seat at the rear on which a mechanic can be taken. I have seen these little vehicles scudding along at a great pace, and they seem to be admirable. I should imagine it is the *beau idéal* of a light car for a doctor or anyone with professional duties necessitating much going to and fro in all weathers. As for the motor-cycles, every other one seems fitted with an Aster engine, which shows how greatly this motor is growing in the public estimation. I remember the time when this engine was as rare as the proverbial plum in the schoolboy's cake, compared to the number of De Dions going about. There are quite a number of motor-vans to be seen, and the electric cabs appear to be doing well.

The weather is not at all pleasant for motoring, owing to the piercing cold. However, the streets are full of motor-cars as it is. Judging from the present, the number of motor-vehicles in Paris next summer will be a sight for the gods.

Paris, December 25th, 1900.

LEOPOLD CANNING.

MOTOR-CARS FOR PUBLIC SERVICES.

At the Automobile Club on Wednesday there was a large gathering of members and visitors to hear a paper by Mr. T. R. Outhwaite, the secretary and manager of the Edinburgh Auto-Car Company, on "Motor-Cars for Public Services." Mr. Shrapnell Smith presided, and referred to the greater prominence which the subject had attained in England, as compared with France. He also quoted from the experience of Dr. Haley, who had done much to further the motor passenger system between Olney and Newport Pagnell, and who had absolute faith in the future of such services. The following is Mr. Outhwaite's paper:—

In July of 1897 I first entered upon my motor-car career, buying from Stirling's, of Hamilton, a four-seated Daimler wagonette. In this car I covered in the following eighteen months over 20,000 miles—in fact, having little else to do at that time, and being anxious to gain experience, under all conditions of weather and roads, in an industry I felt sure was bound before long to be a large and important one, I left no stone unturned to attain my object. I merely state this, by way of preface, to show what led me to associate myself with the company which came before the public in May of 1899 to run motor-cars on the same lines as trams. I do not want to trouble you, however, with the history of this individual company, but showing as we do, after eighteen months' business, a loss, I would like to point out, so far as possible, the reasons for it, and make a few suggestions for the future. One point I would ask you to remember, and that is that I am dealing solely with the one type of car—that driven by oil.

To come back to the point again, viz., "the causes of failure," firstly, the cars as at present built for public service work are, as regards strength, out of all proportion to the work they are called upon to do. To put it a little more graphically, it is like going into action with a gun mounted on a "Victoria" and drawn by a pony. The labours of Hercules were nothing compared to those of anyone running twenty or thirty cars for public service, unless, of course, it was done absolutely regardless of cost. We are to-day attempting to run at a profit cars originally designed for four passengers, with loads of eleven and twelve persons, to say nothing of a hood in bad weather. The same engine, the same gearing, the same sized bearings, the same section of rubber tire, the same chains, are to-day fitted to my largest public service car as are fitted to my own two-seated car. It is obvious, then, one of them is wrong, and it is obvious which it is when I say that the former costs me nearly as many pounds to keep up in one month as my car costs me shillings in a year.

Secondly, even though the existing type of public service oil car was built heavier throughout, and a more powerful engine substituted, I find from experience the design in many vital points is not suitable for this particular class of work, owing to (1) constant variations in load, (2) incessant starting and stopping, (3) lack of really competent drivers. Take point No. 1. A driver adjusts his brakes and chains before leaving the depot. He procures a full complement of passengers—ten, with what result? chains go out of adjustment, and the brakes rub on the tires. Point No. 2. Except with careful drivers, the continual starting and stopping, compulsory in street traffic, is a severe strain on nearly the whole of the car, and I believe this factor has almost more to do with the rapid deterioration of the cars than anything else. Very often, too, it is absolutely necessary to pull up suddenly to prevent accident. Lastly, drivers. I have given this question most careful thought and attention. Not being able to alter the defects in the cars, I tried the only other remedy, to improve the drivers. In this I was partially frustrated, for I

found that after carefully training men and giving them every possible encouragement to make themselves efficient, not only as drivers, but as mechanics, other small companies started up with three cars here and three cars there, and by reason of an extra shilling a week and the promise of a new car, I found my best men leaving, and I had to start at the bottom of the hill again. I firmly believe the motor industry and motor public service have suffered more through bad drivers than anything, and I would take the liberty of urging you not to certify a man to be an efficient driver when he is far from it. I have had many men come to me with excellent characters who, when asked the simplest question, were absolutely at sea. After a driver has been with me a considerable time, and, besides being a good driver, is capable of doing his own repairs, a printed certificate is given him, which, so far as his efficiency goes, is his character. There is one other important point which must not be omitted—tires. I have tried almost every make at every price. The tire which to-day gives me by far the best results is the "Castle" vulcanised tire, supplied by the North British Rubber Company. If the ordinary "Clincher" section is used, I should most certainly advise nothing under a 3in. section on the driving wheels—and would even prefer 3½in. or 3¾in. section.

I will now make a few suggestions for a future car suitable for public service work—and with which I am confident it would be more than possible to compete with any existing tramway company in the country. The carrying capacity of the car should not be under fourteen passengers, so as to admit of a conductor being carried. To carry this number of passengers nothing under a 12 h.p. motor should be used, yet the engine should only have two cylinders. All working parts should be encased, and while electric ignition might be used to advantage, tube should be fitted as well. It should be made impossible for the driver to increase the speed of the engine above normal. All wearing parts must be accessible, adjustable, and easily and cheaply replaced. One of the greatest drawbacks of the present public service car is the time lost in gaining access to the various parts. A good many of the present-day evils could be got over by laying the existing driving shaft stationary horizontally, and instead of sliding the shaft and friction clutch together, slide the clutch itself along the shaft. The connection to the road wheels would, I think, be better with gearing in place of chains. As regards lubrication, this should be done from one oil reservoir with pipes leading to all the journals. While I have always found the Stauffer lubricator very efficient, the time taken to grease twenty cars is very considerable.

A car on these lines being built, let us consider the advantages of the motor-car for street traffic, which are obvious. It possesses all the advantages of the 'bus, in that the cars can run on any route according to the requirements of the traffic, and, moreover, the passengers can be taken direct from the pavement. It is not necessary to upheave the streets and spend hundreds of thousands laying rails, building power stations, etc. With the finest mechanical tramway system yet produced one accident at once disorganises the whole system. The cost per mile of running a good car is about 3d. for petrol, which compares quite favourably with any tramway system. For suburban traffic motor-cars seem particularly suitable, as passengers can be conveyed with safety at a greater speed than would be possible or safe with any other vehicle. For three months last winter I ran such a service to a small village three miles from Edinburgh, with a time-table, and as people were brought into town in twenty minutes, as against forty by 'bus, an extra 3d. over the bus fare was charged. This the people resented, so the cars were withdrawn for another service.

Coming now to the means adopted by my company to overtake and check repairs and fix responsibility. When each car comes in at night, the driver is given a "report" sheet, with a list of all the main parts of the car printed. Opposite any part which needs attention he makes any necessary remarks. The foreman makes an extract of these, and allocates the work among the night engineers. The head engineer hands report to the foreman in the morning, stating all the work done and by whom each respective job has been carried out. When the driver takes over his car in the morning, he is given back his previous night's report sheet. On the bottom of this is a place for him to fill in any items which he had reported, but to which effect had not been given, so that he is thus cleared from responsibility in case of accident. My company have carried over 5,000 passengers in one day, and over 1,000 in one car in one day. We had cars last year as far north as Inverness, and as far south as London, and, without a single exception, we have never injured in the slightest degree any passenger—which is a tribute to the men employed by our company.

Mr. Bell (Bournemouth) opened the discussion. His cars were running on the main road in competition with three omnibus companies the shareholders in which were directly represented on the Town Council. He charged 3d. as against the 'bus fares of 2d., and people would wait for the cars because they did the journey in 11min. compared with the 25min. occupied by the 'buses. The cars carried eight passengers, and those eight-seated cars had practically the same capacity as the 26-seated omnibuses drawn by three horses, because of the quicker journeys made, and the time saved in changing horses, etc. On the previous day there had been snow at Bournemouth, and at three o'clock there were three omnibuses left on the road. They all gave up at five o'clock, but the motors kept on. He had not made any financial loss. With regard to drivers he had found experienced men a nuisance. They knew too much. He had engaged an old milk carman, who had done better than the skilled mechanic. All they should be expected to do

was to drive; the mechanic and fitters would see to the machinery. His service had carried nearly a million passengers and had not been held up once. At the present time he was in negotiation with a town in the south of England which had started a line of trams to institute a motor-car service as a feeder to outlying districts.

Mr. Parker Thomas, of the Aberdare Valley Motor-car Service, Limited, was assured there was a tremendous opening for manufacturers who could turn out a satisfactory car. It was impossible to run to time tables. His service had seven cars, and it might occur that five happened to want attention at the same time. The present motors were too complicated for public service vehicles, and the bearings were too large. As to tires, he had found the A.B.C. very satisfactory. It had run 1,400 miles on one of his cars and was without a scratch.

The Chairman then read a letter received from Mr. A. W. Goodall of Lincoln, in which he referred to some of the difficulties that had to be encountered. As a rule services were started by men who were unaware of the practical working of the cars. They erected unsuitable buildings, did not obtain the proper plant and tools, and had a dread of laying out money on the duplication of the various parts. Tires had proved his great trouble. When useless he could not obtain more than 2½d. per lb. Some of the tires ran out in a few months; he had lately had one done for in ten days. Owing to the sudden starting and stoppages chains were another trouble. The introduction of hardened gears had proved helpful. He had a gear which had only been taken out once for examination and was now as sound as it was twelve months ago, and that after running seventy miles a day. The heavy charges for renewals were an important factor in the working of a motor-car service, and he had known a difference of 75 per cent. in makers' quotations. The difficulty of getting drivers had increased during the last four years.

Mr. Sidney Straker said that many of the cars now running were not built for public service. The Daimler Company were bringing out a public service vehicle to carry fourteen passengers. It was of 12 h.p., and there were no chains. It was a direct geared machine, and the tires were of a special make. Since the 1,000-mile trial the company had thoroughly revised the engine, and had constructed a motor with a head. The total weight of the car, which had an open top, was 30 cwt. The London Steam Omnibus Company put two petrol 'buses on the road in June of last year. They had made journeys of 350 miles per week, running six and seven weeks without any repairs being necessary. The public patronage had not been very great. Oil and fuel had cost 3d. per car mile, the drivers 2½d., and the repairs 1½d., making a total of 7d. per car mile—an estimate based on the result of the first three months' running. The average weekly cost per vehicle of the London General Omnibus Company was £15; of the motor-'bus only £9 10s. With all heavy vehicles direct gearing was the only solution of one of the great difficulties. He advised the employment of drivers accustomed to 'bus driving, and who would not interfere with the machinery. A weight beyond 30 cwt. was outside rubber-coated tires; inside that they had evolved a tire that was successful owing to the system of vulcanising the tire on to the rim. Electric ignition was quite unsuited for public service vehicles, and the tube system was more reliable. In connection with lubrication they had a pump with four independent deliveries that forced the oil between the piston and the cylinder, whether it required it or not. The ideal car was a 30cwt. machine with solid rubber tires to carry fourteen passengers. The addition of a hood would make it weigh 34cwt. It should have a minimum speed of six miles an hour and a maximum of 10½, to cost £450 or £500 if without the hood, £50 more if that was provided.

Colonel Crompton said chains were the only satisfactory plan where springs were used. The last three years had seen a revolution in chains. Chain transmission was not so liable to a sudden break-down as gear. In connection with tires some sort of hollow tire must be adopted. They should not have skilled mechanics as drivers, but nerry men who could obey orders. The next three or four years would show great advance. When they commenced electric traction they had the same difficulties with repairs that were being experienced with cars, and these occurred until they got many of the parts standardised.

Mr. George Iden said the endeavour of makers had been to introduce improvements which would give a better result on the road. The cars so far supplied in connection with public service vehicles had been feelers. Those in service had been overloaded, and reserves had not been kept, as was the case with omnibuses. Drivers did not pay enough attention to lubrication, and to remove some of the difficulties connected with that he had introduced a self-adjusting lubricator, in which the movement of one lever opened all the pipes. As to old tires, he was able to obtain 8d. per pound for them. Considerable improvements had been made in chains, and he now fitted roller chains in all cases. He did not recommend mechanics as drivers. They wanted men who could accommodate themselves to circumstances. Every part should be as nearly as possible interchangeable. In a short time a new 12-h.p. motor-service vehicle would be run, weighing 34½ cwt., with a good omnibus top, and carrying sixteen passengers. His company was also making an intermediate size with 8-h.p.

Mr. S. F. Edge knew something about the difficulties of obtaining drivers. He had sent coachmen to France to become acquainted with mechanical details, and they returned useless as drivers. The best plan was to get ordinary drivers. He did not think much of the way cars had been served in public service. A little thing built for four people had been loaded with fourteen. The improvement in chains had been most extraordinary. Up to fourteen months ago he renewed his block chains every 1,500

miles. Since then he had used Brampton roller chains on a carriage developing 24 h.p., and after riding 9,000 miles he could say it had proved very satisfactory. For the first 3,000 miles he took them off every 250 miles and put them on hard Russian tallow. Now it was necessary only to pour oil on them. The best manufacturers in France had to come to this country to buy chains for their vehicles. In the Cannstatt coupé carriages the gear method was employed, but after a little while the gear wheels got extremely noisy. In keeping a reserve of cars the cost had to be considered, and he should like to have some idea as to what the managers of public services were prepared to pay.

Mr. Percy Richardson referred to the causes which had forced some of the earlier motor-car service companies to the wall. The first was the vehicles themselves. Upon cars constructed to carry four people bodies to carry ten had been placed. The question of management had also been a factor in the position, and men had been appointed who knew nothing about motors. He had found in one case that the cars always developed difficulties on wet days—and when he made an investigation he found it was solely because the drivers would not go out on wet days. The present vehicles were not perfect, and they could not arrive at a perfect vehicle until they had sufficient experience. With careful management, however, there need not be a loss with the present cars. People starting motor-car services often had curious ideas of price.

Mr. Hutchens, Bournemouth, said the attitude of the public towards motor-cars was becoming more favourable. They were really introduced into Bournemouth in March, 1899. Before establishing his service he took the Horse Committee of the Town Council and the local Press for trips, thus accustoming the local people to the innovation. They had a time-table, and for six months they had kept to it. The service only consisted of three cars, one of which was kept in reserve. He did not think a driver ought to know absolutely nothing about mechanics, and the best man was one occupying a position between the two extremes to which reference had been made. He hoped an effort would be made to give the chain some kind of gear case similar to that on cycles, arranged so as to slide in some way and be easily taken in part, so that the chain could be got at. The couplings on the intermediate shaft, he found, wore out in a small space of time. The strength of the tanks required attention, and, if possible, he should like to see copper tanks. Owing to the action of the springs the tire brakes in some positions did not act, and that ought to be remedied. Something, too, should be done to protect the burners from draughts. With regard to hoods he had tried three different kinds. The small hotel 'bus shape was not popular, and the most satisfactory was one with a glass behind the driver and curtains at the side which could be pulled up in fine weather. Judging from the results of the 1,000-mile Trial, the vulcanising of tires did not seem to be satisfactory, but he recognised the advantage of the system if it could be made a success. He advised that the Clincher tires should be given a more rounded shape.

Mr. F. Morris (King's Lynn) had had three years' experience with motor-cars. They wanted a car not geared up too high, as most of them were. Three speeds might well be substituted for the four generally provided. He had had difficulties with the gear sleeve, which had to be thrown away when the first and second speeds were little worn, because of the third speed. He had got over the trouble by cutting the sleeve in two and making a third and fourth speed of it. With regard to the tires, he could never get more than 2d. a lb. for old rubber. He had had an omnibus running for twelve months from end to end of the town. Nothing was so satisfactory as the ordinary Clincher tires. A heavy section of Glew's tire had also given satisfaction. On the subject of drivers, he had just got an agricultural labourer to drive a car at 10s. a week. Should anything go wrong with the car when on the road he could telephone to the works.

The Hon. C. S. Rolls spoke of the advantages possessed by electric trams. Side slip had not been mentioned; that was a difficulty to be recognised. A day or two before he had gone with a friend to Rugby to fetch a Leyland steam waggon. They got under way and the wheels skidded round. They coiled ropes round the rim, but these were soon cut through. Then they used steel wire cable, which lasted till they got to a hill which they could not surmount. Eventually they returned by train, having previously attained a speed of 127 miles an hour. Motor-cars would undoubtedly be useful as feeders to tramcar systems. Some of the present vehicles in use for public service were of an antediluvian type, carrying fifteen people with 4 h.p. For the heavy vehicle the most satisfactory power would be steam. Lately he had had no trouble with chains. Brampton's had apparently got a chain out which gave no trouble. The Renold chain ran more like a belt than any other chain, and was noiseless. In France he had seen the Compound tire working on heavy vehicles. It was a semi-pneumatic tire, very thick, but the difficulty was its expense.

Mr. J. H. Gretton said it was not a fact that public service vehicles had not been successful. One manufacturing company that he knew had supplied cars to fifty different services in this country. Motor vehicles had not been all that one could expect. It was similar with the locomotive, the steam engine, and, in fact, every form of carriage. At the beginning people did not keep enough vehicles in reserve, and sufficient attention was not paid by manufacturers to standardising the parts. All that had been got over. It was not sufficient to run public vehicles on electric ignition.

Mr. French, who proposed to start a motor vehicle service in London, asked for information with regard to the collection of fares.

Mr. R. Outhwaite replied to various points in the discussion, saying the ticket system was adopted to collect fares. Even with that there was a leakage of 15 to 25 per cent. With regard to the cost of cars, he

thought a profit could be made on a car costing about £450 or £500 if it ran properly.

A vote of thanks to the writer of the paper having been carried by acclamation, a similar compliment to the chairman closed the proceedings.

DIARY OF 1900.

AN INTERESTING AUTOMOBILE RECORD.

JANUARY.

Formation of a Yorkshire branch of the Automobile Club.
Motor-wagon trials arranged at Bradford.
Paper by Mr. T. H. Parker on "Electricity on Common Roads," at the Automobile Club.
Inauguration of Motor-Car Services at Bournemouth and King's Lynn.
The Motor Trades Association formed in London.
Thirteen new English built motor vehicles—the Balmoral char-a-banc, the New Orleans voiturette and the Wolseley car—attracted attention.
Special interest attached to the visits paid by English motorists to the United States.
New tariff of taxes on automobiles came into operation in Antwerp.
German military authorities placed orders for Cannstatt-Daimler wagons.
Records attained on motor-bicycles by MM. Fossier and Béconnais, the former making an average of 71 kilomètres per hour in a 21 kilomètres race, and the latter covering one kilomètre in 42½ seconds with a flying start—at the rate of 84 kilomètres (52½ miles) per hour.
Motor-car exhibition at New York.

FEBRUARY.

The Prince of Wales ordered his first motor car.
Difficulties experienced with the railway companies in connection with the carriage of petrol.
Formation of the Manchester Automobile Club.
Inauguration of the Motor Vehicle Users' Defence Association.
Hon. J. Scott Montagu's paper on "British Automobile Manufacture," at the Automobile Club.
Major Crompton sailed with the Electrical Engineers for South Africa.
Annual Meeting of the Automobile Club.
The Chelsea Vestry adopted motor dust vans.
Licences granted for public motor-cars at Hastings.
New voiturettes introduced by Mr. J. Burns and Messrs. Monk and Lonsdale.
Formation of the Lincoln Motor 'Bus and Parcels Delivery Company, Ltd.
The Yorkshire Motor-Car Manufacturing Company, Ltd., and Accles-Turrell Autocars, Limited, registered; meeting of the Motor Manufacturing Company, and a scheme proposed for the re-organisation of the London Motor-Van and Wagon Company, Ltd. The name of the Motor-Vehicle Company, Ltd., was changed to Motor Power Company, Ltd.
The Pau week took place at the end of the month.
M. De Knyff maintained a speed of 43½ miles per hour for 5 hours.

MARCH.

Death of Herr Daimler—a pioneer in automobilism.
Mr. H. Sturme's paper on "The Motor-Car in Europe and America," at the Automobile Club.
Reconstruction of the Motor Manufacturing Company effected.
Annual meeting of the Motor-Car Club.
Mr. E. J. Coles gave the first automobile performance on an English stage.
Gasté broke Beconnais' record, covering a kilometre from a stationary start in 53½ secs.
The Nice week commenced.
Exhibition at Amsterdam.
Trials of motor-carriages for field guns made by the French military authorities.

APRIL.

Ladies' dinner at the Sheen House Club.
The Automobile Club's Exhibition of Motor-Cars, held at the Agricultural Hall, Islington, under the direction of Mr. Charles Cordingley.
Hon. C. S. Rolls read a paper on the 1,000-mile Trial at a dinner in connection with the Exhibition.
The Automobile Club's 100-mile hill-climbing Trial.
Motor-cycle racing at the Crystal Palace and other metropolitan centres, and at Birmingham.
The Automobile Club's 1,000-mile Trial began.
Paper by the Rt. Hon. J. H. A. Macdonald, C.B., on "War and Power Traction," before the Automobile Club.
Paper by Professor Hele-Shaw before the Institution of Mechanical Engineers on "Road Locomotion."
New char-a-banc for public services introduced by the Daimler Company.
First automobile race in America took place on Long Island.
Commission appointed by the French Government to inquire into the existing law with regard to automobiles.
Paris-Roubaix race.
Bill adopted for licensing all drivers of automobiles in New York State.
Commission of Italian officers appointed to inquire into the application of the automobile to modern warfare.
Motor-car exhibition at Brussels.

MAY.

The 1,000-mile Trial came to a successful conclusion.
Exhibition of the cars at the Crystal Palace.

The Hudliss petroleum spirit motor-car placed on the market.
 Licenses for motor-cars at Eastbourne renewed.
 Conference at the Home Office on the carriage of petrol by the railway companies, and issue of new regulations.
 New Joel electric carriage made good trial tests.
 Paper by Messrs. Rush and Joy on "The Motor-Car Industry," before the Institution of Junior Engineers.
 The Manchester Automobile Club held its first run—to Knutsford.
 Sir David Salomons read a paper on "Modern Locomotion" before the Anglo-French Association in London.
 Paris Exhibition—with important automobile section—opened.
 The new clubhouse of the German Automobile Club opened.
 Automobile *fete* at Vincennes.
 Split occurred in the Automobile Club of France.

JUNE.

Whitsuntide tour of the Automobile Club to the Eastern Counties.
 The suggestion for a motor racing track made in the *Motor-Car Journal*.
 Motor-car meet at Southport.
 Mr. J. S. Critchley appointed manager of the British Electrical Traction Company.
 Rigal covered 38 miles 1,372 yards in the hour on a motor-tricycle at the Crystal Palace.
 Rules of the 1901 Liverpool trials of motor-vehicles for heavy traffic published.
 The English Motor Club formed.
 The Blake four-seated petrol car attracted notice.
 First automobile auction in England held by Mr. E. Owers.
 Second quarterly 100-mile trial of the Automobile Club held.
 Automobile Club's motor racing meet at the Crystal Palace, and hill-climbing contest at Westerham.
 Motor-car exhibition in Vienna.
 Speed trials for Belgian vehicles on the Dieghem road at Brussels.
 The Gordon-Bennett Cup race won by M. Charron.
 The Bordeaux-Perigueux race.

(To be continued.)

FURIOUS DRIVING.

AT Chelmsford Petty Sessions, last week, Henri Berrue, described as a motor-car driver, of 30, Charlotte Street, Fitzroy Square, London, was charged that on the 22nd day of December, at the parishes of Widford, Margaretting, and Ingatstone and Fryerning, he did drive a light locomotive at a greater speed than twelve miles an hour, contrary to "the Light Locomotives on Highways Order, 1896." Mr. Eldridge, instructed by Messrs. William Tanner and Co., prosecuted on behalf of the police, and Mr. T. W. Staples Firth defended. Mr. Firth objected to the presence of county councillors on the Bench, and three gentlemen retired. Police evidence showed that between 3.46 p.m. and 3.58½ p.m. the defendant had travelled 4 miles 3 furlongs 100 yards—at a speed of twenty to twenty-one miles an hour. A surveyor and a publican having given evidence, Berrue said his speed was but ten or eleven miles an hour. Mr. F. F. Wellington corroborated. The justices imposed a fine of £5, and £12 13s. costs.

THE LONDON ELECTRIC OMNIBUS COMPANY.

AT the adjourned meeting of this company, held on Monday at the offices, 11, Queen Victoria Street, E.C., Lieutenant-Colonel T. T. Turnbull, who presided, said that the main point that had occupied the attention of the board was how to secure an omnibus which could be run not experimentally, but on a commercial basis. The board believed that a suitable vehicle, guaranteed by the manufacturers in every way, could now be obtained at a reasonable cost. They had laid before the shareholders a scheme for reconstructing the company with a view of raising further money for the purpose of purchasing omnibuses of the type referred to. Turning to the accounts, he pointed out that the unpaid calls amounted to £5,068. The omnibuses at present owned by the company might be expected to realise a certain sum, although he was not able to say how much. In reply to questions, the chairman said that the new omnibuses would carry fourteen passengers. The motive power to be used was now being considered by the manufacturers. Before anything definite was done, however, in the way of buying new vehicles, the directors would have to be perfectly satisfied with them by a trial run of thirty consecutive days. It was proposed to run the new omnibuses all over London. Eventually the adoption of the report was carried, and a resolution was passed to the effect that it was desirable to reconstruct the company on the lines of the suggested scheme. The chairman said that the board would do the best they could to carry out the scheme, but if sufficient support were not forthcoming the company must be wound up.

MOTOR-CYCLES AND TRAILERS.

MUCH interest will be shown in the case heard at Weston Petty Sessions, near Bath, on Saturday. William Whiting, of Bath, was summoned for driving a light locomotive, to which a light carriage was attached, at a greater speed than six miles an hour, contrary to the Local Government Board regulations.

Police evidence was to the effect that the defendant was driving a motor-cycle, with a car attached, at a pace between eighteen and twenty miles an hour. For the defence it was contended that the pace did not

exceed fourteen miles an hour, for it was impossible to drive the motor at a greater speed than that. The question which arose, however, and which Mr. B. A. Dyer, the solicitor for the defence, described as one of great importance to motor cyclists, was whether they came within the charge of drawing a vehicle. The car attached to the tricycle was what was called a trailer. It could be taken apart and the tricycle driven alone, but the trailer was entirely useless without the motor, as it could not be pulled by a horse or anything else. He submitted that it was not a vehicle which, if taken in a broad, common-sense view, could be called separate, and therefore it did not come within the meaning of the regulation. The importance of the case was that if it was once held that the trailer was a separate vehicle it would follow that the motor could not be driven more than six miles per hour. The regulation, if it was not a separate vehicle, was that it could go a maximum speed of twelve miles an hour, and if it was held that the carriage was separate, motor-cycling would be done away with. The question as to its being a separate vehicle had been raised by the Inland Revenue authorities, and they summoned a gentleman for not paying the tax on one vehicle. The defendant contended that it was two vehicles, and the taxes would therefore be different, but the Grimsby Bench, before whom the case was tried, held that it was one carriage, and so they convicted the defendant because he had not paid the taxes on one carriage, although he had paid them for two. He (Mr. Dyer) just cited that case to show the view the Inland Revenue took, because they had to collect the taxes according to whether it was one carriage or two carriages. After hearing the evidence for the defence, the Bench decided that the motor and car formed one vehicle, and therefore dismissed the case, with a warning that a pace of twelve miles an hour must not be exceeded.

DRIVING WITHOUT A LIGHT.

BEFORE the Richmond County Bench, last week, Mr. John Strange, of the Swan Hotel, Hammersmith, was summoned for driving a motor-car without a light, the regulation being that the vehicle should have carried a white light in front and a red light behind. Defendant was the owner of the car, and was riding on a tricycle beside it. The lamps, he asserted, were on the car but were not lighted. There had been an accident, and this accounted for the lamps being out.—Defendant was fined 5s.

THE Automobile Club of America, whose head-quarters are in New York, now comprises 225 members.

THE old town bridge at Guildford, which was destroyed by floods last year, is to be replaced by a steel structure at an estimated cost of £6,000.

THE South-Western Motor-Car Company, Limited, has been registered with a capital of £10,000, to carry on the business of jobmasters, electrical, steam, gas, and other motor-car manufacturers and merchants, etc. The registered office is at 314, High-road, Balham, S.W.

MR. CHARLES FRISWELL as an agent is well known. His "go" and "push" are proverbial. Therefore the news that he has taken out an auctioneer's licence, and will shortly be seen in the rostrum, will interest many. Probably his friends will be curious to "see the novelty in the box."

THE Creese Motor-Car Starter Company, Limited, has been registered with a capital of £1,500, to acquire certain inventions for improvements in explosion engines and gear for the same, to adopt an agreement with E. A. Merkel, and to manufacture and deal in motor-cars, cycles, and their component parts.

MR. H. W. VAN RADEN, of Ellys Road, Coventry, has lately introduced a small stationary dynamo to be used for the charging of accumulators. The machine has a capacity, at 1,720 revolutions per minute, of 10 ampères at 15 volts. Another useful article is a small dynamo intended to keep up the charge in the ignition accumulators on motor-cars. The capacity of the machine is 2 ampères at 5 to 6 volts, at a speed of 2,000 revolutions per minute; it is arranged to be driven by a small rubber friction pulley off the fly-wheel of the engine, or from one of the driving pulleys. Mr. Van Raden has also designed a handy volt and ampère-meter for use on electrical cars. It is fitted in a light aluminium case, and is both watertight and dust-proof. The instrument enables the driver to see at all times what current is consumed, and in what state his accumulator batteries are, so that he can prevent complete exhaustion of the store of electrical energy which is not very beneficial to the life of his accumulator. The dial is covered by ground glass, and marked for any desired voltage, the standard pattern being 60 to 120 volts, and 60 ampères. The ampère-meter is arranged to read during charging and discharging.

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COMMENTS.



DAIMLER MOTOR BUS, 1897.

THE other day a concert was held in aid of the Soldiers and Sailors' Fund at Castle Rising, four miles from Sandringham. The Princess of Wales, the Princess Victoria, Princess Charles of Denmark, and the Duchess of York attended, having been driven over on the Prince's car. The Royal ladies were evidently delighted with the trip, the Duchess of York having the good opinion formed of automobiles, when at Monmouth recently, amply confirmed. Both the motor-cars used at Sandringham are behaving admirably, and, since the temporary failure of the burners lately reported, there has been no mishap—or it would have been chronicled in every paper throughout the country.

Motoring in January.

JANUARY has not so far proved a motoring month, the enjoyable days for driving having been few. Therefore, when one of the fine days happens to fall on a Sunday, Sabbatarians must forgive us for taking advantage of the opportunity for a run. On Sunday the air was keen but the roads were hard and dry in the direction we went, save in Richmond Park, where they were soft and heavy. At the Sheen Gate entrance three cycling members of the Automobile Club were seen looking askance at the mud. A debate was evidently in progress as to the advisability of choosing some other road. Fortunately, our car was travelling well; in fact, after its Devonshire trip it seems rather to like the heavy going than otherwise, and we had a pleasant morning's run of about thirty-five miles to Esher and back. We only saw two other motor-cars and both were Darracq voituresses—the one being driven by Mr. C. Johnson, and Mr. Northey being at the wheel of the other.

Educating Councillors.

AUTOMOBILISTS now have the opportunity of assisting in the movement that is in progress for the education of county councillors, and there should be no lack of vehicles at the disposal of the Automobile Club for the purpose of giving rides to our local governors. On the 19th prox. the Roads and Bridges Committee of the East Suffolk County Council will consider the speed and numbering of motor-cars, and on the three or four days preceding that meeting motor-vehicles will be sent to Lowestoft, Beccles, and Ipswich for the convenience of county councillors desirous of obtaining "by practical experience, a thorough knowledge of the control which a driver of a motor-vehicle has over his machine both as regards speed and control." In March, demonstrations will take place at Worcester and Birmingham for the enlightenment of the Highways Committees of Worcester, Warwick, Stafford, Gloucester, Hertford, and Shropshire. Invitations have been sent to the highway authorities of other councils to consent

to similar demonstrations in their localities. Among those who have already promised vehicles are Mr. S. F. Edge, the Motor Manufacturing Company, Messrs. Deacon and Son, of Llandudno, and, for the Midland demonstration, Messrs. Alfred Bird, Siddeley, Broughton Dugdale and Lanchester.

Numbering in Norfolk.

NORFOLK is a capital county for advancing motoring, seeing that so many parties for shooting, golfing, doing the Broads, etc., visit the district every year. Hence the prejudice that exists therein—despite the presence of the Royal automobiles in the Sandringham district—is to be regretted. The County Council has, by twenty-one votes to eighteen, just decided in favour of the numbering of motor-vehicles, the resolution that was adopted being as follows:—"That the Local Government Board be requested to make regulations or to promote legislation to the following effect:—All light locomotives shall be registered by the County Council, and upon registration shall be provided with a plate bearing the registered number, which plate shall be fixed in a conspicuous position to the light locomotive in respect of which it is provided. The fee payable on registration shall be £1 1s. for each light locomotive, or, if the locomotive is to be let out on hire, shall be £5 5s."

"Pay, Pay, Pay."

If such a regulation did become law the motorist's position would require a Rudyard Kipling to compose a charitable appeal on behalf of the Poor Numbered Motor. We have to pay a carriage tax of two guineas; then another guinea for registration; and probably another for a nice number. These fees, with the privileges of high terms at hotels, excessive charges for housing the car when away from home, and the exorbitant cost of petrol in some districts, open up a delightful vista of expense without end. Why does not the Norfolk County Council suggest that the Prince of Wales should carry a number on his dogcart as well as his motor-car, and that no motorists shall be allowed within fifty yards of a fully licensed hostel? If they cannot get rid of the driver of a motor-car any other way, why not starve him out?

Mileages Wanted.

IN response to our request for particulars of the mileage run by motorists during recent months, we have received an interesting letter from Mr. P. Brown, of West Kirby, Cheshire. That gentleman has run a 6 h.p. Daimler 4,427 miles during the last six months, an average of 170 miles per week. The car has been out in all weathers and on some very bad roads, and, with the exception of a few punctures, the owner has had no trouble. The cost for the petrol, lubricating oil, grease, and methylated spirits has been 3d. per mile. Such experience as this is interesting, and we shall be glad to hear from other gentlemen on the same point.

Alcohol Tests.

WE understand that a committee of gentlemen specially qualified for the purpose, has been appointed by the Automobile Club to investigate the value of alcohol in connection with motor-cars. The report will be awaited with considerable interest, not only by motorists, but also by agriculturists. The use of alcohol as a motor-fuel has already received considerable attention in France.

Mr. Peall's "Breaks."

During the last eight months Mr. W. J. Peall has driven his 6 h.p. Daimler 5,035 miles, and only on one occasion has he been compelled to stop. That was owing to a broken valve. Fortunately, he had a spare one with him, so that only a delay of a third of an hour occurred. The gear is apparently as good as ever, and only £2 has been spent in repairs. Mr. Peall can drive a car as well as he can play billiards—and that is saying much.

The Late Mr. Andrew W. Barr.

It is with great regret that we have to record the death, at the early age of thirty-five, of Mr. Andrew W. Barr, which took place at Montreux, Switzerland, a few days ago. Mr. Barr, who was a member of the Automobile Club Committee and head of the firm of Messrs. Andrew W. Barr and Co., of Moorgate Street, E.C., the auditors to the Club, took an active



THE LATE MR. BARR.

part in the revival of the automobile movement in this country five or six years ago, he being the secretary of the original Self-Propelled Traffic Association. As secretary, too, of the Institute of British Carriage Manufacturers and a member of the Coach-makers Company he was able to do much to assist the motor cars movement by bringing it directly under the notice of carriage builders. The deceased was a native of Glasgow; he came to London in 1886, where his Scotch training in accountancy stood him in good stead, and he quickly rose to prominence in his profession. In May 1898 he was elected President of the Society of Accountants and Auditors, and was returned to the same position the following year, while in May last he was elected President for the third time in succession. Mr. Barr had been suffering for some time from a pulmonary complaint, and for twelve months or more had taken no active part in the business of the firm. He left England at the end of 1899 and went to Madeira in the hope that the salubrious air of that island would strengthen his constitution. On his return he visited several seaside health resorts in this country, but at the end of last year he was advised to go to Switzerland, where he succumbed on the 12th inst. We are indebted to the *Automotor* for the photograph of the late Mr. Barr.

Mr. A. C. Harmsworth in America.

APPARENTLY Mr. A. C. Harmsworth is doing something to popularise the motor-car in the United States. He has joined the American Automobile Club, and has been taking drives about New York in Mr. Whitney Lyon's electric-trap. On the last day of the old century the *World* gave a report of a conversation between Mr. Harmsworth and Mr. Lyon. in the course of which they exchanged some interesting views, Mr. Harmsworth taking occasion to show how much ahead of the rest of the world French makers had gone in the matter. He had intended taking one of his eleven vehicles with him to America, but the duty of 45 per cent. was hardly worth the experiment. So he has borrowed a petrol-car from a member of the American Automobile Club, and has gone on a trip to Florida.

Motor Street-Cleaners.

THE suggestion has often been made that the streets might be cleaned more efficiently by machinery than by the present antiquated method of shovel and broom. According to a correspondent, there ought to be no great difficulty in devising a powerful motor brush, worked by steam or oil, which should sweep the streets clear of snow at a speed of four miles an hour, starting within an hour of the fall of the first flake and never ceasing until the roads are clean. Machinery does not tire out, and four or six men working in relays could probably keep one of these engines going for twenty-four or forty-eight hours at a stretch. The device he has in mind would be not unlike the steam vans already doing cartage for the Strand district, and for several large firms. Carry the idea a little further. In Germany there are said to be dust vans with a hopper arrangement which lifts refuse from the road level, delivering it into the cart, and so saves hours in the course of a day. Why should not some such device be attached to the motor-broom in such a way as to load a van coupled up to the cleaning engine? When the van is full it could be uncoupled, and taken off, with others, to a suitable dumping-ground by a traction engine. Mechanical methods would save horse-flesh, which suffers much in carting snow, would be always on the spot, would require less supervision, and would probably cost no more in the long run than the present system.

The Strand Experiment.

IN connection with the foregoing the report of Mr. Arthur Ventris, surveyor to the borough of Westminster, on the cost of the Thornycroft steam motor-van used for street watering and dust removal in the Strand since February last, is of interest. The car has a body giving a capacity of six cubic yards for the reception of dust, and is capable of conversion into a street-watering body of 700 gallons capacity—double that of the ordinary watering-van. At first the steam cart was only employed in collecting street refuse and depositing it at the depot on the south side of the Thames near the Shot Tower, but later on, about the middle of June, it was felt that the vehicle was capable of further use. Therefore, from June 19th to August 4th, the motor was used in dust collecting from six o'clock in the morning till eleven o'clock in the forenoon. Then it was converted into a street watering-can, and carried on its work until six o'clock in the evening, and, after five hours' idleness, was again brought into requisition from eleven o'clock at night till five in the morning for the purpose of flooding the streets and loosening the debris in the roadway preparatory to the nightly flushing by means of the fire-hose. For several weeks the motor was more or less in actual practical use for eighteen hours out of the twenty-four. Mr. Ventris, in his report, differentiates the work of the motor-van into three periods. The first covers eight weeks when it was on hire, and the weekly average of refuse collected was about 35½ tons. The second period is one of seven weeks, prior to the time when the van was converted into a street-waterer. During this space the weekly average of dust removed was fifty-two tons. Then came the third term, when the tonnage declined to

twenty-seven, but, in compensation, 225 loads were distributed in watering, and 777 loads were used in flooding the thoroughfares. The report points out that, on the one hand, by partially discarding horse labour, there is a reduced expenditure of £772 per annum, and on the other, by the employment of motor-power, there is, basing the estimate on the experience of three months' working, an expense of £598—roughly, £600 a year. The difference between the two totals gives the relative advantage obtainable by the employment of steam motors.

A Young Motorist.

SUED at the Northampton County-court for damages caused to a trap through the negligent driving of a motor-car, Allan Hickman, of Billing Road, Northampton, admitted—although he was not yet seventeen years of age—that he had driven motors for three years, and had covered many thousands of miles on them without accident. He had several times driven through London, and understood thoroughly the mechanism of the car he was driving on the day of the accident. He had had three motor-cars. This youthful motorist obtained the verdict, his Honour Judge Snagge being of opinion that he was not furiously driving at the time, and that there was a conflict of opinion as to whether he gave sufficient warning of his approach.

"Atmospheric Gas," a new Motor Fuel.

ON Monday last, at the invitation of Mr. S. Leuchters, of Leeds, we inspected a Benz car at Messrs. Hewetsons' dépôt, in Dean Street, Soho, in which a new motor fuel has for some time been employed. It is styled "atmospheric gas," and is being introduced by the Atmospheric Gas Company, Ltd., of Leeds. A crude oil, said to be ordinary benzoline, is the base of the new atmospheric self-burning gas, and this is vaporised in a special carburettor. It is claimed that the use in motor-cars of atmospheric gas, being a self-burning mixture, does away with the usual air lever, leaving only one lever instead of two to be worked, the great trouble of the correct mixing of gas and air, especially at starting, being done away with. Another great advantage in favour of the new gas is that it is made in a sense automatically, the current of air necessary for the manufacture of the gas being drawn through the carburettor by the engine itself. The gas is stated not to smell or to give off any smoke. Atmospheric gas is not claimed to develop any more power than the explosive vapour obtained from petrol, but the company state that it shows a considerable economy over petrol. The combustion is described as being perfect and to leave no deposit in the valves. Mr. Leuchters demonstrated to us the ease with which the engine using atmospheric gas can be started. He also informed us that he had driven the Benz car exhibited for some time, using the new fuel, as a result of which he was able to assert that on a gallon of petrol, at 1s. 3d. per gallon, he could only cover twenty-five miles while using crude benzoline at 1s. per gallon and the Atmospheric Gas Company's apparatus he had been able to travel fifty miles.

The Motor's Triumph.

OUR Paris correspondent writes:—For a few days recently the Parisian motorist was sick at heart. Drizzling rain gave rise to greasy streets, and, frankly, the "auto" does not create a favourable impression under these conditions, for as often as not it sidles along with a crab-like movement far from reassuring. So during those few days the *chauffeur* had to submit meekly to many a rude remark from the scoffing *cocher* and the cheeky *gamin*. But suddenly there came a change; a cold "snap" arrived, and then, without the slightest warning, down came the snow. The effect was wonderful. From end to end of the great Boulevards one saw horse-drawn vehicles helplessly *en panne*, while dodging in and out among the sliding, staggering, tumbling gee-gees there glided rapidly and smoothly the derided automobile. It was a glorious sight for the motor man to see his beloved vehicle sailing gaily over the white surface of the

Boulevard while the noble steed could not move an inch, horizontally at any rate. A truly great triumph! The culminating point, was reached when a gentleman, driving a comfortable omnibus pulled up alongside one of the Gare Saint-Lazare buses, which was stranded in the Rue Auber, and took aboard from that unhappy vehicle its lady occupants, who were thus enabled to reach the station without the unpleasant necessity of trudging through the snow. A generous revenge!

Indians and Motor-Cars.

LOCOMOBILES are becoming more familiar sights in our London streets, and H. H. Maharaja Sir Waghji, K.C.I.E., Thokore Saheb of Morvi, is using such a car almost every day in the West End. The accompanying photograph shows Prince Kumar Shri Harbhanji Rawji of Morbi driving a Loco-



mobile accompanied by his secretary, Oghad Kanji Cauwan. Verily the automobile's conquest is extending from west to east. In a few years it will be a world-wide commonplace.

'Cute Farmers.

MR. W. K. VANDERBILT has been the subject of a good many stories since he took to automobilism. One of the latest is concerned with the wily farmers of Long Island, where it was reported that if Mr. Vanderbilt by any chance should run into a vehicle he would pay the damages up to any reasonable sum reaching from 50 to 100 dols. Accordingly every Sunday morning along the route which Mr. Vanderbilt uses all kinds of strange vehicles may be seen, to which are hitched horses the value of which may be eight or ten dols. at the most. These farmers are eagerly watching for the machine, hoping that they have the good luck to get a horse or two killed. But Mr. Vanderbilt and his *chauffeur* are very expert motorists, and it seems quite doubtful if the cuteness of the farmers will ever be satisfied in this way.

Where Motors are Stored.

AUTOMOBILISM is so comparatively modern that the terms associated therewith are not yet finally fixed—so far as many subsidiary matters are concerned. Some folks are worrying as to the proper word to denote a lady motorist, and now comes a correspondent who is troubling himself and his friends as to the place where the motor-car is stored or kept. He suggests

"autogorium," and adds: "In our language, we have auditorium, where people hear things; emporium, where people do trading; natatorium, where people learn to swim, etc. Auditorium would be, perhaps, more in keeping with roots and derivations, but 'autogorium' would be more euphonious, and would not sound so much like auditorium." We could hear that the gentleman had been consigned to a "lunorium" without regret.

Motor-Car Drivers.

IN the discussion on motor-car services at the Automobile Club last week much was said about drivers, but little about their wages. This, however, is an aspect of the matter which cannot be overlooked. The handy man who can readily adapt himself to circumstances, and who is likely to meet all difficulties with some sort of a solution, cannot be obtained for a few shillings a week. At Edinburgh the Corporation insists on the conductors of public vehicles being over eighteen years of age—an age which simply prohibits conductors being employed on the present motor-cars, as the wages required by people of that age would prove profitless to the concern. Coming South, however, a wage of 10s. a week to a driver has been mentioned as actually being paid. In another place we hear of a wage of £1 0s. 6d. per week! Evidently the disparity in wages is a great factor in the proportionate success of these services, and sufficient experience has not yet been obtained to know exactly what is a fair and proper wage to pay. Probably higher rates than now prevail will have to be given ere the problem of capable drivers has been solved.

An Enthusiastic American "Chauffeur."

ONE of the most enthusiastic *chauffeurs* in the United States is Mr. Alfred C. Bostwick, a prominent member of the Automobile Club of America. Mr. Bostwick has a fleet of no less than eight automobiles, four being of French make, and the others of American manufacture. The French machines are the famous Panhard racing car he has used in several races; a Clement voiturette, a Prunel voiturette, and an 8 h.p. racing tricycle with Buchet motor. His American vehicles are a 9 h.p. Winton, a Locomobile, an Orient quadricycle, and a very smart phaeton turned out for him by the Electric Vehicle Company. As will be seen, the machines embrace electric, steam, and petrol motors, so that Mr. Bostwick has every opportunity for testing the various kinds of motive power and learning which are the best to use under all circumstances and conditions.

London Thoroughfares.

MOTORISTS are becoming more and more keenly alive to the importance of good roads in the enjoyment of their pastime, and anything that is concerned with the improvement of the surfaces should be of interest. Lieut.-Col. H. A. Yorke, R.E., suggests that in repairing the London streets, the old foundation is frequently interfered with—a source of constant annoyance when the work is completed, and believes that better roads could be obtained if the road metal were put down in two layers, as is done in India, and if the first were well rolled, though not to a perfectly smooth surface, before the second were spread. Mr. Allen McAdam, a great-grandson of the gentleman whose name is so closely associated with our roads, points out in the *Times* that the reason why the modern roads in London are so badly constructed is that any admixture of gravel or any loose material whatever vastly injures the durability of the road. If small granite blocks are used alone they become so jammed together by the weight of passing traffic that the roadway becomes almost as hard as if made by a single block. Every rainstorm on the modern London roads washes more or less of the gravel from the interstices of the granite, and the latter, losing its packing, becomes loose, and the cohesion of the road is thereby altogether lost. The roads consequently require frequent repairs, much to the detriment of the ratepayers' pockets.

Roads.

ROADS are almost as important as motors to automobilists, and we shall be glad to have from readers particulars of the roads in their localities which require the attention of the authorities. Our correspondents can also assist the growing army of motorists by sending similar letters to the local press, and so arousing local interest in the matter. Upon the improvement of the roads depends much of the future automobile advance, and hence everything calculated to improve matters is to be commended.

Covent Garden Ball.

"GOLLY, these niggers do move," exclaimed a fond old mammy, as she saw her ebony-coloured son dash by, seated on a high gig, with his arms folded, and being driven by an immaculately-dressed swell. A paraphrase of the same expression passed through the writer's mind while seated in a box at the last Covent Garden Ball. A rare commotion was in progress at the entrance doors, sounds of foghorns mingled with the minor noises of a discordant motor-horn, and then suddenly, the doors being flung wide open, a voiturette appeared on the scene. The three passengers—all well-known men—wore bearskins and had donned French goggles, but little time was allowed for us to take stock, for the merry company grouped themselves round and commenced pushing the car here, there, and everywhere to the discomfort of those who were not nimble enough to skip out of the way. The vehicle, which had been emptied of petrol, was gaily decorated with several of the 1,000-mile Trial flags and other devices, while in front was a plate with the inscription No. "A—" on. There is no doubt its appearance caused an immense and lively sensation and was voted the attraction of the evening, being selected to lead the gay procession when the awards for prizes were being made. We trust that the fact that the car bore a number "for this occasion only" will not prejudice the objection of motorists to numbering their cars in the eyes of the County Councils.

Hotels for Motorists.

THE suggested appointment of hotels which shall have a special tariff for members of the Automobile Club and also provide reasonable accommodation for vehicles has been advanced a step further by a letter just sent out to the leading hotels in the country. In addition to the fixed tariff, the proprietors will be required to store motor-vehicles at a charge not exceeding 1s. per night and 1s. for washing the carriage. A water supply with a hose pipe at least ten yards long will also have to be provided, and a supply of petrol kept.

The Simplicity of Motors.

JUDGING from the catalogues and price lists issued by the manufacturers of a certain class of productions in a country with which all our readers are familiar, perfection has been reached, and no improvements are possible. This is an error of obvious exaggeration which, of course, no maker of automobiles would commit. The sin is, however, rather pronounced in certain trades where rivals in business seek to attract custom by making impossible claims on behalf of their productions. Such a policy in connection with automobilism would be very unwise, and we are just a little surprised to find in the catalogue of a motor manufacturer the statement, "Our written instructions are ordinarily sufficient for purchasers, but we will send an operator at any time, at the cost of his time and expenses. Anyone can operate the vehicles in a few minutes." Such a roseate picture of the simplicity of a motor-car must appear very galling to the owner on the occasion of his first break-down. There is nothing incomprehensible about a motor-vehicle, but it is necessary that the operator should regard a knowledge of its mechanism and working as a serious matter, and not the subject of a few minutes' play.

AN UNREASONABLE TAX.



VERY interesting is the position of the automobile industry at the present time. The curiosity of the public has been fully aroused in the motor-car, and is leading to inquiries which promise to result in a very satisfactory state of affairs during the next few months. All are agreed that trade is going into a favourable channel, and that, provided the threatened opposition of the County Councils can be overcome, the prospect for the future is a most hopeful one.

External difficulties out of the way, there yet remain some perplexing problems which will have to be promptly dealt with by those who know the business from the inside. So long as the industry was in a fitful mood and emerging from its earliest conditions, many things were tolerated as necessary evils that had to be endured. It was the time of experimental work and tentative effort, and manufacturers were inclined to submit to arbitrary ways that would be intolerable in the days of confidence and assured success. Impositions are often disregarded and even acquiesced in when the output is small and the demand restricted, but when the transactions increase in extent and volume, agitation, revolution, and similar terms become descriptive of the state of feeling. Our advertising columns this week seem to reveal such a condition of affairs in the automobile industry. With an unanimity that is significant, manufacturers and agents are utilising the space usually devoted to showing forth the merits of their individual interests, to proclaim their dissatisfaction with the arbitrary procedure that promises to raise the cost of placing cars on the market and thus diminish the ultimate return of the trade. Small advances can be made without restrictions of output, but there is a breaking strain—even for the purses of wealthy enthusiasts, who like to see value for their money, and who cannot see much in a commission paid to those whose share in the production is some decimal point long removed. Of course brains must be recognised as a marketable quantity, and inventive skill deserves adequate remuneration, but when those who own the products of the latter, by purchase or otherwise, use them as a means of exorbitant taxation the matter can no longer be ignored.

The murmurs and rumours of the last few months with regard to the general feeling as to the policy of the British Motor Traction Company, Ltd., have at length crystallised in the formation of a Trade Protection Society, which intends to examine closely into the ways by which the progress of the industry is likely to be thwarted, and in the case of the carburettor they have an example which will secure the sympathy of the public. That those who use a certain carburettor—costing considerably less than a ten pound note—should have to pay a tax of 10 per cent. on the total value of the car (less the carriage work) seems a monstrous charge on the industry. On a carriage costing £200 the tax amounts to several times the value of the article upon which it is directly imposed—a charge so much out of proportion that the agents and manufacturers have rightly decided to combine in a way that, determinedly pursued, should lead to a more reasonable condition of things. The object of the present movement is not to avoid payment of proper charges on valid patents, but to protest against being charged without reason on those parts of the car with which the British Motor Traction Company have nothing whatever to do. Those who have entered into the controversy know the value of patents and are prepared to appreciate them at their full value, but because they adopt one particular device they do not see why they should have to pay a ten per cent. tax on everything connected with the car. In this view they will have the sympathy of the public and of all interested in the future of the industry. The outlook is good, and trade is getting brisk; hence, unless decisive action be shortly taken, the cost of motor-vehicles will be raised to a point from which it will be impossible to reduce them for some years to come. To be able to put their cars on the market at a price which, leaving a fair margin of profit, enables them to come within the range of the middle classes, is the general object of those in the trade. But that is almost impossible unless the licenses required in the industry are obtainable at reasonable

rates. The matter, therefore, is one of no narrow or isolated importance. It is an essential factor in the future welfare of the industry, and, consequently, we hope it will be carefully considered by all automobilists with a view to a satisfactory conclusion of the present unpleasant and unprofitable position.



COUNTY COUNCILS AND MOTOR-CARS.

DEMONSTRATION AT WARWICK.

THE Automobile Club of Great Britain has organised a series of demonstrations before various public authorities, with the view of showing the efficiency and safety of motor-vehicles. One, if not the first, of these demonstrations took place before the Roads and Bridges Committee of the Warwickshire County Council at Warwick on Wednesday last. The chairman of the committee is the Marquis of Hertford, and other members present were Aldermen Dickins and Bourne, Councillor Taylor, and Messrs. J. F. Johnson and Vero T. Glover. There were five smart-looking cars present, Mr. Robert Bird, of Birmingham, sending a 16 h.p. Panhard; Mr. Archibald Millership a Lanchester; and Mr. Siddelay, of Birmingham, a 6 h.p. Daimler, driven by Mr. Johnson, the Secretary of the Automobile Club. Mr. John Gretton and Mr. George Iden had each a Motor Manufacturing Company's car.

The committee met at ten o'clock, and witnessed the demonstration in the thoroughfare in front of the Shire Hall. They appeared most impressed at the facility with which the cars could be pulled up. Later on the members of the committee took trial trips in the cars. The trials created little interest among the people of the old town of Warwick, for motor-cars are constantly passing through Warwick from Coventry and Leamington, both of which places are centres of the industry. Such trials as these will do a great deal to neutralise, if not to put a stop to, the effect of such resolutions as we have seen recently passed urging the Local Government Board to reduce the speed limit to ten miles.



It is reported that the King of the Belgians has ordered a motor-caravan to cost £6,000. It will contain three rooms, a parlour, a bedroom, and a servant's room, while the engine will develop 30 h.p.

THE Linsky Cup race, organised by the Automobile Club de Nice, will be run on the 21st inst. The prize consists of a splendid silver service in the Russian style, given by Colonel de Linsky. The race is reserved for four-wheeled automobiles, not exceeding 500 kilogrammes, and the course (Gagnes-Grasse-Saint-Vulmier) is about forty-five kilometres, with stiff hills.

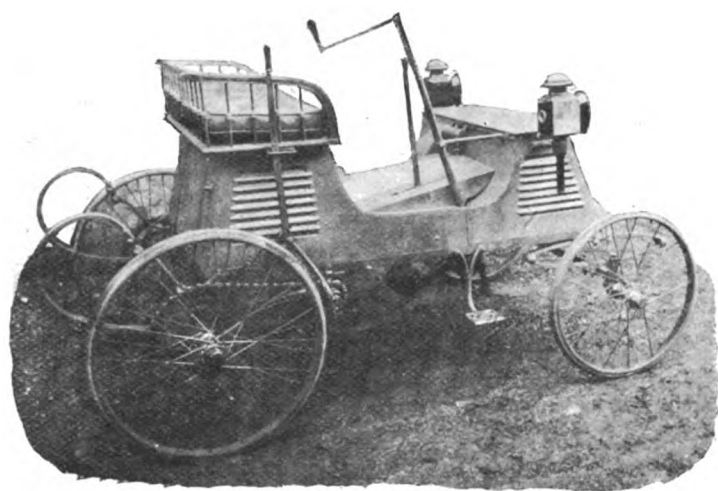
A MEETING has been called for the 22nd inst. to consider the advisability of forming a branch in Ireland of the Automobile Club. The circular letter has been signed by the following:—Mr. W. D. G. Goff, Waterford; Colonel Magrath; Captain Langrishe; Lieut.-Colonel H. Irvine; Mr. E. O'Connor, D.L.; Mr. J. Herdman, D.L., Strabane; Mr. E. C. Herdman; Mr. W. B. Jameson; and Mr. Pryce Peacock. The meeting will be held in Dublin.

MESSRS. LAIRD AND LEE, of Chicago, have sent us a copy of Lee's American Automobile Annual, which will undoubtedly prove helpful to all interested in automobiles in America. Much of the material that has been compiled by the editor is historical in nature, but the work is brought up to date by discussions and descriptions of new and improved methods of motor-vehicle construction and operation. The work is divided into six parts, the first of which treats of the internal combustion motor system etc. Steam-power vehicles are next taken up, and then the electric storage-battery vehicles are discussed. Part IV. gives other forms of motor power, such as compressed air, liquid air, carbonic-acid gas and combination motors. In the next part steering, wheels, tires, differential gearing, bearings, etc., are treated. Copies of the Chicago and New York city automobile ordinances are given, as well as several automobile "don'ts," and the book is completed by a blank form of automobile log for a run. The volume is bound with a flexible leather cover and is of the ordinary handbook size.

THE GILBERT HEAVY-OIL CAR.

THE accompanying illustration shows a new light two-seated car which has just been completed by Messrs. Ralph Gilbert and Son, of John Bright Street, Birmingham. The new vehicle is now going through its road trials, being yet in an unfinished state as far as body work, mudguards, etc., are concerned. This machine is, state Messrs. Gilbert, the first of its kind, and is totally different from any car before the public. It has been designed and constructed to meet the demand for an inexpensive and simple car combined with lowest possible cost of running, being specially designed for working with ordinary Royal Daylight paraffin oil, but running equally well with petrol of any quality without any adjustment. The motor is of 3½ h.p.; it is horizontal and of special design, working on the two-cycle principle, the only moving parts consisting of the piston, connecting-rod, and crankshaft, no cams, eccentrics, or rocking shafts being employed. The exhaust or induction valves work automatically; the combustion is claimed to be absolutely perfect and free from deposit or smell. Messrs. Gilbert inform us that a 6-h.p. engine of similar design was made and fixed in their works over two years ago, the valve and piston of which have never been removed or cleaned in any way.

The transmission is by belts and jockey pulleys to the differential countershaft, thence to the road wheels by Brampton's roller chain. Two powerful band brakes, worked by a foot pedal, and also tire brakes, are provided. The tires are of the



North British Rubber Company wired on section. Two speeds—four and fifteen miles per hour—are provided, any intermediate speed being obtained by adjusting a hand regulator, the motor being under the same control as a steam engine. The vehicle, the whole of which, including engines, frame, wheels, axles, body, etc., has been made at Messrs. Gilbert's works, weighs complete with oil and water about 7½ cwt.

THE MERCEDES 35 H.P. RACING CAR.

IN our issue of December 15th we published a brief illustrated description of the new 35 h.p. Mercedes motor which has been adopted by the Daimler Motoren Gesellschaft, of Cannstatt, Germany. On page 773 we are able to give an illustration of the first car turned out from the Cannstatt works fitted with the new 35 h.p. four-cylinder engine. The car, as depicted in the engraving, is fitted with a light two-seated racing body, but the engine and gear being fitted on an independent frame, any kind of body can be fitted. The transmission mechanism follows the usual Cannstatt Daimler lines, a new feature being, however, found in the clutch, which is of an improved form, so arranged, it is claimed, that it cannot fire or slip.

FRENCH AUTOMOBILISM IN 1900.

(From our Paris Correspondent.)



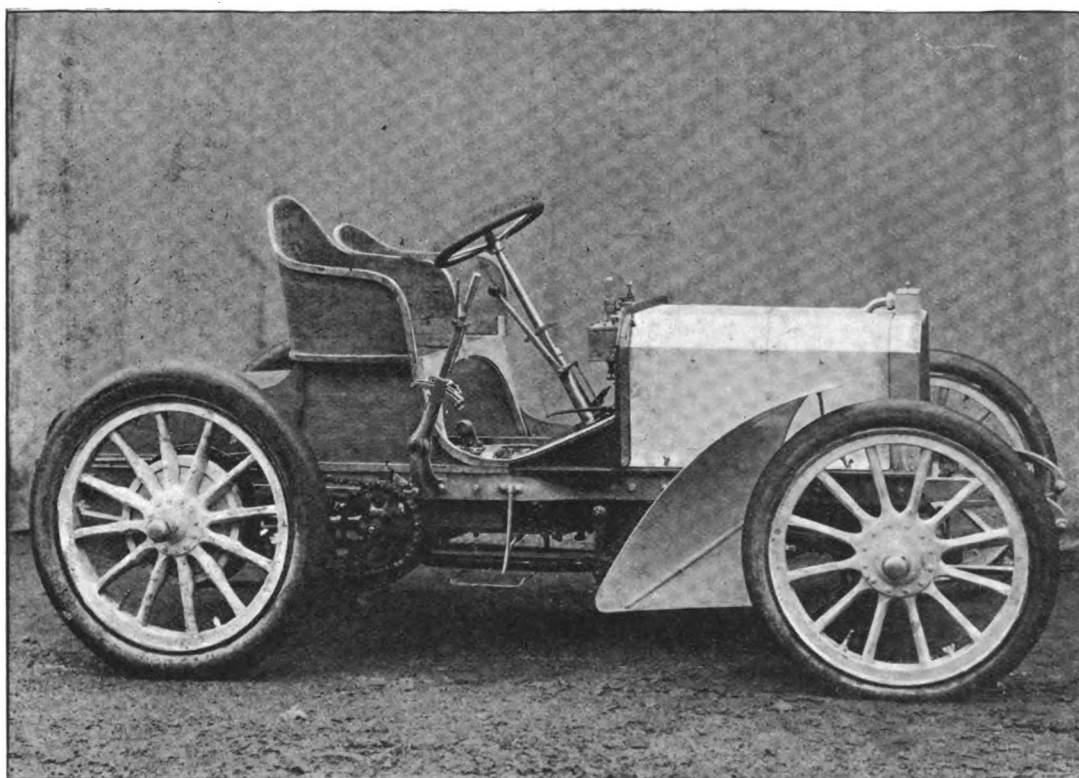
WHEN looking back upon the final stage of the nineteenth century, through which we have just passed, not even the most enthusiastic advocate of the horseless vehicle movement can do otherwise than admit that both from an industrial and a sportive point of view French automobilism in the year 1900 has been a disappointment. Perhaps we had been anticipating too much, but the prospects for the year just concluded were so exceptionally brilliant that our expectations seemed fully justified, and certainly the circumstances which have prevented their realisation did not give at that period the slightest warning of their approach. Twelve months ago not a cloud was to be seen in the sky. The growth of the movement, rapid from the day of its birth, had made extraordinary advances during the year 1899, and indications of a continuation of this progress were everywhere apparent. The constructors were inundated with orders for existing and enquiries for future types, the carriage builders were working day and night to keep pace with their clients' requirements, and if a slight falling off of the interest in motor-cycles was apparent, this was more than compensated for by the daily increasing demand for *voiturettes*. The legislation, the public, and the press had alike the strongest sympathies with the automobile movement; indeed, not a single discordant element existed to mar the perfect harmony of the motor's life and prospects. Such, then, were the conditions prevailing when the year 1900 made its advent, and if they were favourable the outlook was even more so.

We had in prospect an international exhibition of gigantic proportions, bringing with it an influx of wealthy visitors, whose presence in the capital could not fail to exercise a most favourable influence upon the automobile industry. Although not without fears as to a possible restriction of space in the Exhibition proper, we had every reason to believe that if the authorities found themselves compelled to limit their grant to the new industry, they would then take steps to ensure the establishment of a special automobile annex in the heart of fashionable Paris, where the cars would be shown to the best possible advantage.

A series of automobile *courses* was also in contemplation, giving promise of exciting sport, and calculated to improve the car as racing has improved the horse. Commencing with the meets at Pau, Nice, and Salon, race would succeed race, until, after some nine months of sport, the annual hill-climbing contest at Gaillon would bring the season to a close. All the old-established and time-honoured events, such as Paris-Bordeaux, Paris-Roubaix, Paris-Lille, Paris-Saint Malo, Paris-Boulogne, and Paris-Ostend, would again take place, and in addition we were promised certain new *courses* commemorative of the Exhibition, and, above, all, the race for the Gordon-Bennett International Cup. Now could a racing enthusiast desire more? Certainly not more, perhaps, indeed, a little less, for one or two of the events seemed likely to be promoted rather for the personal gratification of the organisers than for the good of the automobile movement. But this was merely an impression, and the length and diversity of the programme more than justified our anticipations for a real sporting season; and, finally, we had in prospect a large number of competitions which would assuredly bring to light much that was new, and would furnish us with additional and valuable data. Competitions for light and for heavy cars, for electric, steam, and oil vehicles, for motor-cycles and for *voiturettes*, all were included, and by reason of the diversity of the regulations under which they would be decided, these contests would render the industry invaluable assistance from both a scientific and practical point of view.

Such, then, were our prospects twelve months ago, and considered in conjunction with existing conditions, I think that they amply justified our expectations for an exceptionally prosperous year. And now let us look at the realisation, or rather one should say the non-realisation of these bright anticipations. Taking them in the order we quoted above we commence with the Exhibition, the world's show, which was to do so much for the new industry. Our fears with regard to the allotment of space in the Champ de Mars section of the show were unfortunately only too well founded, for the authorities could not make a concession of anything approaching the dimensions asked for by the organisers of the automobile class, and consequently many firms were crowded out, while others were only able to exhibit a single specimen of their productions. The stands of even the leading houses were of modest proportions, and the cars, crowded together as they were, did not show to advantage. This was bad enough, but what was infinitely worse was the decision to instal the automobile annex at Vincennes. We had hoped for the Bois de Boulogne; we got the Bois de Vincennes!

result, and accordingly showed but little interest in the venture. They exhibited, certainly, but the vehicles to be seen on many stands were antiquated, and, moreover, dirty and neglected as they were, their appearance was far from attractive. Of course, a certain number of modern cars were shown, but no attempt was made to keep them clean, and they appeared on the stands just as they had come in from a trial trip, covered with dust and dirt. While in the French section there were at least some vehicles to be seen, the same cannot be said of all the foreign divisions. With the exception of Germany, who made a capital show, the foreign automobile element was infinitesimal; indeed, neither England nor Italy exhibited a single car. The result of this indifference was a truly desolate exhibition, likely to do more harm than good to the industry. Throughout the summer strenuous efforts were made to attract the public by means of *fêtes*, gymkhanas, etc., and while some of these festivities were successful enough, the spectators were not of the automobile buying class. No, it was rather the *petit bourgeois* and the *ouvrier* who attended these *fêtes*, and from them the automobile industry reaped no pecuniary advantage whatever. Practically, no



THE CANNSTATT-DAIMLER CO.'S 35 H.P. "MERCEDES" CAR. (See opposite page.)
 (Cliché de) (L' France Automob.)

Situated in a neighbourhood of indifferent repute, the Bois de Vincennes is far removed from the fashionable quarters of Paris, with which, moreover, it has no convenient means of communication. Its only recommendation for an exhibition is its extensiveness, and this quality is possessed to the same degree by the Bois de Boulogne, where unquestionably the automobile annex should have been installed. Had it been located there, I am confident that exhibitors would have had a very different experience to that which they passed through at Vincennes, and that to-day they would be able to look back upon the big show with some degree of satisfaction. Here we have a vast park placed right in the heart of fashionable Paris; there we have another, situated in the East end of the capital, and the second is selected for the display of an *article de luxe* like the automobile. What folly! Apparently the authorities were imbued with the idea—laudable enough in itself—to give to the East-enders a share of the year's festivities, but in selecting the automobile for the purpose they entirely ignored the interests and the requirements of the new industry. Once this decision was made public, exhibitors knew that little or no business would

business, therefore, was done at Vincennes, and even at the Champ de Mars matters were not very prosperous. It is really difficult to explain why in the latter section the results were not more satisfactory. Early in the year, when the Parisian was at home, the show was incomplete, and many people went no further than the pleasant promenades by the side of the Seine. Then, later on, when the Parisian had left the capital, the heat was so intense under the glass roof of the show, that the foreigner was prone to scamp his inspection of the exhibits in order to get back to some cool spot where, comfortably installed with a smoke and a drink, he could listen to the music and watch the crowd. Whatever may have been the reason, the fact remains that the business done did not fulfil anticipations, and that with but few exceptions exhibitors were greatly dissatisfied with the results of the show. Having occasion to make almost daily visits to the automobile section, I was able to keep myself *au courant* with the progress of affairs, and the almost invariable reply to my inquiries was, "We are doing very little." So much, then, for the Exhibition; let us next look into the other events of the year.

(To be continued.)

CORRESPONDENCE.



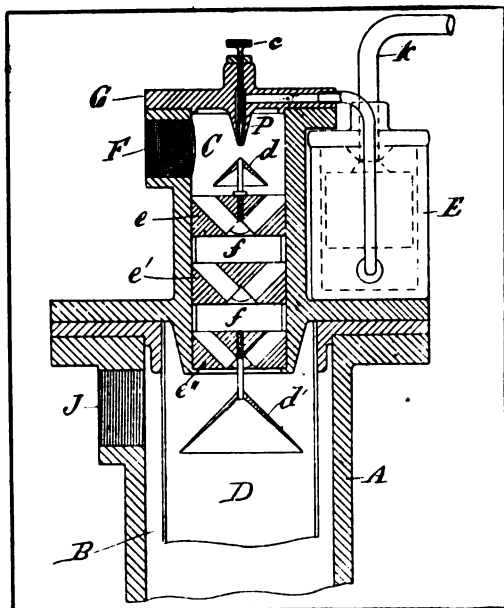
MOTOR PATENT MATTERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In connection with the British Motor Traction Company, Ltd.'s warning concerning infringements of Maybach's Patent No. 16,072, A.D. 1893 (amended), for a float carburettor, the accompanying drawing and extracts from G. Wilkinson's Patent No. 10,051, A.D. 1890, which expired in June, 1894, are of interest. The drawing shows a constant-level carburettor with jet practically the same as the "Maybach" except that the jet is turned upside down and has a needle valve in it to regulate the amount of hydro-carbon sucked through.

Wilkinson in his Patent states: "I arrange the connections between the apparatus and the engine or motor so that the suction of the piston or pistons produces a partial vacuum in the receiver D."

Also, "The liquid hydrocarbon is supplied from a tank or reservoir, or other device whereby a head or pressure may be maintained to a vessel or chamber E by means of a pipe k. The orifice of the pipe k may be coned to form a seating for a valve attached to the top of a float within the vessel E, so that a level or head of liquid is maintained therein. I do not employ the vessel E in all cases, but may adopt any other method of



or means for maintaining an approximately equal and regular pressure or head of liquid hydro-carbon. The float, valve, and seating are shown by the dotted outline. From the vessel E, or its equivalent, the liquid hydro-carbon is conveyed to a nozzle P upon the cover G, from which the flow is regulated by means of a tapered plug c provided with a screw thread to allow of said regulation. The fine jet thus obtained impinges upon a conical diverter d within the mixing chamber C, and is spread and diverted thereby, becoming partially mixed with the air entering at the orifice F."

And his first claim is for: "The method of, and means for, atomising and mixing liquid hydro-carbon with air at normal atmospheric pressure, for motive power purposes; the current of air, liquid and mixture being introduced by the suction of the piston or pistons of a motor substantially as herein described with reference to the drawings."

Compare this with Maybach's claim No. 1. "The method of producing the explosive mixture in hydro-carbon engines, consisting in sucking liquid hydro-carbon out of a nozzle cl fed from supply basin a by pipe c and extending into connection b2 between air inlet channel bl and mixing chamber b, said sucking being performed by the air sucked by the working piston through said channel bl, connection b2 and mixing chamber b, and the

level of the hydro-carbon within basin a being kept on the same height by a swimmer valve d, acting on the main supply tube e, substantially as described."

One has only to substitute the lettering used by Maybach in the above claim for that used in Wilkinson's specification, and it is seen that they are identical. It is difficult, after this, to understand how the Maybach patent of 1893 prevents anyone, who chooses, using a constant level float and jet carburettor as described by G. Wilkinson in 1890. The lower portion of Wilkinson's drawing (not reproduced) shows method of heating the mixture before it enters the cylinder, and does not affect the matter in question.—Yours faithfully,

T. B. BROWNE.

WATER IN CRANK CHAMBERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In clearing out the oil-containing crank chamber of the motor on my De Dion trike the other day, I was surprised to find a large quantity of water flow out with the oil. I have been puzzling over this, but cannot understand where the water originally came from and how it got in the crank chamber. Perhaps some motor-cyclist who has had a similar experience can give an explanation.—Yours truly,

LUBRICANTOS.

THE BURSTING OF IGNITION TUBES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have lately driven a 6 h.p. "Daimler," and have had several ignition tubes burst. What is the reason? Is it (1) too much pressure, (2) poor platinum, or (3) not put in properly? It is the left tube that gives the trouble. The right one has not had anything the matter with it for nearly six months. Can any of your readers inform me what is the cause of the bursting? I am only an amateur, having only driven a motor-car since last Easter.—Yours truly,

PILOT.

QUERIES RE BELT-DRIVEN CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Perplexed," as an engineer of considerable experience, I should say that a lace belt is preferable to any metallic fastening that can be produced, as the laces will give and not break out the holes like metal hooks. The best way to do this is to cut the belt and allow about an inch when pulled as tight as possible with the bands round the pulleys, the ends to butt when laced; then make three holes in the ends to correspond with each other, about half an inch from the edge, making all crossings on the outside. Let the lacing go through the holes twice; then, to finish off, cut a small slit in the end of the lace, pull the other end through and slit it each side, which will make it fasten off in the slit cut in the other end, "Perplexed" will find this to make a neat and strong joint. The belts can be obtained at any engineers' stores.—Yours truly,

F. C. GRIMSLEY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—On my small Benz car, over a distance of about 15,000 miles, I found the usual iron clips answer admirably, but they had to be fixed very true and well riveted through the other side. I now have a 7 h.p. Victoria, and find in this case belt lacing is best, and if "Perplexed" will obtain from a good harness maker a yellow thong, the best kind of which should be very oily, he will find this most thoroughly reliable. If he likes to call at 12, Sussex Street, Pimlico, I will show him the best way to use it.—Yours truly,

H. COVE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of the 12th instant Mr. A. J. Aldred, replying to Queries re Belt driven cars, recommended a belt of "best orange tan" for the top speed and a Dick's canvas belt for the low speed. Will Mr. Aldred kindly say why a Dick's canvas belt should not be used for the top speed?—Yours faithfully,

C. TAPLIN.

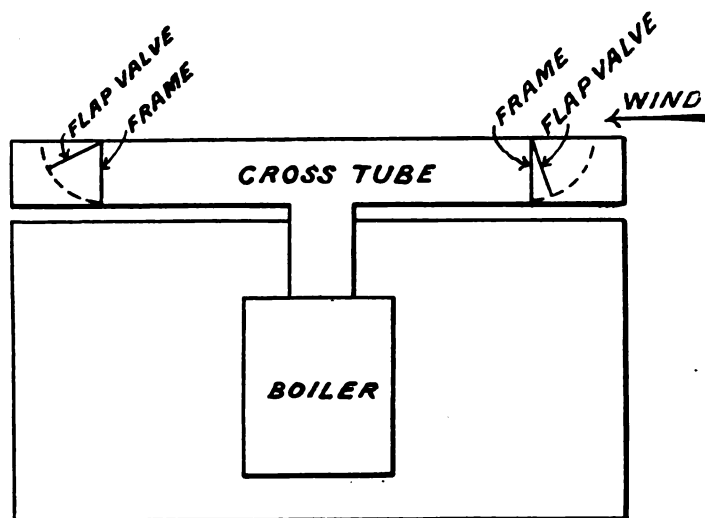
TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With regard to belts, fasteners, etc., "Perplexed" will do well to apply to J. Roberts and Co., 135, Minories, E.C., who supply a leather belt specially prepared for his purpose, and joined by clips, copper rivets, wire, or strong lace sewn as he may desire. The work and the materials he can thoroughly rely on speaking as I am from actual experience, being the owner of a 3 h.p. Benz car.—Yours truly, "ONCE PERPLEXED."

THE PREVENTION OF "FIRING BACK" ON LOCOMOBILES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—When reading Mr. Egerton's interesting article in your issue of January 5 I noticed that he had trouble with the "firing back" of the burner of his Locomobile, and it occurred to me that it might be of interest to him and other users of this type of vehicle to know that this trouble can be prevented by a very simple arrangement. In August last, after several ineffectual attempts to prevent "firing back" on the vehicle I have in use, I thought it would be well to try the effect of the mica flap valves commonly used for the ventilation of rooms in buildings. I made a new sheet-iron cross tube of rectangular cross section, and introduced a small brass frame carrying a hinged mica flap opening outwards about six inches back from each end of the tube, somewhat as shown roughly on the accompanying sketch. It will be seen that a wind coming from, say, the right, closes



down the flap on the right-hand side, leaving a free passage for the products of combustion through the open valve to the left, and *vice versa*; and I have found this arrangement quite satisfactory in preventing "firing back," and the consequent trouble, with burnt gauzes, etc. This arrangement has not been patented and may therefore be fitted by anyone.—Yours truly,

J. A. B.

MOTOR-CARS FOR MEDICAL MEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I regret that Mr. Truman should think that I had any idea of "crushing" him; I assure him I had not. If I may trouble him to refer to my letter he will see that I said: "The motor wanted by a medical man is identical with that required by a commercial traveller, with the exception of a few minor details." By the minor details I meant such matters as, for instance, space for samples, which have nothing to do with the motor proper, and are mere matters of coachbuilding.

In my list of requirements I forgot to mention cogs always in gear. If not trespassing too much upon your space, I will condense and revise these as follows:—Engine, 5 h.p.; tonneau body; water cooled; cog-wheel transmission, cogs always in gear; tube

and electric ignition; artillery wheels, and solid rubber tires; roller bearings; central lubrication; hood removable; seat starting handle.

I see no reason why a carriage of the above type should not be built at a moderate price, say £230.—Yours truly, W. W. HARDWICKE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a medical man who has had practical experience of a motor-car for a period of sixteen months, during which time I have covered more than 6,000 miles, I may perhaps be permitted to join in the correspondence which Dr. Hardwicke and Mr. Truman are contributing to your valuable columns. To be precise, I do not know whether my vehicle should be called a "car" or a "voiturette," anyway it is a most efficient vehicle for use either by a doctor or a commercial traveller, unless the latter desires to carry very bulky samples. It is a 5 h.p. Marshall, and I have run it daily, with very few exceptions, ever since I have had it. The roads in my district are both hilly and, usually, very muddy. I cannot choose my days, but must turn out, rain, snow or high wind; but with a leather apron which I have had fitted, I can comfortably defy the worst of weather. I do not like a hood, though the makers fit a very neat and effective one. I did not use a hood on my horse-drawn carriages—but every one to his taste. I have had very little trouble with belts composed of rubber and canvas; they stretch and require taking up when new, but after the first week or two they will run for months without attention. I have a leather guard to protect the belts from wet and grit. It is a pity that some thoroughly efficient method of protecting the chains has not yet been introduced. I have ascertained, by experience, that chains cost nearly 1d. per mile. The electric ignition has never given me any trouble. The cells supplied with the car ran down very soon, but I effectually remedied this by getting woven-glass accumulators from Mr. Van Raden, with which I am perfectly satisfied.

I am pleased to say that, although paint and polish are beginning to look slightly the worse from the rough use and bad weather to which the car has been subjected, the car is not only running as well as ever it did, but, truthfully, better. It is strong and well made for every-day use. As to speed, I do not propose to enter it for the Gordon-Bennett Cup, but it amply satisfies me, for I can easily manage to do the *full legal limit* even in this very hilly district.

With the exception of the pneumatic tires and the chains, the upkeep of the car has been insignificant, and including both these items there is a very substantial saving as compared with horse traction. When one can get a day or half day for a run into the country there is no tired horse to consider, even if there were no other advantage in the possession of a motor-car by a doctor; then is the time that the full advantage of this form of locomotion impresses itself upon one. Those who have experienced this double gain, to pocket and to enjoyment of life, as I have done, can never think of again returning to the use of the now superseded hay motor.—Yours faithfully,

FRED. FARROW.

MOTOR-CARS FOR PUBLIC SERVICES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I attended and took part in the discussion on Mr. Outhwaite's paper on Motor-cars for Public Services, on Wednesday, the 9th inst., at the Automobile Club. Being one of the early pioneers of the motor industry, especially on public and other service work, and having had a fleet of cars running in various parts of the eastern counties for the past three and a half years, the subject is one in which I take a great interest. I was especially interested to hear of the successful working of one particular car, which Mr. Bell, of Bournemouth, specially mentioned. The details he gave were, I believe, as follows:—He described this particular car as carrying eight passengers with driver; that it had run about 22,000 miles; had carried nearly a million passengers; and had earned over £600. This is good; but what struck me was the reported cost of repairs to the car

during the period in which it had performed this work and which amounted to the small sum of £29 only. I am fully aware that no two cars are alike, and although my own are not second-rate cars, but are built by the best makers in the kingdom, I have never been able to run a car, probably not half this distance, at such an exceptionally low working cost, and which, I must confess, appears to me to be an almost utter impossibility. Of course a deal depends on the route over which the car travels, but, from my own experience, the cost of tires alone would greatly exceed the amount mentioned by Mr. Bell for the whole working. I find a set of tires for a similar type of car to Mr. Bell's would cost roughly about £10 to £12, the average life of same, on good routes and free from tram lines, being 3,000 to 4,000 miles. Thus it will be seen, taking it that a set of tires will last 4,000 miles, and putting it well on the right side, the cost of tires would greatly exceed Mr. Bell's repair quotation. Over and above this expense there would be other repairs to a car running such a distance, although I must admit the tires form the one great item. As this is a question affecting a large number of public service companies, perhaps Mr. Bell will kindly state what tires were used.

Yours faithfully,

FRANK MORRIS.

THE POLICE AND SPEED.

TO THE EDITOR OF THE *Motor-Car Journal*.

SIR,—With regard to your Continental correspondent's remarks on this subject in your last issue, I think many motorists can give you cases where the speed mentioned (sixty-five miles) has been greatly exceeded by riders in England, in the estimation of the police. Personally, I have been told I have gone at the rate of eighty miles an hour, up hill, through traffic, and on a $1\frac{3}{4}$ h.p. De Dion tricycle! As the case may be of interest I give the circumstances below.

Last June I rode down from London to Hastings to join my wife. My stock of petrol being nearly consumed I was making my way towards Bohemia, which is rather a stiff ascent from the Memorial, in Hastings, at a speed I considered within the legal limit. I had gone about 300 yards from the Memorial when I noticed the horses of a pair horse carriage evidently meaning mischief. I knew also the occupant of the carriage as a doctor attending a patient lying ill in the same house at which I was staying. I decided to turn back so that the carriage could get well in advance, and returned leisurely to the Memorial, where I was stopped by a policeman on duty there who accused me of going at a speed of eighty miles an hour! I smiled, and thought he was joking, but soon found he was in earnest; there was the usual crowd and he began to call for two or three witnesses to prove his statement. But not wishing to have a compulsory stay I used my best endeavours to satisfy him, succeeding so well that I got away with a serious caution from him, he stating he should charge me next time I went at that rate.—

Yours truly,

W. HAYES.

TROUBLE WITH GEARING OF MOTOR-CYCLES.

TO THE EDITOR OF THE *Motor-Car Journal*.

SIR,—Having experienced a great deal of trouble with the gearing of motor-tricycles and quads, I seek a little advice about the same through your valuable journal. I cannot get over the grinding noise of the gearing. I fitted new gears and differential wheels, but after a few miles run I found them no better—the only ones that do not trouble me are not fitted in a case—they have been well lubricated, but this has not improved matters. Any assistance will be greatly valued by

Yours truly,

GEAR CASE.

AXLES AND BEARINGS FOR MOTOR-CARS.

TO THE EDITOR OF THE *Motor-Car Journal*.

SIR,—I read with much interest the account in your last issue of the run from John O'Groat's to Land's End on a Locomobile. I noticed a mention that one of the ball races on the axle went wrong, this being afterwards filled with grease, the car running 600 miles with a plain bearing without trouble. In my opinion it would be a great advantage, especially when travelling over

rough roads, if Collins or mail axles were applied to motor-cars, with hubs made to suit the same. In the first place they could always be kept lubricated and free from dirt; secondly, these can be taken off in a few minutes; thirdly, wheels could be washed with safety without water getting into bearings,

Yours truly,

W. BOBBETT.

THE DURABILITY OF MOTOR-CARS.

TO THE EDITOR OF THE *Motor-Car Journal*.

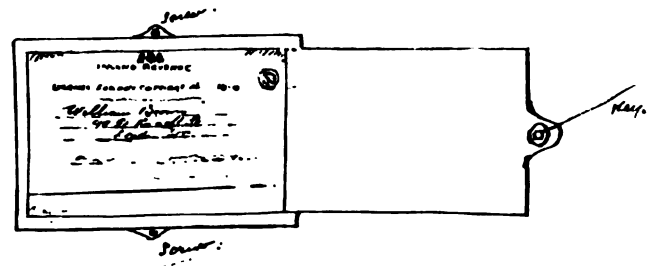
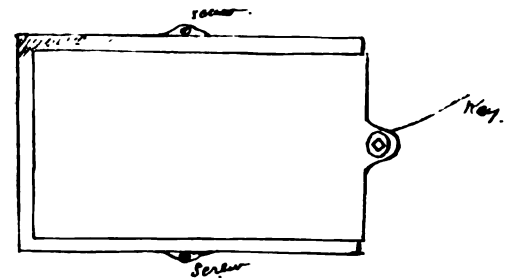
SIR,—I see you ask for records of cars. I received my Y.M.C.M.C. Jackson car on November 3rd. It is fitted with a double-cylinder $4\frac{1}{2}$ h.p. motor. I have only had three fine rides since I got it; I have run a total of 530 miles, the amount of petrol used being twenty-four gallons, which is not bad, considering the state of roads and the hilly country in the Harrogate district. The cost of repairs has amounted to 10s.; ignition tube burst, 6s.; a cotter-pin came out of the starting handle, and the clutch on starting handle was defective and had to be replaced. The longest run was from London to Bradford—210 miles in eighteen hours running time. I should mention that it was raining the whole way and the roads were covered with mud and new metal. The cooling water lasts for weeks, while the lubrication wants attention about each twenty-five or thirty miles. Dunlop tires are fitted to the car, and I have had one puncture, caused by a sharp flint in the dark. The tires have only once been blown up since put on.—Yours truly,

JAS. EDW. TUKE.

THE NUMBERING OF MOTOR-CARS.

TO THE EDITOR OF THE *Motor-Car Journal*.

SIR,—May I be allowed to suggest that the ordinary carriage licence that motor-car drivers are compelled to take out yearly should be affixed to the car in a small slide, locked with square hold catch, easily opened by key or penknife? This would



serve a double purpose, shewing as it would the proper name and address of owner of carriage, and also that same was duly licensed. At the same time the order should also apply to the hay motor. The slide could be made as per accompanying sketch, something after the style of an ordinary dark slide, and affixed to any available part of the car by two small brass sets; the licence could then be pasted inside same.—Yours faithfully,

FRANCIS J. WATTS.

WANTED; A MOTOR WHEEL.

TO THE EDITOR OF THE *Motor-Car Journal*.

SIR,—Considering the present high price of motor-cars which are principally used for pleasure, would it not be a good move if

the commercial classes were catered for a little more? And unless the trade can compete with the horse-drawn vehicles in price such great alterations are not coming as some people seem to entertain. Take an ordinary man in business who uses a conveyance for the carrying on of such trade, doing all that is required. Does anyone seriously think that he will change his mode of cartage for one costing probably more than four times the amount, although it may be able to run continuously? You will have to convince him through his pocket before any great headway is made. Surely some of our English manufacturers (before it comes from elsewhere) can rise to the occasion, and if not possible on existing lines, why not try other means?

Without going into details, is there any reason why an engine placed on two wheels or on one, with little or preferably no gearing, the various speeds to be obtained by braking, and use of a quick-acting clutch, could not be sold at the price of a good horse? Such motor wheel should be used in the ordinary dog-cart.

Besides a motor pulling, little or no vibration would be felt. No doubt many will say this is unsightly and not practicable, that the wheels would slip, and so on. But for light delivery carts and for carrying two or more persons, or equivalent, these obstacles might be cast on one side. To the man with limited means, either for business or pleasure, such a cheap motor wheel would appeal to the million, and be more convincing than all the arguments hitherto brought forward.—Yours truly,
J. BROWNLOW.

MOTORISTS AND HORSES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—When a man rushes into print, as has the Marquis of Granby, with the statement, "As for a motor-car being stopped because of a nervous, frightened horse, such an event has, I fancy, never happened yet. . . . At any rate I have never heard of or seen such a kindly act on the part of a motor-carist," it is certainly time light should be thrown on the matter from the other side of the question. The term "abominable conveyances," employed by the Marquis in another part of his letter to the *Field*, is at once uncalled for and undeserved, and expresses merely his personal opinion of a machine of the construction of which he is absolutely ignorant, and the advantages of which he blindly ignores. Apart from the inference conveyed by his remarks—that drivers of motor-cars do not possess the ordinary instincts of gentlemen—one would ask on what his lordship bases his statements. How many cars has he passed when riding or driving, and in how many instances has the driver failed to "go steady" or "pull up" when signalled to do so? Again, is his lordship writing on behalf of the horse-driving world, or expressing his private "fancy" or the "hearsay" of his anti-automobilistic friends?

Writing from the standpoint of an automobilist who has driven motor-cars some thousands of miles on English roads, and being personally acquainted with all the chief motorists in this country, I can thoroughly substantiate the reply given by Mr. Claude Johnson, the secretary of the Automobile Club, to the statements made by the Marquis of Granby. Last year I had the honour of being the first to take Lord Alverstone, the Lord Chief Justice, for a drive on my car. On our way to Kingston, through Richmond Park, we met a lady and gentleman in a light buggy with a spirited horse. When about a hundred yards from us the driver held up his hand, and I immediately applied the brakes and stopped both car and engine. The next few seconds quickly revealed the absolute incompetence of the man on the box seat to handle his horse. Jumping down from my seat I went to the horse's head, and, walking between him and the car, led him by. Immediately this "gentleman" (?) had passed, he submitted us to a storm of abuse, and parted with the advice "to take it home and burn it." In this instance I only did what I have personally seen many drivers of cars do when I have been cycling or on foot.

Turning now to the statement made by Mr. Johnson that the holding up of a hand by a driver "is frequently misused for the purpose of their annoyance by drivers whose horses are by no means restive," the following instance will clearly prove the cor-

rectness of his remark. I happened to be on a visit to Lord Wolverton, at Queensberry House, Newmarket, a few months ago, and taking a car down there at his request, we were constantly out driving in the neighbourhood, often meeting dozens of very valuable yearlings and race-horses. My experience proved conclusively that the higher the breed the smaller the trouble in encountering a motor-car. On one occasion, Lord and Lady Wolverton, Lady Stanley, and myself set out for Cambridge, Lady Wolverton being at the helm. Being market day we met some dozens of conveyances, and owing to drivers repeatedly raising their hands we were delayed some thirteen minutes on the road. In five out of seven of these instances it was the driver of the conveyance, and not the horse, that was "terrified." I have spoken with several well-known gentlemen—owners of both horses and motor-cars—who have experienced similar incidents. Any unprejudiced person can see from the foregoing statements that the scales are somewhat evenly balanced, and, if anything, in favour of the motor-car. It would, of course, be incorrect to state that no drivers of motor-cars have been guilty of the offence for which they are blamed, but I should be sorry to say that all are alike. Why should motorists, as a body, be accused of deeds for which one or two "black-sheep" should be held responsible.—Yours truly,

MONTAGUE GRAHAME WHITE.

DEFECTIVE ELECTRICAL IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having, like many other readers of your esteemed paper, been for some time a sufferer through defective electrical ignition, principally on account of the difficulty in getting my accumulator charged, and the delay occasioned thereby, I was induced, like many others, to try a set of dry cells, also some primary cells that were advertised, but finding them impracticable, I had again to fall back upon my accumulator. A few days since a friend of mine introduced to my notice a set of Boron batteries which he had purchased. Somewhat dubious after so many failures, and having spent a lot of money through noticing puffed advertisements, I at length, somewhat reluctantly, ordered three batteries for charging the accumulators of my voiturette. The satisfaction I received from them was more than I had anticipated. I have now no trouble in charging my accumulators in a few hours, and always take the cells with me when touring. I have no intention to advertise the Boron Battery, as I have no interest in them, and state my experiences in the hopes of benefiting any brother motorist who may have encountered similar difficulties.—Yours truly,
(REV.) H. H. HIGGINS.

IN reply to Mr. Estcourt, "Cush" writes that "M. E. Delamare Deboutteville's address is: Fontaine le Bourg, near Rouen, Seine Inférieure, France. His carburettor—for a water-cooled motor—I believe to be the best made."

MR. MONTAGUE S. NAPIER writes us as follows: "I notice in your issue of the 5th inst. a letter from Mr. C. Friswell, in which he suggests that my firm is financed and directed by Mr. Harvey Du Cros. I desire to state that this is not the case. I am the sole owner of the business carried on as D. Napier and Son, and I have never received any pecuniary assistance from Mr. Du Cros. My only business connection with this gentleman has been through selling cars to himself and Mr. S. F. Edge in partnership."

MR. C. FRISWELL writes: "Referring to the answers to my query, which evidently Mr. Elderfield, Mr. Osborne, and Mr. Jarrott think it easy to fence round the name of Du Cros, they seem to forget that I added 'the Lawsonian Group.' However, as nothing turns on it except that which is common property, I do not wish to further trouble you."

THE opening of the cycle and motor exhibition in the Grand Palais, Paris, is fixed for Monday next, the 21st inst. The exhibition will remain open until February 10.

THE Union Automobile of Paris will give a banquet in Paris on the 23rd inst. in celebration of the election of M. Léon Serpollet as a *Chevalier* of the *Légion d'Honneur*.

The Vinot-Deguingand Motor-Car.

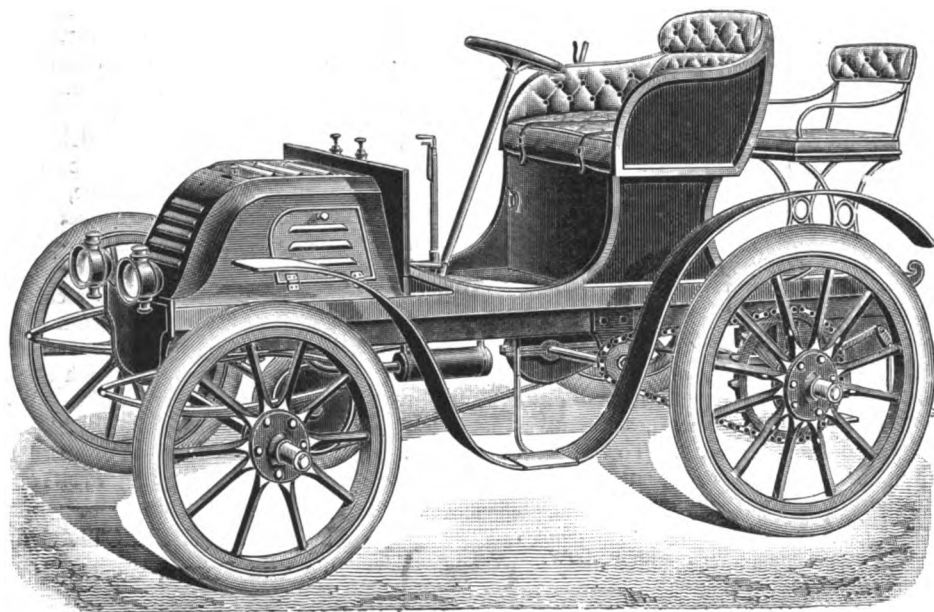


FIG. 1.—GENERAL VIEW OF CAR.

IN between the voiturette class of automobile and the high-powered type, such as the Panhard and Mors, a new variety—light cars fitted with a motor of sufficient power to take hills without any great diminution of speed—is steadily

coming into vogue in France. An example of the new type of car is the Marot-Gardon illustrated in our issue of the 15th September last. The accompanying illustrations show a new car recently put on the French market—the Vinot-Deguingand—which may be classified in the same category. The

frame of the car, which is slightly wider at the rear than at the front, is entirely built up of channel steel, and is spring-suspended on the axles at both front and rear. It carries the whole of the motor and transmission gear, thus forming a complete under-carriage to which any form of carriage body can be fitted. Fig. 1 shows a two-seated duc fitted with a detachable tiger seat at the rear.

The motor (Fig. 2) is of the two-cylinder vertical type, using petrol as fuel. The cylinders have a diameter of 85 mm., and the

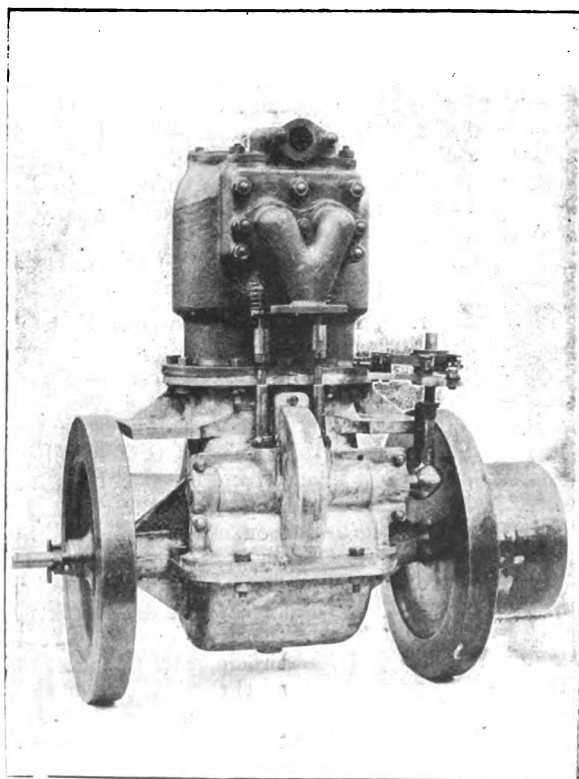


FIG. 2.—GENERAL VIEW OF MOTOR.

stroke is 130 mm. Running at a normal speed of from 750 to 800 revolutions per minute, it indicates 5 h.p. The cranks are set at an angle of 180 degrees to each other. The pinion controlling the second motion or exhaust-valve control shaft is mounted centrally on the crank shaft within the oil-containing case. Two fly-wheels are provided. The inlet and exhaust valves are contained in the same casing, one above the other, in such a way as to be readily accessible. Both the cylinders and the explosion chamber are water-jacketed. The circulation is maintained by a small

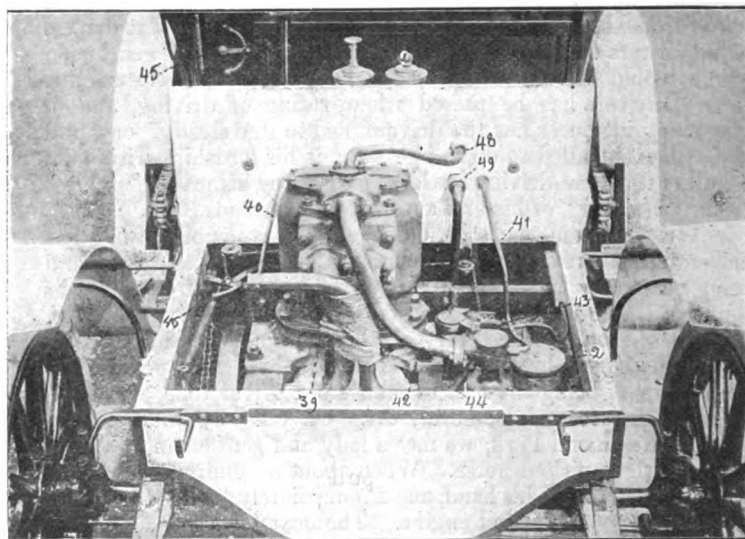


FIG. 3.—VIEW OF FRONT OF CAR WITH BONNET REMOVED.

stroke is 130 mm. Running at a normal speed of from 750 to 800 revolutions per minute, it indicates 5 h.p. The cranks are set at an angle of 180 degrees to each other. The pinion controlling the second motion or exhaust-valve control shaft is mounted centrally on the crank shaft within the oil-containing case. Two fly-wheels are provided. The inlet and exhaust valves are contained in the same casing, one above the other, in such a way as to be readily accessible. Both the cylinders and the explosion chamber are water-jacketed. The circulation is maintained by a small

pump, the heated water passing through a radiating coil ere it returns to the tank at the rear of the frame. Electrical ignition is employed, and by means of the timing arrangement the speed of the engine can be varied between 300 and 1,000 revolutions per minute. The timing device comprises (1) a fibre cam carrying a metallic sector in communication with a part of the engine, and (2) a plate on which are fixed two insulated springs, bearing continuously on the cam. The two springs are connected with the primary wire of the induction coil, and each time the metallic sector comes in contact with the insulated springs a spark is produced in the cylinder corresponding to the spring.

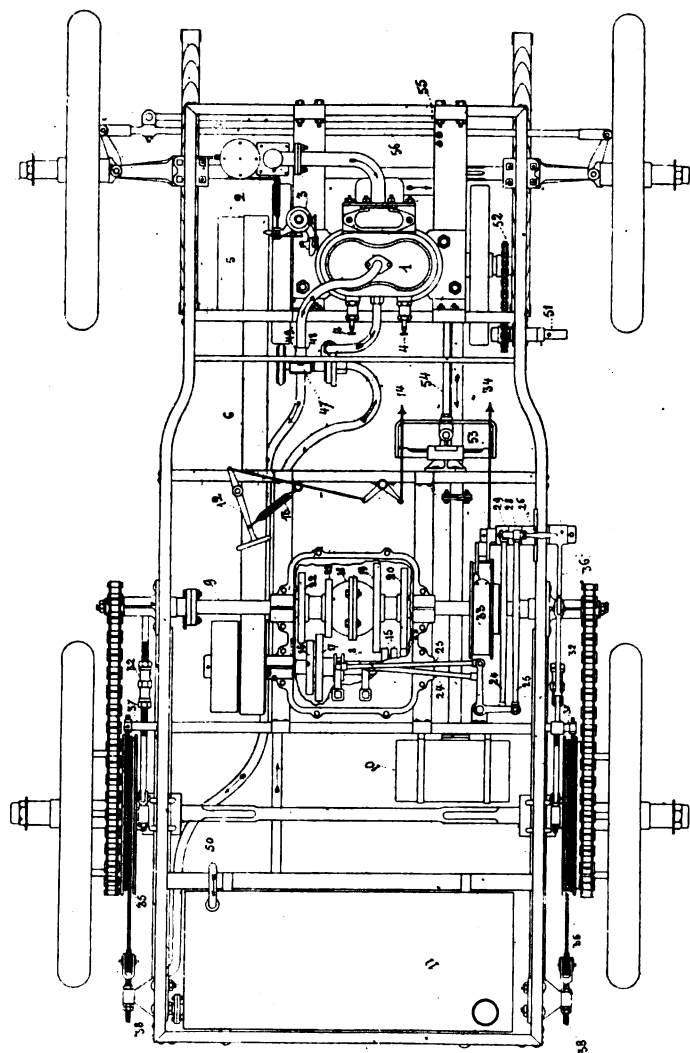


FIG. 4.—PLAN OF CAR.

As will be seen from Fig. 4, the engine is located under a bonnet in the fore part of the frame. On one end of the motor-shaft is carried a wide pulley, the power being conveyed by a single belt to a fast and loose pulley on a short counter-shaft at the rear of the differential shaft 9. Three speeds forward—10, 20, and 35 kilometres per hour—and a reverse motion are provided. The variable speed gear consists of a train of spur wheels on the countershaft, any one of which can be made to mesh with corresponding pinions on the differential shaft. The variable gear, which is controlled by a single hand lever at the driver's side, works in an oil-containing case of aluminium. From the differential shaft to the rear axle the power is conveyed by the usual duplicate set of sprocket wheels and chains. Provision is made for taking up any slack or wear of the latter. No friction clutch is employed, the motor being thrown out of gear by means of a foot-pedal, the depression of which shifts the driving belt on to the loose pulley.

A foot pedal actuates a band brake on the differential shaft,

while there are band brakes, operated by a hand lever, on drums attached to the hubs of each of the rear wheels. In conjunction with the foot-pedal is fitted a device by means of which, on the application of the brake, the ignition is retarded, thus preventing any racing of the motor. Steering is controlled by an inclined hand-wheel, while the wheels are of wood shod with pneumatic tires. The car, which is made by Messrs. Vinot and Daguinard of Puteaux, France, weighs complete about 10 cwt.

HERE AND THERE.

A MEETING of influential traders and ratepayers of St. Pancras has been held to consider the question of widening the Hampstead Road at its junction with the Euston Road, and a committee, including representatives from all the large business houses in Tottenham Court, Euston and Hampstead Roads, was formed with a view of bringing the matter before the London County Council as a metropolitan improvement. It was resolved to urge the movement forward by every legitimate means, and to call a public meeting at an early date. The congestion of traffic at this corner is now so great that it is of the utmost importance that something should be done to relieve it, and the matter is likely to become prominent before the public between now and the County Council elections in March next.

THE Hozier Engineering Company, Ltd., of Bridgeton, Glasgow, has been appointed agent for Scotland for the M. M. Company's 5-h.p. motor.

AMONGST the novel features of the motor competitions that will be carried out at the Crystal Palace by the English Motor Club on April 27th, will be a section for cars driven by ladies. There are so many ladies now driving cars that this should prove one of the most interesting items of the afternoon's sport. There will also be a section for steam cars, and in all probability one for electrical vehicles.

It is proposed to hold an automobile show in Reading during March next under the auspices of the Reading Automobile Club, which numbers over fifty members. It is intended to make the show, which will be held in the Reading Corn Exchange, a representative one, and to include exhibits of all forms of motor-vehicles and accessories.

WE hear that the Motor Manufacturing Company, Ltd., have entered a vehicle for the 1901 Gordon-Bennett Cup race. Messrs. Charron, Levegh, and Girardot have been selected to represent France in the race, Messrs. Huillier, Pinson, and Giraud being named as "reserves."

THE Anglo-American Oil Company have recently introduced a new screw stopper for the rectangular tins in which they supply Pratt's motor spirit. It was found that there was a difficulty in unscrewing the screw stoppers, which are necessarily screwed up very tightly. The new stopper is provided with slots into which a coin or any other article may be inserted and the stopper easily removed.

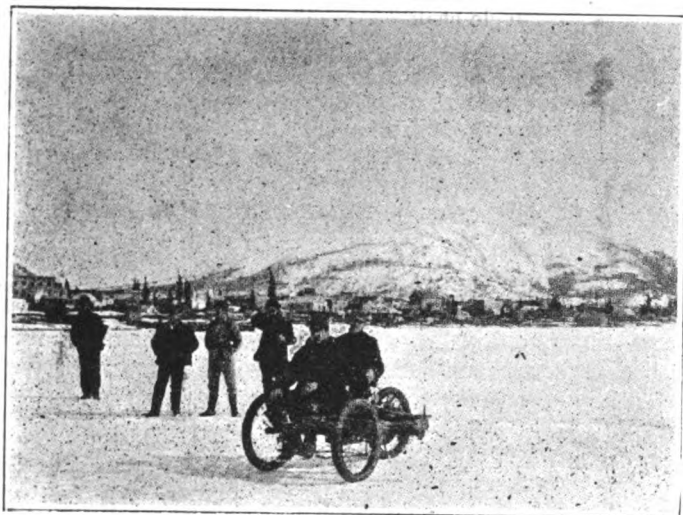
THE AUTO-STEAM GENERATOR SYNDICATE, LIMITED, has been registered with a capital of £5,000 to carry on the business of cycle, vehicle, and launch builders, &c.

AN inquiry was held at Congleton recently into the circumstances attending the death of John Booth, aged thirty-four, who was driving his horse and cart when the horse shied at an approaching motor-car. Mr. Booth was thrown from the vehicle and received injuries which resulted in his death. The jury returned a verdict of accidental death, exonerating Dr. Bowman, the owner of the motor-car, from all blame, and handed over their fees for the widow. Dr. Bowman intimated that he would show his sympathy with the widow and family in some practical way.

TO THE KLONDYKE BY MOTOR-CAR.

WHEN the little coasting steamer "Cutch" left Vancouver on one of her regular voyages to Skaguay last March, her manifest bore an item which had never appeared there before. It was "one automobile," of which M. E. Janne de Lamare was consignor and consignee. After the ship's arrival at Skaguay the cargo was, states the *Automobile Magazine*, transferred to the freight-cars of the new Yukon and White Pass Railroad, and a few days later the first automobile in Alaska rolled out upon the ice-crusted lake at Bennett. The machine carried two persons, one being M. de Lamare, who owns one-third of the town site of Atlin, B.C., the other his friend-chauffeur, M. Raphael Merville, a young French record-making motor-cyclist of last year. M. de Lamare and his friend returned to Alaska from the United States after developing a long-cherished plan for the employment of an automobile as the method of rapid transit to the Klondyke.

As he had traversed three times previously the 640 miles which separate Bennett from Dawson City, M. de Lamare entertained no illusions in undertaking the journey in an automobile. In point of fact, after a review of the situation, embracing the low and limited construction of their vehicle and the arrival of an unusually early northern season, both adventurers entertained considerable doubt as to the complete success of their expedition. The arctic auto-



ARRIVAL OF MESSRS. DE LAMARE AND MERVILLE IN THE FIRST MOTOR-CAR AT ATLIN, B. C.

mobilists arrived in Bennett the latter part of March, and though the thaw in former years did not begin until the middle of May, they learned that many of the streams further north were beginning to break. This was unwelcome news, as the Fifty Mile river, which lay in that direction, had been chosen as the best automobile course northward after leaving Lake Tagish.

The itinerary from Bennett follows: North on Lake Bennett to Cariboo Crossing, situated at the end of Lake Bennett, to Windy Arm, to Naies Lake; thence to Tagish Lake; thence to Tagish, at which point the Fifty Mile river enters Lake Tagish, northward on the Fifty Mile river to Miles Canon Pass, to White Horse Rapids, which never freeze. The route continues to Lake Lebarge, to Lewes River, by which Fort Selkirk, the future official capital of the Yukon Territory, is reached. From Fort Selkirk the course is over the Yukon River, by which the voyagers intended to descend to Dawson City.

The machine employed in the experiment was a three-wheel voiturette of the Bolleé type of 3½ h.p. The vehicle, which may answer all requirements on a good road and in a milder climate, failed to realise all that was expected of it in the Alaskan journey. As mentioned above, the carriage was low in construction, the foot-board of the trailer and the motor, which was attached to the rear wheel, being within a few inches of the

traction-base. After a few days in Bennett the *chauffeurs* left the little mushroom city followed by the shouts and the "good lucks" of the townspeople, who turned out *en masse* to watch the start of the carriage.

Learning of the open condition of the streams in the upper country, M. de Lamare found it necessary to change his original plans. It was at first intended that the commissariat and supply of fuel should be drawn on a sled attached to the rear of the machine. With a view to the probable speed of the vehicle and the unusually bad condition of the route, this plan was abandoned as impracticable. It was then proposed to proceed without the supply of provisions and depend on a possible meeting with prospectors or Indians, but that plan also was put aside, as the store of petrol was not to be ignored. As there was not an inch of unused space on the carriage the *chauffeurs* were compelled to engage a native with sled and dogs to follow with the provisions and fuel as best he might.

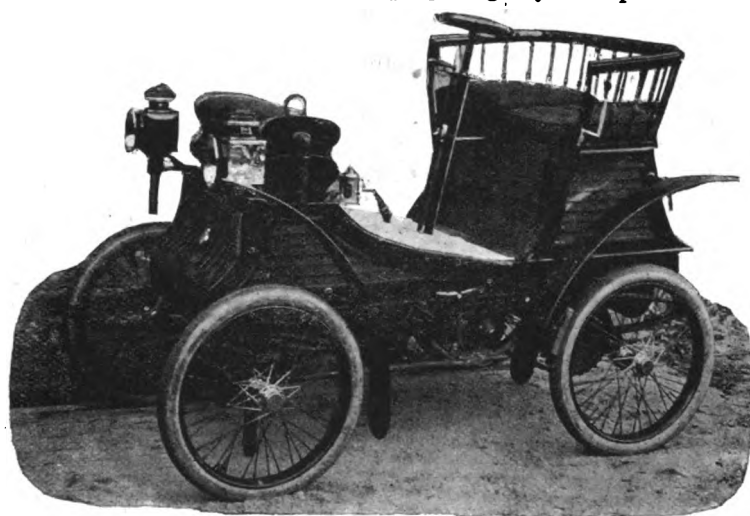
For the first few miles the lake-trail was good, and it was not until the vehicle had covered fifteen miles that the suggestion of subsequent difficulty presented itself. At this distance from Bennett the trouble of the *chauffeurs* began. Huge snow-drifts which freezing under a temperature of 52 deg. below zero at night became brittle on the crust under the sun's rays. In some places where the snow had been blown away, leaving the ice visible, water to the depth of two and sometimes three inches was encountered. But in spite of these obstacles the little machine maintained a speed of 15 miles an hour. The uneven trail made by the half-frozen drifts caused the vehicle to "kick" and "shake," performances holding forth no bright promise for the long survival of the motor. After many shocks and jars, each of which seeming to be the last, the hardy motorists reduced the speed of the carriage one-half. The trail became worse and worse, and when the expedition had put 22 miles behind, the solder broke away from a portion of the petrol pipe, which was swathed in strips of flannel to exclude the cold. A leak resulted, and the fluid running out on the fabric took fire. This necessitated a stop, and by the use of snow the flame was extinguished. As there was no solder at hand to repair the rupture, the repair was made by winding wire around the injured portion. This operation occupied two and a half hours, after which the outfit slowly and carefully proceeded to Cariboo Crossing, 28 miles from Bennett, arriving five hours later. At Cariboo Crossing a blacksmith was found and the machine was repaired *à la* Klondyke. At this point M. Merville, who, suffering from exposure resulting from the halt for repairs on the lake, fell ill, and the adventurers remained at Cariboo Crossing for the night. During the night the commissariat came up, and M. Merville having recovered sufficiently to proceed, the expedition set out on the following morning on the second stage of their journey. Though the running during the day cannot be described as "smooth," the trail was not as slushy as that of the previous day. Passing Windy Arm, which is a small peninsula a few miles north of Cariboo Crossing, the automobilists drove out across Naies Lake, which, at its northern extremity, joins Taku Lake in the east and Lake Tagish in the west. Few of the motor-wrenching hillocks of the day before were encountered on Naies Lake, and for the greater part of the way its surface was as smooth as glass. Due to a lowering of the temperature the pneumatic tires remained dry, and the adjustment to the fore-wheels of a novel set of runners, included in the outfit, was found to be unnecessary.

Though M. de Lamare was in possession of knowledge concerning the probable condition of the Fifty Mile river, he hoped to reach it before a thaw, making auto-navigation impossible, began in earnest. Therefore, on reaching Tagish, after a rough and eventful journey across Lake Tagish, the voyagers were downcast on finding the river, which enters the lake at that point, open. This circumstance having defeated their purpose to reach Dawson, the intrepid automobilists determined to subject the machine to a further test by essaying a journey to Atlin, 83 miles from Tagish. Leaving Tagish the pair turned eastward, returning by the old trail to Naies Lake. Crossing Naies Lake they entered Taku Lake. The trail improved as they proceeded, and

during the night the machine at some points maintained a speed of 40 miles an hour by moonlight. Golden Gate, a small place situated on the west side of a peninsula separating Taku Lake from Atlin Lake, was the first objective point of the adventurers. Fifty miles had been covered, and at a time when the journey promised to be speedily accomplished the cap of the carburettor became dislodged and was lost on the trail. Without provisions and unable to proceed with the vehicle, the automobilists waited thirty-six hours for the commissariat to come up. After its arrival temporary repairs were made and they proceeded at a reduced speed to Golden Gate. From Golden Gate the trail on Atlin Lake was good, and on April 4th the automobile arrived at Atlin. In Atlin the machine was overhauled, and a few days later Messrs. Lamare and Merville started on the return trip to Bennett, where they arrived after a passage no less eventful than the trip out. The expedition was purely an experiment, and as such it cannot be said that it is without its good results. Before his departure for Paris, M. de Lamare made the statement that next year, in an automobile of 6 to 8 h.p. he will experience no difficulty in covering the 640 miles between Bennett and Dawson City in forty-eight hours.

THE MYTHOLM DOCTOR'S CAR.

HEREWITH we are able to illustrate a new light car which the Yorkshire Motor-Car Manufacturing Company, Ltd., of Bradford and Harrogate, have just put on the market. The vehicle, which has been named the Mytholm Doctor's Car, is propelled by a $4\frac{1}{2}$ -h.p. single-cylinder petroleum-



spirit motor fitted in the fore part of a cross-stayed girder frame; it is not located horizontally as usual, but at an angle of 25 degrees from the horizontal. The cylinder is $4\frac{3}{8}$ inches bore, and the piston has a stroke of $4\frac{1}{2}$ inches; the normal speed is 700 revs. per minute. The valves are so designed that the explosive charge passes over the head of the exhaust valve on its way to the inlet valve. The cylinder, together with the exhaust valve, is water-jacketed. Natural circulation from two oval tanks, placed in front, is employed, the use of pump and radiator being dispensed with. By means of the use of two tanks four cooling surfaces are obtained. Either electric or tube ignition can be fitted, while a Longuemare carburettor furnishes the explosive mixture.

Three speeds forward are provided, ranging from six to eighteen miles per hour. The variable speed gear is operated by a single hand lever, on the steering post. The power from the motor is transmitted to either of two equal-sized pulleys on an intermediate counter-shaft; a striking-gear throws the belt from the one to the other pulley and a jockey on the under (and slack) side of the belt serves to tighten it. The belt is short and wide; it runs at a high speed and is said to work without giving any trouble. Within the two pulleys, and enclosed in a dust-

proof and oil-retaining case, is an epicyclic train of bevel wheels one planet wheel only being fitted. The outer concentric wheel of this train (that nearest the frame) is securely held by an arm to the frame. This device provides three different speeds in the following manner:—When the belt is placed on the right-hand pulley it revolves, together with its sleeve, freely on the counter-shaft, but the planet wheel carried by it causes the left-hand pulley to revolve at twice its own speed. Since the two-way clutch provided is engaging with this latter pulley, the counter-shaft is also driven at twice the speed of the pulley which the belt is running upon. This is the high speed. In order to obtain the intermediate speed, the belt is moved on to the left-hand pulley. The counter-shaft then revolves at one half the previous speed. The low speed is brought into action by throwing over the two-way clutch, and this is effected by a connection between the striking gear and the clutch lever; when the striking gear moves the belt towards the left-hand edge of the left-hand pulley it also actuates the clutch—this action is obtained by a chain connection and requires a motion of about $\frac{1}{2}$ inch of the belt guide. The effect of this operation is to cause the counter-shaft to revolve at one-half the speed of the belt-driven pulley, the pulley is running freely on the sleeve of the other pulley, but it is driving this other pulley and its sleeve at half its own speed, through the epicyclic train; the sleeve is now clutched to the counter-shaft, and hence the low-speed gearing is obtained. From the countershaft a single chain transmits the power to the rear live axle. Ample brake power is provided, while the steering is controlled by an inclined hand-wheel. The road wheels are of the cycle type, shod with pneumatic tires; the carriage body is adapted to accommodate two persons, and to afford ample luggage room; the weight of the car complete is 7 cwt. The car is also being made fitted with a tonneau body, and can be fitted with a reverse motion if desired.

THE Cinque Ports Cycle and Engineering Co., 14, George Street, Hastings, are working on a new two-cylinder petrol engine.

AT Walsall, on Tuesday, James Harris, for driving a motor-car belonging to Messrs. Smith, millers, at an excessive speed, was fined 20s. and costs.

AMONG those who have offered the use of motor-cars for the proposed Volunteer Automobile Corps, are Mr. Archibald Weir, of Ottery St. Mary, Mr. W. T. Pretty, of Ipswich, and Dr. Dawson Turner, of Edinburgh.

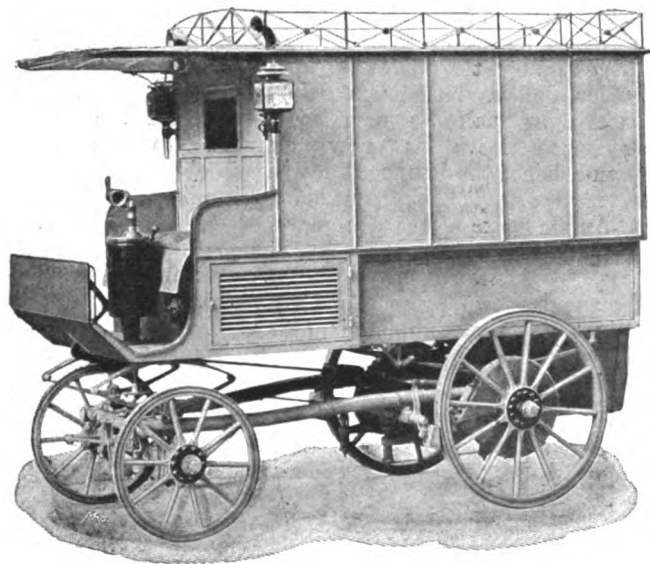
THE next House Dinner of the Automobile Club will be held on Wednesday, February 13th. The same evening a paper on "The 1,200-mile Trial of 1901" will be read. Representatives of manufacturers of, and of agents for motor-vehicles, who contemplate entering vehicles for the Trial are invited to be present at the discussion.

FRENCH motorists are greatly concerned at the squabble which has arisen between the French Automobile Club and the French Automobile Union. The latter society recently decided that all road-racing as a record of mere speed conditions should be abolished and that such races should only be allowed on properly-prepared tracks. The A.C.F. at once replied by a decision to disqualify all racers who accepted the conditions of the Union or who entered their machines for events organised by the Union. A further resolution declared that the Club would disqualify all makers whose machines were used in Union competitions. The result of these counter-declarations is awaited with interest.

THE well-known radiator, the "Loyal" has recently undergone some improvement in detail, the form of the radiating gills having been altered. The fluting is not now carried out directly from the centre, but runs in a curve, partly round the radiator, before reaching the edge of the gill. This gives a greater radiating surface without any increase of the weight of metal. The new design has been registered in England, and is now being supplied on all radiators by the British agents, the United Motor Industries Ltd., of 40, Holborn Viaduct, London, E.C. We hear, by the way, that the same firm have recently secured several very important new agencies.

MOTOR-CARS IN THE GERMAN POSTAL SERVICE.

“**D**ER Motor-Wagen” in a recent issue gives some results obtained with an electrical delivery van built by the Berlin Motorfahrzeugfabrik Gesellschaft, of Marienfelde, Berlin, and which has been used by the postal authorities in that city since October last year. The vehicle, of which an illustration is given herewith, is used for parcel delivery, and is capable of carrying a load up to nearly a ton. It is provided with two series electro-motors, which, at a speed of 600 revolutions per minute, develop 2½ h.p. each. Each of the motors is directly geared to one of the rear road wheels. The storage battery consists of forty-four cells of 100 ampère-hours capacity. The controller is arranged to give five forward speeds and one reverse, and has two positions for electric braking. During the snow period of last winter the vehicle ran on rubber tires, while ordinarily it runs on iron tires. The distance (in



kilometres) covered during each month up to June last is given in the following table:—

	On iron tires.	On rubber tires.	Total.
October, 1899	513	—	513
November, „	89	—	89
December, „	245	554	799
January, 1900	212	713	925
February, „	—	870	870
March, „	402	561	963
April, „	808	—	808
May, „	715	—	715
June, „	690	—	690
Total	3674	2698	6372 kilos.

The following are some additional particulars of the results obtained with the vehicle:—Mean charging energy per wagon-mile equals 592 watt-hours; mean energy consumption per wagon-mile equals 432 watt-hours; mean energy consumption per ton-mile equals 131 watt-hours; weight of the vehicle in running order equals 5,090 pounds; weight of vehicle loaded is 6,600 pounds.

After the vehicle had accomplished 2,880 kilometres (about 1,800 miles), the battery was taken out and cleaned. The reserve battery, which was used during this period, remained in the vehicle until 3,353 kilometres had altogether been covered, so that the total distance covered with the original battery up to date is 2,880 + (6,382 - 3,353) = 5,909 kilometres. After cleaning the battery a loss of capacity of 12 per cent. was noticed. It is to be remarked that three-fifths of the total distance covered was done on iron tires. This result would indicate that the use of iron tires with such vehicles is not at all impractical, provided the vehicle is

otherwise of suitable design, and that the roads travelled over are good. An inspection of the vehicle after having made something over 4,000 miles proved every part to be in good condition, and the vehicle is still in regular service.

THE New Grappler Tyre Co., Ltd., have just completed arrangements with Messrs. Atkey and Co., Ltd., Trent Street, Nottingham, to carry a large stock of Grappler motor tires during the season, so that there will be no delay to their clients in the Nottingham district in getting immediate delivery.

THE Discount Motor-Car Co., the publishers of *The Motor Mart*, are opening a large showroom and repository at 108, Euston Road, N.W., where clients desirous of disposing of their cars can place them under the charge of competent salesmen. The possession of these premises will also enable the company to undertake the overhauling of and putting into proper working order any cars sent to them, either for storage or sale.

AT Barry County Court last week a claim was made by Priscilla Barber against Mr. Gould, of the Windsor Hotel, Barry Dock, for £10 10s. compensation in respect of injuries. Plaintiff alleged that while alighting from a motor-car owned by defendant the car suddenly jerked her off the steps, causing her to fall and injure her knee. Defendant and the conductor of the car were called, and they denied that any accident was known to them to have occurred except from what plaintiff had said afterwards. Judgment was eventually given for £10 10s. and costs.

MR. S. J. DAVIES, jun., treasurer and general manager of the Locomobile Company of America, has arrived in London. He attributes the large productive power of the company to their making standard patterns and using the best machinery. In America, he says, motor-cars are being used by contractors who have building operations to watch in several places at a time. Mr. Wm. B. Parsons, the engineer in charge of the rapid transit tunnel, now being made in New York, uses a motor-car to cover the distance between Battery to King's Bridge, about fifteen miles. He found horses too slow.

SOME AUTOMOBILE CLUBS' BADGES.



The Automobile Club of Great Britain and Ireland.



The Manchester Automobile Club.



The Bavarian Automobile Club, Munich, Germany.



The Frankischer Automobil-Club, Nuremberg, Germany.



L'Automobile Club d'Avvergne, Clermont-Ferrand, France.



The Bordeaux Automobile Club.



L'Automobile Club Dauphinois, France.



L'Automobile Club de la Dordogne, France.



L'Automobile Club Biterrois, France.

DIARY OF 1900.

AN INTERESTING AUTOMOBILE RECORD.

(Concluded from page 766.)

JULY.

Awards made known in connection with the 1,000-mile Trial.
Extraordinary general meeting of the British Motor Company.
Automobilists' garden party at Strawberry Hill House, Twickenham.
Introduction of the Paris-Singer motor-voiturette.
English Motor Club held a hill-climbing competition at Godstone.
Automobile Gymkhanas at the Ranelagh and Sheen House Clubs.
Congress of Automobilmism in connection with the Paris Exhibition.
First Irish motor-car tour organised by the Shannon Development Syndicate.
Attention called to the Capel motor-car, the Argyll voiturette, and the Stonebow car.
The Automobile Club of France organised fêtes in connection with the Paris Exhibition.
Miss Vera Butler drove a Panhard car from London to Paris.
First run of the Scottish Automobile Club.
Automobile run of the Liverpool Self-Propelled Traffic Association.
The Paris-Toulouse Race.

AUGUST.

The Shah visited Paris and purchased several automobiles.
Run of the English Motor Club to Cobham.
Death of M. Lenoir, the inventor of the petrol automobile.
Results published of the Chiswick District Council's experience of motor-vans for municipal purposes.
The first motor race on an Irish track took place at Navan.
Porlock Hill mounted by Mr. S. F. Edge on his 16 h.p. Napier car.
New Leyland steam-wagon brought out.
Paper by Mr. E. Shrapnell Smith on "The Actual Cost of Motors for Street Watering and Dust Removal," before the Association of Cleansing Superintendents of Great Britain.
First run of the Yorkshire Automobile Club.
Annual motor-car trials in Paris.

SEPTEMBER.

Runs of the English Motor Club to Bedford and Wendover.
The toll on Maidenhead bridge lowered to 6d. for motor-cars and to 3d. for tricycles for one day.
Run of the Manchester Automobile Club to Buxton spoiled by a fog.
Rigal made a record of 20 kilometres in 16 mins. 16 secs. on his motor-tricycle.
General attention directed to the use of automobiles by the French military authorities in the autumn army manoeuvres.
The inaugural automobile race meeting on the Ostend Motodrome took place.
First long distance race in Germany—between Berlin and Aix-la-Chapelle.
The Prince of Wales went for drives from Homburg on a steam-car.
The Austrian Automobile Club held a hill-climbing competition.

OCTOBER.

Motor-cars came into prominence in many constituencies during the General Election.
Autumn tour of the Automobile Club to Monmouth and the Hendre—the seat of Lord Llangattock.
Formation of the Nottingham Automobile Club.
Mr. W. Worby Beaumont's great book on motor-vehicles published by Messrs. A. Constable and Co.
Mr. C. T. Crowden read a paper on Motors and Motor-cars before the Cycle Engineers' Institute.
Annual dinner of the Reading Automobile Club.
Return of Major R. E. B. Crompton from South Africa.
Demonstration of the Singer motor-bicycle at the Cycle Engineers' Institute.
Twin-cylindred New Orleans car brought out.
Heavy motor-vehicle competition in France.
The Automobile Club of France decided to organise, in 1901, an automobile tour on the lines of the English 1,000-mile Trial.
Alcohol motor competition in France.

NOVEMBER.

Reunion at the Trocadero of those who participated in the 1,000-mile Trial, and distribution of awards.
Mr. C. Jarrott made a British motor-tricycle hour record of 42 miles.
Automobile Club's trial of electrical vehicles at Chislehurst.
Motor-car run to Southsea in celebration of the fourth anniversary of the passing of the Light Locomotive Act of 1896.
Mr. Arthur Shippey appointed consulting electrician to the Motor Traction Co.
Annual dinner of the Automobile Club.
Inaugural run of the Nottingham Motor-Car Club.
Pick voiturette introduced to the public.
Formation of the Motor Trades Protection Society.
The Stanley and National Cycle Shows took place.
The question of tare limit revived by the Liverpool Self-Propelled Traffic Association.
Demester made a new motor-tricycle record, covering 71·265 kilometres in the hour. This was subsequently beaten by Rigal covering 71·563 kilometres in the same time.
Hill-climbing competition at Gaillon.
Messrs. Dennis Bros., of Guildford, removed to their new factory.
1,000-mile non-stop run of a Decauville car at the Crystal Palace.

DECEMBER.

The Automobile Club addressed a letter to county councillors, chief constables, etc., with regard to the proposal to reduce the speed of motor-cars from twelve to ten miles an hour.
Suggested route published for the proposed great event of 1901.
M. Georges Forestier gave the opening address of the fifth session of the Liverpool Self-Propelled Traffic Association on "Heavy Motor Traffic in France."
The Speedwell steam motor-wagon tested at Persley Quarries.
Mr. Joseph Pennell read a paper on "Motor-Bicycles," at the Automobile Club.
Christmas tour of the Automobile Club to Plymouth and the West of England.
Proposal before the Grimsby Corporation for street sweeping by motor-car.
Fourth annual meeting of the Daimler Company.
Public attention drawn to the Stirling motor-carriages.
Public service of steam buses inaugurated in Belgium, and of electric cars in Italy.
Professor Hele-Shaw's paper on "Road Traction," before the Society of Arts.

FURIOUS DRIVING CASES.

At the Glasgow Eastern Police Court, David Bowsie was charged with recklessly driving a motor-car in Dalmarnock Road and Oswald Street, Bridgeton, on 21st December, and knocking down and injuring Cornelius Brown. The charge was found proved, and a fine of 21s., with the alternative of 14 days' imprisonment, was imposed.

At Bournemouth Borough Police Court, on Monday, Mr. John Harvey, of Linden Hall, was charged with furiously driving a motor-car on January 1st. Police-constable Annels stated defendant came down the Old Christchurch Road at about fourteen miles an hour about half-past three in the afternoon, and when near Holy Trinity Church collided with a market gardener's van which was standing outside a shop. The horse attached to the van was forced on to the pavement, but no damage was done to the van save a little paint being knocked off. There was a lot of traffic about at the time, and he considered the pace was highly dangerous. Police-constable Pugh corroborated. Defendant stated there were three speeds to the motor-car, and during a run round the East Cliff the top speed band broke and he was obliged to run on the second one. He thought the policeman had over-estimated the rate at which he was travelling. At the time in question he was obliged to turn out of the way of a three-horse omnibus, which caused the car to collide with the van. Considering his machine weighed a ton, if it were running at fourteen miles an hour the impact of a collision would not merely force a horse a little forward and scratch off a little paint, but the van would have been knocked to pieces and hurled to some distance. The fact was when he collided the car was going only about a mile an hour. Superintendent Foster stated that on Saturday defendant was cautioned at the Square by Police-constable Greenslade for driving furiously, and letters had been sent to him by people on the East Cliff complaining of the rapid driving of motor-cars in that neighbourhood and saying it was dangerous for them to go out. The Bench inflicted a fine of £2, including costs.

A MOTOR-CAR INCIDENT.

At Knaresborough County Court, last week, there was a re-trial by jury of an action brought by Mr. Cecil Hutchinson, of Bilton Dene, near Harrogate, who claimed £6 13s. 8d. from Mr. Edmund Robinson, of Harrogate, for damage on account of defendant running with his trap into a motor-car; also for hire of vehicle on account of the accident. A verdict was given for the plaintiff for the amount claimed, with costs.

MOTOR-CAR LICENCES.

At a Justice of the Peace Court at Forfar, last week, Mr. Alex. Ross French, dentist, was charged, at the instance of the Inland Revenue authorities, with keeping a motor-car for which he had not taken out a licence. Mr. J. L. Alexander, solicitor, appeared for the defence, and claimed that, having in mind a prior case, as it had not yet been decided that Mr. French had bought the car, a licence was not required, and he claimed that the case should be dismissed. After consultation, the Justices decided to adjourn the case for eight weeks.

AN INTERESTING POINT.

At the City Summons Court, last week, Walter Charles Bersey, of North Street, Manchester Square, was summoned for causing a light locomotive to be used without having a competent person to direct its use and movement. Mr. Staplee Firth, solicitor, appeared for the defendant. Police-constable Flavell, 446, deposed to finding a motor-car with a crowd round it in Broad Street. An aged news-vendor had been left in charge, who said he knew nothing about motor-cars. After waiting twenty minutes the defendant came out of a restaurant and said

he was the owner. Cross-examined.—The proceedings were under the Locomotives on Highways Act, 1896, Article 2, section 8, which stated that a light locomotive "shall be in charge, when used on any highway, of a person competent to control its use and movement." It was standing still. He would say it was in use on the highway. The defendant, said he left the car so that it could not be started in his absence. He understood the section to mean that drivers should be competent. Mr. Firth contended that the defendant's view was right, and said an inanimate thing did not need control. The actuating force of this car was dormant, therefore there was nothing to control. Alderman Samuel Green decided to convict, and fined the defendant 20s. and costs, and stayed execution pending appeal on the point raised, Mr. Firth stating he should take the case to the High Court.

INJURED BY A MOTOR-CAR.

A CIVIL action came before the Hull Quarter Sessions, last week, in which Mr. Ernest Charles Littlewood brought an action against Mr. H. Hayter for the recovery of damages amounting to £18 3s., for personal injuries sustained by him in consequence of being run over by the defendant's foreman, who was driving a motor-car. Mr. Littlewood, a clerk in the employ of Messrs. Bailey and Leatham, stated that on the 4th of September he was returning from home after dinner on a bicycle, and, when near Wilberforce Street, whilst on his right side of road, the motor-car, which was coming from the city, crossed over the road and overturned his machine. He fell to the ground, and the machine went under the wheels of the motor-car. He was rendered semi-unconscious, and afterwards had to go to Bridlington for three weeks or a month. Even at the present time there were occasions when he could not walk well. In addition to the sum of £18 3s., which he had paid out of his own pocket, he claimed a reasonable amount for the inconvenience and loss sustained. The defence was that the chain of plaintiff's machine broke, and that the car was brought to a standstill when the collision occurred. Several witnesses were called, who contended there had been no negligence on the part of the defendant. The jury, after some consultation, gave judgment for the plaintiff, assessing the damages at £10.

LEAVING MOTOR-CARS UNATTENDED.

AT Stockport, last week, Mr. Frank Emery, of Levenshulme, was summoned for leaving a motor-car in the street, and not taking proper precautions to prevent it from starting. Mr. Emery told the Court that he had an automatic lock system on his car, so that by taking off a small screw the current was disconnected and the motor could not be started. At the time he challenged Inspector Skitt, of the County Police, who laid the charge, to start the car either by turning any handle or wheels, and he also said the car could not be pushed. A fine of 20s. and costs was imposed.

AT Warwick, on Monday, Mr. Ambrose Valentine, Leamington, was summoned by the police for causing an unnecessary obstruction by leaving a motor-car outside a public-house for an hour and a half. The facts were not disputed, but Mr. Crowther Davies contended that there was no unnecessary obstruction, as there was a width of 22ft. 9in. clear of the motor-car, sufficient for two vehicles to pass. The defendant was at the inn for the legitimate purpose of having a meal. The police stated that the car was drawn up near a dangerous corner, though it was admitted that no one was actually obstructed. The Bench by a majority decided that an offence had been committed, and imposed a penalty of 10s. and costs, but agreed to state a case.

MOTOR-CAR COLLISION.

THE case of Rev. A. W. Gross, Milton, v. Allan Hickman was heard at Northampton County Court, last week. This was a claim for £7 12s. damages caused to plaintiff's dog-cart and harness by the negligent driving of the defendant of a motor-car in Milton, on November 6th last. Mr. C. C. Becke appeared for the plaintiff, and Mr. Staplee Firth (London) for the defendant.

Rev. Thomas Lund, Chorley, said that on November 6, whilst with Mr. Gross, he was driving with a groom from Milton to Blisworth Station. As he neared the old turnpike the horse swerved on to the bank, the trap was overturned, and witness and the groom were thrown into the road. After the accident he saw the motor-car and the defendant. The defendant came up and said that he was very sorry, and asked if he could render any assistance. Witness heard no horn or other signal; if one had been given he should have heard it. The Rev. A. W. Gross said that he was sent for after the accident. Witness said to the defendant, "It is a great pity a lad like you should be in a motor-car all alone, buzzing about without giving any warning." Defendant said, "I did give warning." Witness replied that that would have to be proved. In the course of conversation the defendant asked witness what action he would take. Witness said that he would send the trap to Mr. Mulliner's at once, and he asked the defendant what he proposed to do. The defendant said, "I propose to pay the bill." Cross-examined: Witness was not excited, and he did not call the defendant a young "numskull," nor did he call his car a rotten old thing. He did not use violent language, and had never done so in his life. His Honour: When somebody is killed everyone is silent, but when no one is particularly hurt the language becomes coloured on the spot.

Defendant, sworn, said that he had had three motor-cars, and had driven many thousands of miles on them without accident. He thoroughly understood the mechanism of the Daimler car he was driving

on the day of the accident. He was driving from Northampton to Towcester, and had the machine under perfect control. On nearing the cross-roads he sounded the horn three or four times. Then he saw a horse coming along at a good fast trot, and crossed to the other side of the road to avoid a collision. The horse swerved, ran on to the bank, and turned the trap over. When Mr. Gross arrived he was in a terrific passion, and was very violent in his expressions. He never told Mr. Gross that he would pay the bill for the repair of the trap. Cross-examined: He was now within a month or two of seventeen years of age, and had been driving motors for three years. Mr. Becke: You started, then, when you were thirteen? Mr. Firth: Children of two years old drive them. His Honour: Will you tell me where they drive in order that I may avoid them? His Honour said that it was the duty of anyone driving a vehicle in the road to drive it in such a way as to show he was using all reasonable care to avoid injuring his neighbour's property. The question was whether that was neglected on this occasion. He did not think that defendant was furiously driving on this occasion, but there was a conflict of testimony as to whether he blew the horn loud enough for Mr. Lund to hear. In his opinion it was one of those cases which would occur and which would continue to occur for some time, inasmuch as the motor was an entirely novel piece of machinery, which had been introduced into the very complex conditions of modern civilised life. He did not find that there was any evidence of negligence on the part of the defendant which justified him in giving a verdict for the plaintiff. He hoped, under the circumstances, one party being to blame as much as the other, defendant would not ask for costs. Mr. Firth said that he would not ask for costs.

MR. W. P. THOMAS wishes to state that, in the course of the discussion at the Automobile Club on the 9th inst., he said the bearings of motor-cars were too small—not too large.

THERE are some very capable fellows on the American automobile papers, and the *Automobile Magazine* has unearthed a man in London who sends three pages of entertaining "copy" about the instructive experience "of the Hon. Leopold Cavviny," and the members of Parliament present at the 1,000-mile Trial dinner at the Trocadero. In connection with the latter function we are told that "diplomas were given to the representatives of the New Orleans Victorette among others." Possibly we shall be told that Mr. Louis J. Oates, the writer of the aforesaid, has received a diploma or other communication from the compositors on the *Automobile Magazine*—or vice versa.

AMONG the oils now in the market for motorists that known as the Wells-Lucas Phoenix oil can be recommended for water-cooled motors. We have found it very satisfactory, as have also many other automobilists throughout the country. The sole agents for the United Kingdom are Messrs. Joseph Lucas, Ltd., of Birmingham, and 1, Dyer's Buildings, Holborn, E.C. These oils are prepared by the Henry Wells Oil Company, and are known on the market as the Wells-Lucas motor lubricants. Their main features are the power of endurance at high temperatures, their good body in summer and limpid quality in winter. Having the advantage of leaving no carbon on the cylinder head, piston or sparking plug the oils are well suited for the purpose for which they are intended. Messrs. Joseph Lucas, Ltd., are also dealing in valves, pumps, motor-horns, outfits, greases, motor cycle leggings, etc. They have a capital little "Petrolet" lamp, and a very convenient pump with folding footpiece and telescopic handle is one of their leading lines for the season.

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THE LATE QUEEN.



THE Empire and the world are in mourning, for this week has seen the passing away of one who had become part of the age and time in which she lived and reigned. And in common with those of every rank and race, we pay our tribute of respect and reverence to the memory of Queen Victoria, who for long widowed years, from a lonely pinnacle of Royalty, endeared herself to her people by tender regard for all who sorrowed, and by thoughtful interest in the cheerful duties of social life.

Ever ready to encourage the progress of the country, and to maintain our position in the world, the Royal family of Great Britain have never withheld their support from new movements likely to add to the comfort of the people or the prosperity of the Empire. And although the late Queen's age and infirmities prevented that interest in new means of locomotion and travel that would otherwise have been shown, all who are interested in automobilism have long recognised with genuine appreciation the help that, as Prince of Wales, our new King Edward the Seventh has rendered in popularising a form of travel and conveyance that made its first permanent appearance in the Victorian era. Other pens have already dealt with varied aspects suggested by the sad event which has shadowed the world this week. We would only join in the general sympathy with the Royal House, and add our testimony to the world-wide sorrow.

COMMENTS.



County Councillors Want Speed.

IN connection with the automobile demonstration held last week for the benefit of the Warwickshire County Council it is reported that some of the councillors asked the drivers to go faster, and were surprised to learn that the ten-mile limit that some would like to enforce had been reached. Under such circumstances the driver of a motor-car is in a quandary. At the same time we are glad to hear that the councillors recognise that the crawling of a car along the roads at ten miles an hour is something that cannot be endured, and if novices want to go faster, how can experts be expected to go slower?

"Revolution."

UNDER this heading, *La France Automobile* makes the startling and far-reaching announcement that Messrs. Panhard and Levassor have decided to largely reduce the price of their cars. Thus the 12-h.p. vehicle, which was catalogued at 22,000 fr. (£880), and of which more than one has been sold at a considerable premium, will be listed at 15,500 fr. (£620); the 8-h.p. car falls from 15,500 fr. (£620) to 11,500 fr. (£460), while the well-known 6-h.p. type will in future be catalogued at 7,500 fr. (£300) as against 10,500 fr. (£420). As for the 16-h.p. and 24-h.p. cars, which are only available to the wealthy classes, no change is, for the present, contemplated in their prices. In addition to reducing prices, the Panhard and Levassor Company are putting on the market a new light car of 7 h.p., to be listed at 7,000 fr. (£280). The car will be much lighter than the standard 6-h.p. Panhard; its two-cylinder engine will be fitted with both electric and tube ignition. Four speeds and reverse, operated by a single lever, will be available. In the new car, the water tank is placed within the motor bonnet in front of the dash, and the pump itself is in the tank. A body of the *tonneau* type, made of Partinium, is being provided for, the car complete weighing between 11 and 12 cwt.

The Nottingham Club.

THE first of what it is hoped will be an annual series of dinners in connection with the Nottingham and District Automobile Club took place at the Black Boy Hotel, Nottingham, on Saturday night, the visitors from London and other centres travelling to Nottingham "per motor-car." Mr. E. W. Wells (vice-president) occupied the chair, and others present were Messrs. G. H. Kirk (vice-president), M. Ross Browne, R. Cripps, R. Harbidge, S. Harvey, P. Huskinson, G. Rimington, H. Rimington, W. D. Wells, J. Burton, F. Burton, E. Williamson, J. G. Stafford, C. Johnson, S. F. Edge, C. Jarrott, C. Edge, A. Marwood, C. L. Stevens, A. P. Stevens, H. Belcher, J. W. Stocks, and A. R. Atkey (hon. secretary). A telegram of regret was also received from the Hon. C. S. Rolls and Mr. Mark Mayhew, who were journeying to Nottingham from London by motor-car, and had a breakdown at Grantham. The chairman proposed "The Nottingham and District Automobile Club." He said he should be giving expression to the feeling of every member of the club when he said that they offered the most cordial of greetings to their guests that evening. Though the club had only been in existence a few months its members were full of enthusiasm and anxious to do all they could to further the interests of automobilism.

Progress Reported.

MR. ATKEY said the want of a club on the lines upon which they were organised had long been felt in Nottingham, and though the Nottingham and District Automobile Club had only been in existence since October, it had already done much to justify its formation. The club had started with a very small nucleus, but that nucleus possessed the all-important qualities of

enthusiasm and goodwill, and the few gentlemen who met together on October 11th were actuated by the determination to see the thing through. Within a few weeks the membership of the club rose to thirty, and at the present time it was forty, of whom more than thirty were either owners or users of motor-vehicles. The club was formed with the primary object of self-help, but the organisation was gradually developing upon broader lines, and a future of usefulness and importance could safely be prophesied for it. Mr. Ross Browne briefly proposed "Success to Automobilmism." Mr. Claude Johnson, in reply, dealt with the subject of automobilism in a humorous vein, referring to several amusing experiences of his own while motoring. Mr. S. F. Edge spoke upon automobilism from a sporting point of view. He referred to the excellent condition of the main roads in Nottinghamshire. As a sport, he claimed that automobilism had supplemented cycling, and, as regards the possibilities of the two branches of sport, he submitted that there was no comparison. But before amateur motorists could get all the possible enjoyment out of their hobby they must completely master the mechanism of their cars.

The English Motor Club.

THE next run of the English Motor Club will take place on February 2nd to Farnham, Surrey, leaving the Embankment, Westminster Bridge end, at 1.30. The members will leave Ditton at 3 p.m., after gathering at the "Angel" on Ditton Common, and proceed to Farnham *via* Guildford and the Hogs Back. On Sunday the return will be *via* Frensham, where lunch will be partaken of at the Pond House, the run back to London being continued *via* Hind Head and Godalming. All motorists, whether members of the club or not, are invited to take part in the run. With regard to the Control Contest of the club, which is to be held in the grounds of the Crystal Palace on April 27th,



THE TILBURSTOWE HILL-CLIMBING COMPETITION CERTIFICATE.

this will, we understand, be divided up into the following sections:—(a) Motor-bicycles; (b) motor-cycles with three or more wheels, but not fitted with free clutch; (c) motor-cycles with three or more wheels fitted with free clutch; (d) ladies' driving cars; (e) voiturettes under 6 h.p.; (f) cars of 6 h.p., but under 12 h.p.; (g) cars of 12 h.p. and over; (h) racing cars; (j) steam cars; (k) electric cars; (l) 200 yards starting race.

Automobilism in Switzerland.

It is somewhat curious that a country which lays itself out to attract the tourist as does Switzerland should prohibit the use of the automobile over many of its most beautiful routes, but such is the regrettable fact. Already the roads of the cantons of Uri, Grisons, and Valais are closed to the self-propelled

vehicle, and it is more than possible that at an early date automobile traffic will be forbidden in the Tessin province. Granted that many of the roads are mountainous in the extreme, it is evident that where the horse-drawn vehicle can pass the automobile can also operate, and the action of the Swiss authorities is certainly a most short-sighted policy, preventing as it does the patronage of the country by numbers of motor men, who would gladly pursue their favourite pastime amid the beauties of Swiss scenery. Some reason might be given to the policy had Switzerland been the scene of a number of automobile accidents, but no serious mishap has ever occurred, nor has any grave incident arisen, to mar the harmony of the motor's existence in the Federation. Why, then, bar the routes to the motor? Surely the A.C.S. will not let this action go unprotected, for otherwise the feeling will undoubtedly spread, and in course of time the automobile will be prohibited on every road throughout the length and breadth of the land.

Numbering Cars.

A HORSEMAN writing to the *Field* on current automobile topics says the numbering of cars is bound to be distasteful to private individuals. "I would throw out as a suggestion the following proposal: All members of the Automobile Club should use as a *sine qua non* the arms of the Club in addition to their own crest or initial, as is usual on private carriages. Other motor-vehicles, including tradesmen's cars and hackney motors, should be rigorously numbered. Among their ranks will be found the scorching motorist, a far greater terror than the scorching bicyclist." There could be little objection to the placing of the Automobile Club's badge on the cars belonging to members, but the proposal to paint numbers on our privately-owned vehicles must be resisted with firm determination.

Stopping When Wanted.

A CORRESPONDENT at Wolverton has been giving the Press an instance of the courtesy of a Royal motorist. Driving along the road, he encountered our new King (when Prince of Wales) in a motor-car. On seeing that he was, somewhat unwisely, driving a young and unbroken horse, His Majesty very considerably had his motor stopped. We believe this would have happened in the case of any reasonable motorist, and it is certainly the rule rather than the exception. Hence, why all the fuss that opponents of the motor-car make as to the alleged thoughtlessness of motorists?

Tires.

THE perfect tire is not yet, but there are indications of the improvement that is being steadily made in the manufacture of suitable tires for motor-vehicles. Mr. M. Grahame-White has a pair of Clipper tires that he has run 4,973 miles over all conditions of roads, and although badly cut in several places, he considers they are good for another 1,000 miles. On the steam car that was recently driven from John o' Groats to Land's End Dunlop motor tires went through the whole journey with no trouble whatever. These facts testify to the excellent standard now being attained by British manufacturers.

Improving Roads.

WE have previously referred to the paper on scheduled roads and bridges, read by Mr. H. H. Humphreys, A.M.I.C.E., at the annual meeting of the National Traction Engine Owners and Users' Association. In that he urged that all users of the roads should combine to compel the local authorities to maintain good surfaces on all the roads over which any considerable traffic is likely to pass. The first point is valuable, and we recur to it again in order to suggest that it might appropriately be mentioned at the conferences now being held with councillors and others. If automobilists practically demonstrate the reliability

of motor vehicles for the education and enlightenment of our local rulers, the latter should be willing to listen to suggestions for the maintenance of their roads. In some particular cases, the councillors might be taken over bad bits of road, in order to convince them of the torture that can be inflicted by improper attention or the lack of repair. There is nothing like "ocular demonstration" of these things.

Glasgow and West of Scotland Automobile Club.

A WELL-ATTENDED meeting of Scottish motorists was held in Glasgow on Friday last week to consider the question of the formation of a Glasgow Motor Club. Mr. Nisbet presided, and after a few opening remarks called upon Mr. C. Johnson, the secretary of the Automobile Club of Great Britain to address the meeting, in which he urged the new club, if formed, to become affiliated to the central body. Finally, a committee was appointed to go further into the matter. It seems probable, remarks the *Scottish Cyclist*, that this committee will support the view that the new club should be of the nature of a division of the already-existing Scottish Branch of the Automobile Club, which has its headquarters in Edinburgh—a club fitted to promote the higher aims of the parent Club while affording the advantages of association to its members.

The Sultan of Turkey.

THE Sultan of Turkey is a timorous person, if a telegram received from Constantinople is to be believed. For although he has become an automobilist or, rather, the owner of a motor-car, he has not cared to trust his body to the vehicle in his own capital. Two officers of the court are appointed to take drives for him, and the Sultan enjoys himself by watching from his window the departure and return of the car. How different to the enthusiastic Shah of Persia, who apparently delights in his automobile in no ordinary degree.

The Gordon-Bennett Cup Race.

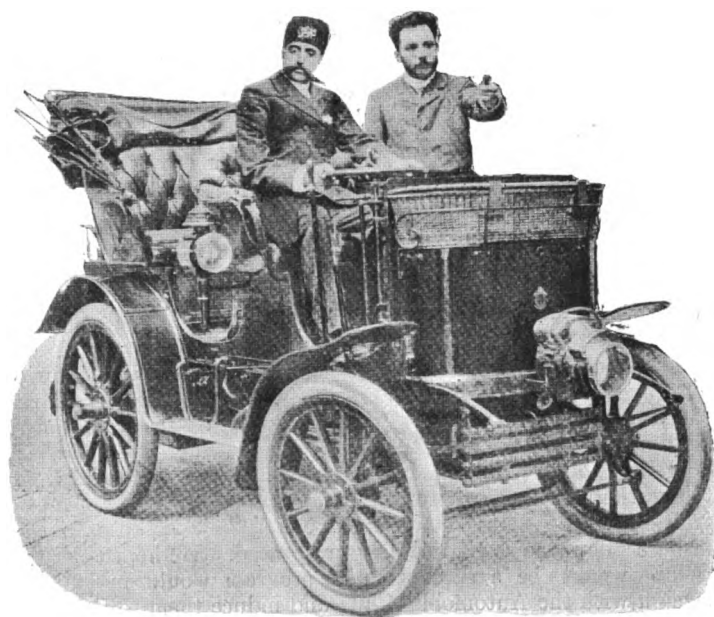
IN compliance with a request received from the Automobile Club of Great Britain the French Automobile Club has decided to reconsider the question of the date of the Gordon-Bennett international challenge cup race. The contest had been originally arranged for May 5. The A.C.G.B.I., however, pointed out that this would be contrary to the Cup rules, which provide that the race shall be run not earlier than May 15 every year, the date to be agreed upon before February 1 by all the clubs concerned. The event will probably come off not later, however, than the third week in May, owing to the Paris, Berlin, and Vienna contest having been fixed for an early date in June. The Cup race is being looked forward to with immense interest by Parisian *chauffeurs*, as it is expected, chiefly owing to the participation for the first time of British competitors, to be a much more exciting contest than that of last year.

Public Services in Algeria and Tunis.

THE frequent visits of French and Belgian automobilists to Algeria and Tunis have done much to popularise the horseless vehicle movement in these two French possessions, and now the proposal to organise a series of public services in the latter colony is being welcomed with enthusiasm. The majority of roads in Tunis are excellent, which will simplify enormously the work of the large vehicles which it is proposed to put into circulation. The exact itineraries have not yet been decided upon, but it is anticipated that the first services will be Tunis-Bizerta, Portofarina, Béja-Tabarca, Tunis-Medjez el Bab, Testour, Teboursouk-Kef, Soussa-Sfax. Doubtless the French Automobile Club's tour will increase the favour with which automobiles are viewed, and tend to advance considerably the interests of the industry in these two countries of Northern Africa.

The Shah's Motor-Car.

IN a recent issue *Le Velo* published certain extracts from a letter addressed to M. Serpollet by General Lemaire, the director-in-chief of the military music of the Shah of Persia, and although they rather give one the idea of having been written for reproduction these passages are none the less interesting. The engineer sent out with the car would appear to have had no little trouble in delivering the precious vehicle safe and sound to its royal master, and only succeeded in doing so by transgressing the Shah's instructions. Arriving at Recht, M. Marnay, the engineer in question, found no means of continuing the transport of the large case containing the car, so decided to unpack it in spite of his instructions to the contrary. This done, half a dozen horses were harnessed and the carriage drawn to Kasebine, a town situated some ninety miles from the Persian capital. This journey doubtless had its exciting moments, for the road is of a mountainous character and some of the descents negotiated are exceptionally rapid. Once safely arrived at Kasebine the *chauffeur* thoroughly explored the environs of the town



M. SERPOLLET GIVES THE SHAH A LESSON IN MOTOR-DRIVING.

during the three weeks that he was awaiting his royal master, and this seems to have served him in good 'stead,' for it enabled him to give the Shah an entirely successful maiden trip over Persian roads in spite of their deplorable condition after much rain. From Kasebine the monarch was driven through to Teheran, and it is not difficult to understand that his passage *en automobile* created a profound sensation among his people. If in Europe the sight of a royal personage on a motor-carriage still attracts attention, what must be the effect in a country so remote as Persia, when a monarch goes motoring through his domains? Several members of the Persian Government and certain high officials attached to the Court have motor-vehicles on order with firms at Paris and Vienna, and in a few months' time the motor-car will be quite a common sight in Teheran and its environs. The Shah, it would appear, deems none but the Serpollet car suitable for Persian roads and conditions, but that is as may be, and the proof will be forthcoming later on.

The Steam Car Company, Ltd.

FOUNDED with the object of building steam motor-cars on Mr. House's well-known system, the Steam Car Company, "House's" System, Ltd., comes into being with Messrs. G. F. Arney (Farnborough), J.E. Hutton, J.P. (Northallerton), and H. A. House as directors, and a nominal capital of £10,000 in £1 shares. Messrs. Firth and Co. are the solicitors, Mr. G. R. Helmore the secretary, and the registered offices are at 84,

Chancery Lane, W.C. The exclusive services of Mr. House, as far as motor-cars are concerned, have been secured. We understand that two sample cars are well on the way—one, a light steam car to carry four people and also a light steam van for commercial purposes.

Punch Tries Again— and Fails.

THE efforts of Mr. *Punch* to find humour in the troubles of the motorist are commendable so far as persistency is concerned; but the results, from the smile-raising point of view, are saddening in the extreme. This week the owner of a motor-car that is palpitating by the kerbstone is depicted to be attempting to discover the cause of its agitation by means of a hay-fork, and assures the yokels looking on, "There's no need to be alarmed. It will be all right as soon as I've discovered the what d'ye call it." The artist has given us a better drawing of a motor-car than usually appears in non-technical papers, but he should know that owners have abandoned the yachting cap and do not carry hay-forks to deal with emergencies. Verily *Punch* has not yet caught the spirit of motor-car humour; in fact, some motorists have not yet got so far as its discovery.

Irish Automobile Club.

THE organisation of automobilists into clubs and associations continues to progress, and we record with considerable pleasure the establishment of an Automobile Club for Ireland. This was formed this week in Dublin at a meeting over which Mr. W. G. D. Goff, of Waterford, presided. The chairman briefly explained the objects of the club and drew attention to the many advantages which membership would secure. He dwelt particularly on the club's aversion to furious driving and reckless contravention of the traffic laws. Mr. C. Johnston (sec. A.C.G.B.I.) gave a sketch of the growth of the Automobile Club, and explained the governing principles. He detailed some of the latest matters which had been under consideration. One of these was the formation of a Defence Committee which could render members great assistance in cases where they had been unjustly prosecuted. He hoped the Irish Club would be a success, as its progress would undoubtedly weigh with the Automobile Club, and induce them to favourably consider Ireland as the venue for some of their tours. Indeed Mr. R. J. McCreedy said that the Irish Club had already received twenty-eight applications for membership, and that at least fifteen more might be reckoned on, thus bringing the membership to over forty. He also announced that Mr. Alfred Harmsworth had promised to make a donation of £50 to the funds of the new club. A temporary committee was then formed, which will draft rules, etc., and present them at the next general meeting. Amongst the members selected for the committee were:—Lord Louth, Hon. Leopold Canning, Capt. Langrishe, Col. Magrath, Lieut.-Col. Irvine, Messrs. W. D. Goff, E. O'Connor, D.L., R. J. McCreedy, W. B. Jameson, E. C. Herdman, J. F. Colohan.

Why not Bournemouth?

BRIGHTON and Southsea have been visited by the Automobile Club officially, and now beautiful Bournemouth is pleading for a visit. The number of private motorists in the town is steadily growing, and the town will doubtless have an automobile club of its own ere long. One of the local papers, in voicing the wish for a trip to Bournemouth, extols the drive from London through Ripley, Alresford, Winchester, Southampton, and the New Forest as being one of the most beautiful in England, while the roads are described as perfect. And to the ordinary attractions of the place it adds the suggestion of a flower *fete* for motor-cars, such as those that form part of the season's programme at Ostend, Nice, Dieppe, and other Continental places.

Cars in Paris.

FEW English people—except, of course, those who are familiar with Paris—have any idea of the number of motor-vehicles to be met with in France. The Hon. Leopold Canning gives some notion of the popularity of the automobile in a letter with which he has just favoured us. It appears that on Sunday he went for a spin to St. Germain and back to Paris on his 8-h.p. Panhard. The day was fine, but the roads were everywhere deep in mud. Certainly it was not an occasion to tempt many people out, but by the time they reached Versailles for lunch—*via* the Bois de Boulogne and out of the Porte de Suresnes—they had counted seventy-four motor-vehicles on the road. Nine-tenths of these were voiturettes, two were steam lorries, and only two motor-cycles were of the number. Putting up at Versailles, they had lunch at the table next to that at which sat M. Levegh, and in the yard their Panhard stood by the 30 h.p. Mors which won the Paris-Toulouse race. Ere they left the hotel two other cars entered the yard—a 3½ h.p. Renault and a 3½ h.p. De Dion. After going to St. Germain, the party returned home by another road and again saw a good many motor-cars. Passing again through the Bois de Boulogne, Charron was descried mounted on horse-back. Comparing notes on their return it transpired that 118 cars had been seen during the trip—not so bad for a muddy day.

Manufacturers Petitioning.

FOLLOWING on the circular from the Automobile Club to county councillors and others armed with "a little brief authority," comes a petition from manufacturers and sellers of automobiles in which the serious discouragement to trade by the proposed restrictions is well pointed out. It is shown that in France 10,000 workmen find employment in the motor-car trade, and there must be another 90,000 working in the allied industries. It is to be hoped that the petition will be largely signed, and that those manufacturers and agents who have not yet received a copy will communicate with the secretary of the Automobile Club without delay.

Breakdown at Kimbolton.

THE other day Mr. A. Bird started on his motor-car from Birmingham, intending to reach Cambridge by night, but on the Kimbolton to Tilbrook road the engines of the car broke down and the vehicle was dragged by a horse into the White Lion Hotel yard, at Kimbolton. Mr. Bird lost no time in apprising his son at Birmingham of the mishap, and on Saturday morning Mr. Bird arrived at Kimbolton on another car. The defective engines were very troublesome, and it was not until Sunday morning that Mr. Bird could continue on his way to Cambridge and Mr. Bird, junr., return to Birmingham. Much interest was caused in Kimbolton by frequent trials of the motor-vehicle in the White Lion yard, and the inhabitants could learn for themselves that even an injured motor-car is not a dangerous and harmful thing.

Ordering Early.

SEEING the activity which is anticipated in the automobile industry, we would suggest to intending purchasers that early orders are more likely to secure prompt delivery than those that are delayed. People will want cars for the spring, and with the first burst of seasonable weather will endeavour to be out and about. Hence the necessity for promptitude in giving orders. Makers will evidently have plenty to do to get the cars already in hand finished for the season, and those who now give their orders have to be content with the promise of delivery after a longer period of waiting than was the case a few weeks ago. As the year progresses, this period between the time of ordering and delivering cars is likely to be lengthened.

**The Automoblist's
Pocket Book for
1901.**

COMMENCING in 1897 with about fifty pages of large type, the "Automotor and Horseless Vehicle Pocket Book," published by Messrs. F. King and Co., has now descended to small type, but has also extended to 350 pages—sure evidence of the growth of the industry. We are glad to see that the electrical portion has been entirely re-written, and that the glossary has been made much more complete than in previous editions. Legal information, signs of weather, the storage of petroleum, the Inland Revenue regulations on "moto-vehicles"—why is the "r" deliberately omitted in motor?—arithmetical tables, and the usual technical information, all of which has been carefully brought up to date, form features of the book, as in previous editions. The lists of clubs and associations, limited liability companies, and persons interested in the automobile industry in this country are extremely useful, and altogether Messrs. King and Co.'s excellent little annual starts the century well.

In Belgium.

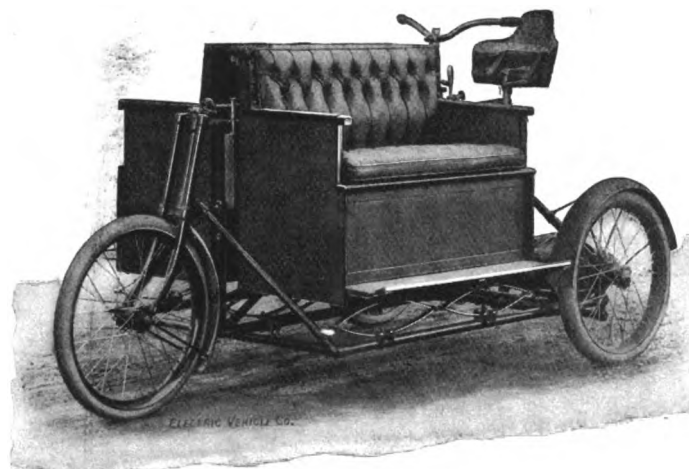
It is well known that in Belgium the rivalry between the two leading automobile clubs is proving distinctly detrimental to the development of the new means of locomotion, and now it would appear that certain Belgian *chauffeurs*, who have the welfare of the industry at heart, are determined to put a stop to this unhappy state of affairs if possible. With this object in view it is proposed to form a federation of all the automobile clubs and associations in Belgium, somewhat on the lines of the Federation of the South-Western Clubs of France, and for this purpose efforts are being made to call together at Brussels representatives of all the leading organisations. Whether the various clubs will send delegates, and whether those delegates, if sent, will manage to agree remains to be seen, but the idea, at any rate, is an excellent one, for it is indeed sad to see a young and promising industry hampered in its movements by the very associations pledged to push it forward. The scheme by no means proposes to destroy the distinctive character of each club; it simply seeks a means of establishing their united solidity; of developing the use of the self-propelled vehicle and of defending the automobile movement against all unjust attacks. Such a federation would be beneficial to Belgian automobilism, but the difficulty in forming it will undoubtedly be great, for in the case of the Moto Club at any rate there exists a sentiment more favourable to the success of the club than to the welfare of the industry. Such feeling is not creditable, and the sooner it is put on one side and the association makes common cause with the other leading clubs the better will it be for the automobile movement in Belgium.

**Electric
Automobiles.**

To such men as Reckenzaun and Immisch in England and Jeantaud in France is due the inception of the modern electric carriage, and in a new pamphlet on the subject by Mr. Henry F. Joel those interested will find much useful as well as interesting information with regard to the advance that has been made during the last few years. The difficulty of re-charging has been the great drawback to the progress of electric vehicles in this country, but this is now being overcome, and Mr. Joel refers to the formation of an association of electric carriage builders to obtain and increase the facilities for re-charging. Even now the list of such opportunities is fairly comprehensive, including Chelsea, Hampstead, Richmond, Windsor, Watford, Stratford, Leyton, Harrow, Chislehurst, Woolwich, Weybridge, Willesden, Greenwich, Putney, all on main roads leading from London, whilst still further out there are charging stations at Guildford, Crawley, Woking, Tunbridge, Chelmsford, Luton, Cheltenham, Reading, Maidenhead, Brighton, Southsea, Hastings, Oxford, Bath, Bedford, etc., and so on.

THE COLUMBIA JAUNTING CAR.

THE somewhat novel vehicle depicted in the accompanying illustration has lately been put on the market by the Electric Vehicle Company, of Hartford, Conn., U.S.A. Generally speaking, the machine is identical with the tricycle parcels carrier brought out by the same concern a year or so ago, the only difference being the novel jaunting car body fitted in place of the parcels chest. The frame is of tubular construction, while it will be noticed that plate springs are introduced between it and the body, with the object of reducing the vibration transmitted to the passengers. The machine is driven by a small water-cooled petrol motor of the vertical type, located in front of, and geared by a friction clutch and two-speed gear to, the rear axle. The driver sits on a cycle saddle and has at hand all the control levers as also the steering bar. Pedals and chain gear are provided as usual for starting the engine, but owing to the use of a clutch this can be done without having to propel the machine at the same time. The steering device is of a novel character: the handle-bar stem terminates in a bevel wheel meshing with a similar pinion on the end of a long rod which runs parallel with the top tube of the frame. This rod has another bevel pinion at its forward end, this gearing with a correspond-



ing pinion on the stem of the forks carrying the front wheel. In addition to the driver the vehicle can carry four persons of light weight, or two heavy passengers. In the particulars sent us no mention is made of the horse power of the engine, but the machine can, we understand, convey a full load at a speed of about twelve miles per hour. The road wheels are of the cycle type, 28 in. diameter, shod with 2½ in. pneumatic tires. The petrol tank has a capacity sufficient for a run of 75 miles. By detaching the body the machine can be quickly converted into a carrier tricycle.

THE Woodruff Motor Carriage Co. has been formed in Cleveland, U.S.A., with a capital of £10,000 to manufacture automobiles.

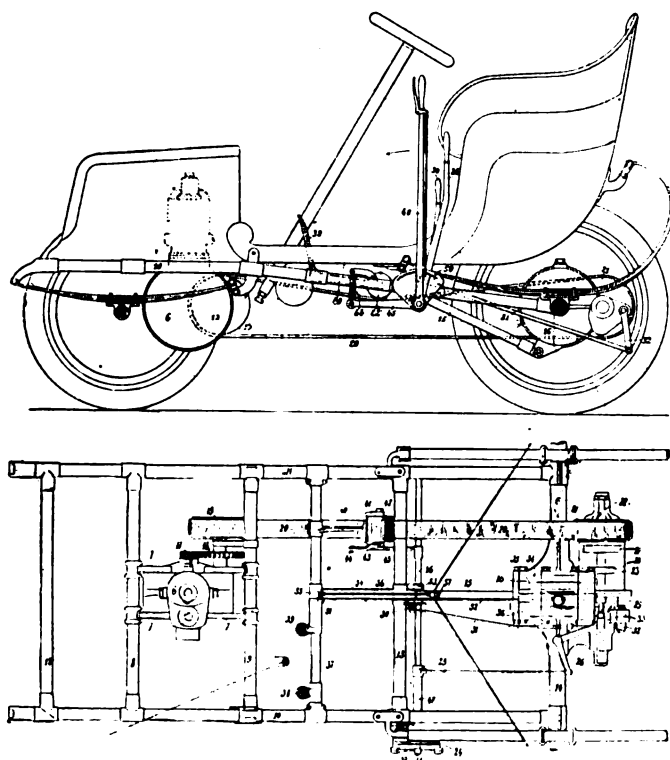
THE *Auto-Vélo* states that, in connection with the automobile race from Paris to Berlin, the Automobile Club of Germany, which is organising the race in collaboration with the French Automobile Club, proposes that the contest shall be open to motor-cycles, voiturettes, and cars, the latter category including two classes—speed and touring. In the latter class automobiles must be driven by their owners. All those who complete the distance will receive a commemorative medal, whatever their time may be.

MR. ALBERT C. BOSTWICK, the well-known American *chauffeur* who has in the neighbourhood of half a dozen different types of automobiles, among which are his Panhard car, his Winton roadster, a De Dion voiturette, and his tricycle, has had a workshop constructed at his country home at Mamaroneck. It is a separate building, at the rear of his new stable. It is equipped with a three horse-power Nash gas engine, a shaping machine, lathe and grinder with bench and vices. There is also a floor pit for working under an automobile.

THE VINET VOITURETTE.

IN our issue of June 23rd last we gave a brief description of a neat voiturette which has been put on the market by M. Vinet, of Rue Brunel, Paris. Since then several modifications have been made in the vehicle, of which we are now able to publish illustrations, and some additional particulars. The car, which is built low, has a frame of tubular construction. From the plan (Fig. 2) it will be seen that the motor—a $3\frac{1}{2}$ h.p. water-cooled De Dion—is located under a bonnet at the front.

Three speeds forward—10, 20, and 35 kilomètres per hour—and a reverse motion are provided. The power of the engine is transmitted by a single belt to a small countershaft at the back of the rear axle. The change speed gear, which is entirely enclosed and works in an oil bath, consists of a train of spur wheels on this shaft, any one pinion of which can be made to mesh with a corresponding gear wheel on the rear live axle. The variable speed gear is controlled by a hand lever (24) working in a sector



FIGS. 1 AND 2.—ELEVATION AND PLAN OF VINET VOITURETTE.

at the side. No friction clutch is employed to throw the engine in and out of gear with the transmission mechanism; instead, the belt is made to run slack, or can be tightened as desired by means of the jockey pulley (42), which is controlled by a hand lever (48) and a foot pedal (38). Thus in the case of a block in the traffic, the motor can be instantly thrown out from the transmission by slackening the belt; this being also done when the speed gear is altered. Ample brake power is provided, a foot pedal (39) controlling a hand brake on the differential, while hand brakes are also provided on the hubs of each of the rear wheels. The frame is spring suspended on the front axle, while the body is connected by C-springs to the frame at the rear. Steering is controlled by an inclined hand wheel, while in connection with the cooling of the motor a radiating coil is fitted to the front of the bonnet. Wooden wheels are fitted, shod with pneumatic tires. It will be noticed that not only is the wheel base relatively a long one, but that the centre of gravity is very low, there being consequently very little liability for the car to overturn.

THE East Riding Cycle Company, Grosvenor Street, Beverley Road, Hull, inform us that the Liberia voiturette is now being fitted with a $6\frac{1}{2}$ h.p. Aster motor instead of 5 h.p., as previously.

FRENCH AUTOMOBILISM IN 1900.

(From our Paris Correspondent.)

(Concluded from page 773.)



LET us now see what became of the brilliant racing programme. The first event on the list—the parcel post race of January 14th—was abandoned, only the promoters knowing exactly why, and then on February 4th the course for the Chauchard cup was successfully decided at Nice. A fortnight later the catalogue race over a distance of ninety miles in the neighbourhood of Paris passed off without mishap, and three days afterwards, that is on February 21st, we witnessed the opening event of the Pau meet. This race was Pau-Peyrehorade-Pau, and Pascualt on his Peugeot finished first, averaging thirty-two miles per hour over a distance of eighty-eight miles. The following day the “Circuit du Sud Ouest” was decided over a route of 335 kilomètres (209 miles) in length. This event was rendered noteworthy by reason of an extraordinary performance by René de Knyff, who, driving his famous Tour de France car, actually averaged 70 kilomètres (43½ miles) per hour over the distance, a hitherto unprecedented speed. The second man finished three-quarters of an hour behind the winner, while Charron, one of the hot favourites for the race, broke down at Saint-Sever. On March 10th the “Coupe des Voiturettes” was run off between Paris and Rouen, and Théry, mounting a Decauville, made an average of nearly forty-five kilomètres per hour over this difficult route. So far everything had gone smoothly, and the interest taken in automobile races was universal, when, suddenly, during the famous week at Nice, the terrible accident on the hill of La Turbie, in which the German engineer Bauer lost his life, occurred and created a profound sensation.

Fortunately, the remaining fixtures in the South—those at Cannes and at Salon—gave rise to no untoward incident, and the agitation had practically subsided when the regrettable affair in the Paris-Roubaix motor-cycle race of April 15th caused a fresh outburst of feeling against automobile racing. It will be remembered that a couple of competitors in this event dashed into a group of spectators who had most imprudently stationed themselves around the Croix-des-Noailles in the forest of Saint-Germain, causing serious injuries to two persons. With that impetuosity so characteristic of the nation, the authorities, the press, and the public immediately united in one loud cry of “A bas les courses,” and then, not satisfied with the cancellation of all but a few provincial fixtures, they commenced a regular crusade against everybody and everything connected with the automobile movement. In the capital the cyclist police brigade was formed, and for a time so extreme were the measures adopted by this corps that the Parisian motorist simply did not dare to drive his car for fear of being summoned, the usual pretext being furious driving, or *exès de vitesse*, as it is styled this side of the Channel. In the Avenue de la Grande Armée—the home of the industry—business was practically at a standstill, and where formerly dozens of cars were to be seen passing up and down, the “reign of terror” saw but one or two, and they crawled along in fear and trembling. The police, too, were energetically aided in this campaign by the magistrates, who condemned offenders—or alleged offenders—not only to pay substantial fines, but also to terms of imprisonment more or less severe. The strict legality of these sentences of imprisonment for furious driving was seriously questioned, and eventually, acting upon the instructions of Monsieur Monis, the Minister of Justice, the magistrates relinquished the practice, but not before a goodly number of motor men had suffered the degradation. The effect of these measures upon the industry was disastrous. Had the agitation ended with the cancellation of races the blow would have been severe enough, but at least it would have been confined to a portion only of the industry,

for it is not every constructor who builds speed machines. But sweeping as it was, the agitation did not only cause heavy losses to those firms who annually lay themselves out to contest races, and who in May last had a number of specially built and costly vehicles ready in their works, but it also brought trouble to every firm engaged in the industry, for the public dare not buy self-propelled vehicles so long as the persecution continued. Yes, the automobile movement was terribly punished for the indiscretions of the few, and even to-day matters have not entirely returned to their normal condition. Certainly the persecution did some good, for it toned down the recklessness of a number of *chauffeurs* whose manner of driving brought discredit upon automobilism, but the lesson might have been taught equally efficiently by a means less detrimental to the whole industry.

I have said that practically all events were prohibited following upon the Paris-Roubaix mishap, but the authorities sanctioned a few provincial races in addition to the two great *courses*—the Gordon-Bennett Cup race and Paris-Toulouse-Paris. Among these races decided over routes far removed from populous centres I may cite the *courses* for motor-cycles, for *voiturettes*, and for motor-bicycles promoted by *Le Vélo*, and run off respectively on May 10th, May 17th, and May 31st. A stretch of road on the Etampes-Chartres route was the selected course, and Marcellin, Cottureau, and Buquet were the respective winners. Another event decided far a-field was Bordeaux-Périgueux-Bordeaux, noteworthy for the first appearance of the 1900 Panhard. It was Giraud who drove the new model, but he only succeeded in finishing second to Levegh on his all-conquering Mors. Then, on June 14th, after an infinity of troubles with the Government, the first race for the Gordon-Bennett Cup was decided, and a woeful chapter of accidents it was. No serious mishaps, let me hasten to add, but *pannes*, from one cause or another, were so numerous that long ere the finish Charron and Girardot were the only two competitors left upon the road, and the former's lead was so great that his success was assured. The route was Paris-Lyons, with a détour, making a total distance of 566 kilomètres (354 miles), and the winner's time was 9 hrs. 9 mins. 49 secs., Girardot taking about an hour and a-half longer. A fortnight later at Salon a 100 kilomètre race was won by Jenatzy in the big car category; Camus among the *voiturettists* and Vitalis in the motor-cycle class being the other successful competitors. During the first three weeks of July no road race was decided, but at the end of that month the exhibition event, Paris-Toulouse-Paris, was run off. The three winners were respectively Levegh (cars), Renault (*voiturettes*), and Teste (motor-cycles). The distance was 1,446 kilomètres (904 miles) and the outward journey was run off in a single stage, during which tire troubles were the order of the day, owing to the great heat prevailing. The winner's average speed for the entire distance was 64 kilomètres 700 mètres, while Pinson and Voigt, who finished second and third respectively, both averaged over 60 kilomètres per hour throughout.

With this *course* the long distance road-racing season came to an end, and the only other speed trials held on the road were those at Canteloup and Gaillon. At the former of these hill-climbing contests the Baron Henri de Rothschild won in the big

vehicle category, but his German Daimler was not opposed by any of the fast French cars, and the time made was by no means exceptional. At Gaillon the Mors racers were very much in evidence, securing the first, third, and fourth places in the big vehicle category; but the most sensational performances were furnished by Béconnais, the motor-cyclist, who in one instance mounted the kilomètre of hill in 55½ seconds. This was the last event of the year, a truly meagre programme to that which we had been anticipating, and one which was far from satisfying the men who had purchased powerful cars and found themselves unable to race them to any extent.

And now to the third item which figured in our anticipations—the competitions. Here, at any rate, our expectations were more fully realised, for not only were all the events on the original programme duly carried out, but in addition we witnessed two most interesting supplementary contests, viz.: the Alcohol and the Fuel Consumption competitions. The majority of the trials were held in connection with the Vincennes annex of the Exhibition, and were directly organised and controlled by the Automobile Club of France. They embraced, among others, a motor-cycle competition, held in June; a cab and delivery vehicle contest, organised in the same month; a *voiturette* competition,

held in August; a series of trials for light delivery cars, in September; and the annual *Poids Lourds*, or heavy car trials, held in October. The competitors were in one or two instances not very numerous, but the trials excited considerable interest, and were carefully followed by a large number of those automobilists who take a deeper interest in the movement than does the mere amateur driver.

Much valuable data was forthcoming, and the contests made prominent the qualities of certain apparatus—such as the Rochet carburettor—until then but little known and appreciated outside the inner circle of automobilism. Certainly if our expectations in other directions had been realised as fully as were those with regard to the programme of competitions advocates of the

new means of locomotion would have but little cause for complaint. But if from a sportive and from a commercial point of view the year 1900 has not brought all the success anticipated, it must not be thought that no progress whatever has been made in the French automobile world. To-day the construction, both theoretical and practical, of self-propelled vehicles is unquestionably superior to what it was twelve months ago. Clever brains and skilled hands have been hard at work, and as now constructed the automobile is safer, more reliable, and more pleasing to the eye than it was a year ago. The year's work has once again emphasised the fact that the progress of the automobile is to be one of evolution rather than of revolution, but if no strikingly radical changes have been effected the improvements made have been carried out on sound principles and combine well together to make a harmonious whole. The year has not seen the apparition of that wonderful motor which is destined to revolutionise the entire industry, and which continues to lurk in the background, with the same pleasing modesty which has always been its most striking characteristic.

As in the case of former years, 1900 has witnessed practically no changes other than those following well-known lines or modifying existing systems. If one type of vehicle has made really great advances, it is the *voiturette*, for, whereas a year ago



FIG. 3.—THE VINET VOITURETTE (see opposite page).

a reliable small car was almost unknown, to-day several constructors are turning out very excellent little cars. As might naturally be expected, this happy state of affairs is entirely due to public demand. In 1899 the trend of public opinion was all in favour of the voiturette, and those makers who grasped the situation and laid themselves out to supply the want are to-day those best pleased with their season's work. Formerly, if a man wished to motor in comfort and in safety, he was compelled to spend a very considerable sum on the purchase of even the most modest of horseless carriages, and this vehicle did not give him entire satisfaction, for, by reason of the scanty margin of power, hills were negotiated at a snail's pace. To-day, for about one-half the cost, the would-be automobilist can procure a reliable and comfortable small car fitted with a motor as powerful as that on the larger vehicle, which enables him to tackle all hills with certainty and rapidity. This little car is free from the great majority of disadvantages, and entails but a fraction of the maintenance expenses of the large carriage. A year ago such a vehicle did not exist, and now one sees dozens flitting about the streets of Paris. With the perfect improvement of the voiturette the sale of the low-powered large cars has suffered considerably, as has also that of the motor-cycles, indeed, the diminution in the case of the latter type of automobile has been one of the features of the past year.

Looking at the larger vehicles, one cannot help remarking the tendency of makers to exaggerate the horse-power. If during the last twelve months constructors had directed their endeavours to the lightening of their vehicles rather than to rendering them more powerfully engined with the corresponding increase of weight, we should not have to-day upon the road high-powered machines of less efficiency than those carrying motors of half the force. It would be infinitely more practical to increase a car's efficiency by a judicious reduction of its weight than to endeavour to do so by adding power—and weight at the same time. But during the past season the latter course has been the favoured one by many motor-car constructors, and the results have not been happy. Summed up, the year 1900 has been somewhat of a disappointment, but one's regrets at the non-realisation of the brilliant commercial and sporting prospects of twelve months ago are tempered with the reflection that great progress has been made in the construction of the various types of self-propelled vehicles, and that the future of French automobilism will be strengthened by the work done and the experience gained during the year 1900.

THE question of a mile motor racing track is being discussed by the Automobile Club at Boston, U.S.A.

SEVERAL small German motor sale branches have been amalgamated in Munich, under the name of Die Bayerische Motoren und Automobile Gesellschaft. The capital is £7,550.

It is reported that the Italian post and telegraph authorities are about to inaugurate some experiments with motor-cars with the view of their substitution for the existing horse-drawn vehicles.

IN celebration of their election as *Chevaliers* of the *Légion d'Honneur*, M. Amédée Bollée père, and M. Léon Bollée, of Le Mans, France, gave a banquet a few days ago to their employés.

THE bicycle as well as the motor-vehicle (or rather, the motor car as well as the bicycle) will, says the *Morning Post*, probably have an important share in the civilised wars of the future.

COLONEL WARD, C.B., who has recently returned from South Africa, and Lieut.-Colonel Elmslie, Deputy Assistant Director-General of Ordnance, have been appointed members of the War Office Committee to consider the subject of mechanical transport for military purposes.

MR. WILLIAM K. VANDERBILT, JUN. the American *chauffeur*, recently drove his big German Daimler over the fifty miles of Long Island roads between Long Island City and the country house of his father at Oakdale in one hour and twenty-seven minutes. This performance is better than the ordinary railway train makes over the same course.

CORRESPONDENCE.

MOTOR-CARS FOR MEDICAL MEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I must apologise to Dr. Hardwicke for misunderstanding him. I now realise, however, that he refers to a car of *general utility*, which, after all, should be the standard pattern of each motor. His specification describes the new water-cooled Renault fairly accurately, with the exception of "cogs always in gear" (which has its disadvantages), and the double form of ignition, which could easily be fitted. I much doubt whether he would find solid tires an advantage, but I heartily agree with him as to artillery wheels. If Dr. Hardwicke should contemplate a Renault car, as the most desirable, I should very much like to give him a (private) "tip," if he would allow it!

I am glad to notice Dr. Farrow's satisfactory experience with his car, and I regret that I cannot endorse it, with regard to the question of a belt drive. My experience of this form of transmission was very unfortunate.—Yours truly,

CLAUDE A. P. TRUMAN,
Hon. Secretary Reading Automobile Club.

MOTOR-CARS FOR PUBLIC SERVICES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was somewhat amused to read the letter of Mr. Frank Morris on the above subject in your issue of the 19th. Mr. Morris in his letter reviews the experiences of a Bournemouth motor-car proprietor, who is purported to have stated with regard to one particular car that it had run 22,000 miles, carried a million passengers and earned £600. The only item, however, which seems to have perplexed your correspondent is the cost of repairs during this remarkable performance, which only amounted to £29. Now, as a passenger on the Bournemouth service, I have always paid threepence, and presuming the owner in question charged this amount it seems to me the car should have earned twelve thousand, six hundred pounds! Again, presuming that each of the passengers travelled one mile only, the car during the whole 22,000 miles could not have turned a wheel without a full complement of forty-five fresh passengers leaving and boarding the car at the end of each running mile.—Yours faithfully,
CYCLOMETER.

THE BURSTING OF IGNITION TUBES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Pilot" the principal cause of ignition tubes bursting is not either of those mentioned by him, but to sudden change of temperature due to the hot flame being driven off the tube by the wind. I have only once seen a tube which had been fairly burnt out by use, and this was taken from a Daimler parcel van. How long it had been in use I cannot say, but the top end had swelled all over and instead of bursting with a long crack, as is usually the case, a small round hole was blown out with clean edges. The lamp-box supplied upon Daimler motors does not give a sufficient supply of air for a really strong flame such as is required to give a bright yellow red tube, which alone will give the best results, except with the door open. But if the door is left open, burst tubes, especially in the rear cylinder, are certain to result. A fair compromise may be obtained by leaving the door, which should be slightly bent over to leave a crack all along, on the first notch of the latch, but the best way of all is to substitute two straight tubes of ample size, as is done in the Peugeot cars.

While on the subject of ignition I should like to mention that I have found the lamps supplied by the London Autocar Co., much superior to the ordinary Daimler lamp, giving a much better flame, and being easier to take to pieces to attend to, and incidentally only about half the price.—Yours faithfully,

FRANK SHEPPARD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I see a letter in your last issue *re* platinum tubes for ignition purposes and the frequent bursting of the same. I have

my car, a 5-h.p. double-cylinder motor Jackson Doctor's car, fitted with special tubes of a certain alloy. These I have found from experience extending over six months answer in every way better than platinum tubes, and at the same time have the following two most important advantages. They cost less than half the price of platinum ones, and are guaranteed against bursting for six months use. They have saved me pounds sterling already. They can be had either with flange for Daimler motors or to screw into the cylinder head.—Yours truly,
JAS. ED. TUKE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to "Pilot's" query in your issue of January 19th, I cannot claim to speak in any sense as an expert, but once when, in my early motoring experiences, I had two ignition tubes burst within five minutes of one another, I found that I had a leak in the cylinder-head joint (owing to over-heating through the pump stopping), and water was finding its way inside the cylinder. In my case the fractures were probably caused by water being blown or drawn on to the incandescent tubes. I do not see how pressure could cause a new tube to burst, nor yet improper adjustment. It is surprising how long platinum tubes will last with careful treatment—some thousands of miles.—Yours faithfully,
EDGAR SOAMES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Pilot," the cause of his trouble with regard to burst ignition tubes is probably due to (1) pre-ignition, either due to (2) faulty adjustment of the tube, or (3) to carbon deposit in the cylinder. He would do well to make sure there is no such deposit; if not, the cause is (1) that being caused by (2).—Yours truly,
G. CALVERT.

THE "STAR" CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the recent action in the Dublin Law Courts brought against me by the purchaser of a "Star" motor-car, in which it was contended that the car would not perform all that I claimed for it, I should be much obliged if you will kindly allow me to state that my faith in the "Star" car is in no way shaken by the fact that the Court decided against me, and I am perfectly satisfied that it was fully up to specification and did all that the company claimed for it.

Yours faithfully, W. R. McTAGGART.

QUERIES RE BELT-DRIVEN CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a constant reader of your valuable journal, and an enthusiastic motorist, I have read with interest the several letters in your correspondence column *re* Belt Driving. I have noticed, however, that nothing has been mentioned *re* the up-keep and preservation of belts which, to my mind, is the important point. From many years' experience with both fast and slow driven belts on all kinds of machinery I have come to the conclusion that there is nothing like castor oil which, if used judiciously must give satisfaction.

My mode of procedure with a new belt is as follows:—After loosening the roll I place it for a quarter of an hour in moderately warm water (not boiling), then, after draining it, I put it in a vessel containing enough castor oil to cover it, and let it soak all night. In the morning it is taken out and hung up to drain for two or three days, then stretched in position required. After being taken up about twice it never requires any more attention. Belts treated in this way, with the additional attention of a weekly application of a small quantity of castor oil on a piece of waste applied to the outside of the belt, will last for years, and as long as the thinnest possible portion remains. It will be found that there is no trouble experienced through slipping, although the belts are run very loose, and that a great increase of power is obtained through being able to run them loosely. The explanation to my mind is that belts require feeding and nourishing as well as other things, and the application of castor

oil feeds and keeps the pores of the leather open and in a healthy state. If you have any respect for a belt never apply resin or anything containing resin, which has just the opposite effect to above, and is ruination. The oil may be applied without the warm water process with a piece of waste as before said whilst the belt is running, but this method is not quite so satisfactory, although recommended for belts which are already in position.

Yours faithfully, H. P. WHITE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. Taplin, I have never actually tried Dick's belting for the top speed, but I do not think it would work as well as a good leather belt. For low speed nothing could be better than Dick's belt, but several who have tried it for the top speed have told me that it was not a success. To drive a belt-driven car properly, it is necessary for the belt to have a certain amount of "slip," and not to grip too much, which, judging from the way Dick's belt holds on the low speed, I should imagine would not give the nice working a leather belt in good order would. I do not think Dick's belt would allow of being manipulated, *i.e.*, sometimes just touching driving pulley, at others half or full on, according to the requirement of traffic, etc. I am not speaking from experience, as I said before, but simply from my own idea, which is confirmed by the experience of several motoring friends.

A great mistake is made in using resin and other sticky compounds. To get the best results a belt, especially for top speed, should be soft and pliable, and clean and free from all sticky mess, so that it can leave the pulleys freely. I find that the best thing to use is a little castor oil applied to the outside of the belt occasionally. This softens and preserves the belt and causes just sufficient "grip."

With regard to belt fastening, "Perplexed" will find it rather a nuisance to have to unlace and lace up his belt every time it requires taking up. For motors of about 3-h.p. I know of nothing better than Harris's clips, as they can be unfastened and replaced so easily; but with belts having to transmit more power, as in 16-h.p. wagonettes, I use Jackson's clips. They are good, but not so convenient as Harris's, though far more so than lacing. I quite agree with Mr. Grimsley regarding belt fastening. Lacing is undoubtedly best for stationary work, where the length of the drive generally is adapted to give the belt a chance without the tension having to be so nicely adjusted as is rendered necessary by the "short centres" in a car. My experience is that clips are best for car work, owing to the belts having to be "taken up" so frequently.—Yours truly,
A. J. ALDRED.

MOTOR PATENT MATTERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Seeing that the automobile patents are now attracting so much attention, and granting that they must be of some importance and value, otherwise they would not be infringed, why is it that some popular automobile body does not intervene and buy up the existing interests? Cannot the rich folk of the Automobile Club get rid of the Lawson interest, if desirable, at the present prices? A company well organised with about £300,000 capital could sail right in and collar the whole automobile industry of Great Britain, together with the control of the Daimler Motor Company, the British Motor Company, the Motor Manufacturing Company, the De Dion Companies, and several others, whose capital would amount to several millions.

There is no question about the future of the best automobiles, such as Daimlers and De Dions. Hundreds are now selling, and the only grievance appears to be that people cannot imitate them without being troubled with litigation.—Yours faithfully,
A. M. HAYWARD

TROUBLE WITH GEARING OF MOTOR CYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—May I venture to suggest in reply to "Gear-case" that his trouble with noisy gears in quads or trikes is caused by

the wearing of the insufficient bearings between the inside ends of the axle halves and the differential box. If the machines are De Dions, or imitations of same, the bearings consist of about $\frac{3}{4}$ in. mild steel axle running in the cast iron of the differential case. I cured one noisy De Dion by shrinking steel-tube collars on the axle ends, and then boring the differential box to fit. The contrast between these axles and those of the Ariel machine is most marked. With the latter the axle ends are about 2 ins. long, and the same diameter, of hardened steel, running in phosphor-bronze bearings.—Yours faithfully,

T. MARTIN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have had the same trouble as your correspondent, "Gear Case." On examination, I found that one of the differential wheels had split in the key way; I got another wheel, but the edges of the key bed on the axle being worn, I had to have a larger key. This had a tendency to work loose, so I had the wheels brazed on the axle.

I have found also that a new pinion, especially one of hard steel, has a tendency to "chatter." I tried some time ago to get a pinion made of vulcanised fibre, but was unable to get one. I may add that I have been much interested in Mr. Craig's articles.—Yours truly,

CHAIN.

A NEW MOTOR FUEL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was much interested in reading in your last week's issue details of the carburettor using crude oils, and would like to mention that I have experimented considerably in this direction. My carburettor is fitted to a $3\frac{1}{2}$ h.p. De Dion, and has gone through exhaustive trials. Although there are yet certain necessary improvements to be made I can safely say it forms no deposits in the pipes or combustion chamber, and gives off no fumes or noxious smell after the motor has run a couple of minutes. The complete apparatus weighs ten and a-half pounds, and can yet be reduced. I hope in the near future to prove its capabilities.—Yours truly,

R. REYNOLD JACKSON.

FERRY CHARGES IN SCOTLAND.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be obliged if you could spare me space in your columns to air the following grievance, and also as a warning to other motor-car owners who may happen to live in or visit Scotland. On September 25th I bought from a firm in Edinburgh a 3-h.p. Benz car, and resolved to bring it to Culross by road. As the firm had another car going in the same direction, we agreed to run to Culross in company. We left Edinburgh, two people being on each car, and ran to South Queensferry, where we put the two cars on board the ferry steamer for the purpose of crossing to the north side of the river Forth; we had hardly got on board when a ticket-collector or fare-taker came and demanded the sum of five shillings as fare for each car, which would also include ourselves. We asked the person to wait for one minute to allow us to wipe the water off our faces, it having poured all the way from Edinburgh; but he informed us in a most insolent manner, "I have no time to wait for you; pay five shillings for each car," which we did. On reaching home, I made inquiries about the ferry charges, as it seemed to me exorbitant that 5s. should be charged for a small car weighing 6 or 7 cwt. I am told that the charge for a horse and cart is 2s. 6d., which includes return if coming back on same day; a carriage and pair of horses is charged 3s. 6d., also including return. After making these inquiries, I wrote to the manager of the North British Railway Company, who are the lessees of the ferry, on October 29th, asking for an explanation of this charge, and in answer I received a letter dated October 30th, in which the manager promised "to look into the matter." I waited till November 14th, and having had no further letter, I again wrote to the manager, and received a reply dated November 17th, in which he "regrets that he is not yet in a position to reply to my former communication, but hopes to do so shortly." Getting no further information, I wrote again on December 18th, and

received no reply; on January 12th, I wrote once more, with a like result. Perhaps some of your Scottish readers would be good enough to tell me what the charge is for cars crossing by this ferry; it seems hopeless to expect either an answer or civility from the North British Railway Company. Possibly, they, like the toll-keeper who charged a car owner toll for six horses as he had a 6-h.p. car, charged me ferry dues for three horses and a carriage as well.—Yours truly,

JOHN CUNNINGHAM.

MR. ALAN A. L. HICKMAN writes:—"In your report re my case at Northampton County Court, you mention that the car I was driving was a Daimler. Allow me to mention that it was the M.M.C. Panhard I have had nearly twelve months, which I have driven over 3,000 miles on, and which has given entire satisfaction."

THE British Motor Traction Company, Ltd., write: "As there seems to be some serious misunderstanding in reference to the Lanchester patent action recently taken by this company, we would like to point out that we won this action in the Court of Appeal, but the House of Lords decided that the article in question was not an infringement of the Lanchester patent, but they did not in any way interfere with the certificate of its validity which was granted to us in the first instance by Mr. Justice Stirling and upheld in the Court of Appeal."

A SERVICE of electrical cabs has just been started in Vienna.

OWING to the death of the Queen the dinner of the Yorkshire Automobile Club, which was to have been held on Wednesday, was postponed.

MR. SIDNEY STRAKER, A.M.I.C.E., M.I.M.E., of 110, Cannon Street, E.C., has tendered his resignation as consulting engineer to the Daimler Motor Co., Limited.

THE Austrian Daimler Motoren Gesellschaft (Berenz, Fischer and Co.), of Vienna is building a special motor-wagon to the order of the Austrian military authorities.

It is reported that the King of the Belgians has just ordered from a Paris firm an electric motor-car which is expected to attain a speed up to 55 miles an hour.

Two automobile clubs are in process of formation in Brooklyn, N.Y. The first is called the Automobile Club of Brooklyn, the second the Automobile Club of Long Island.

A BILL drafted by the law committee of the Automobile Club of America has been introduced into the United States Senate modifying the statute relating to the carriage of gasoline on passenger boats.

It is reported by a French contemporary that a motor omnibus service is about to be started on the Island of Corsica between Massiglia and Bastia. At first two Panhard and three De Dietrich cars will be put on the service.

MR. E. W. HART, of Luton, has just issued a small but handy catalogue, in which full particulars and illustrations of the Sirene voiturettes are given. The car is being made with various types of bodies, from the ordinary two-seated one to the comfortable *tonneau*.

THE St. Louis Automobile and Supply Company, of St. Charles Street, St. Louis, have sent us a copy of their catalogue of motor-cars, motors, and motor accessories, which is one of the most complete lists we have so far received from America. The company are making and supplying frames, complete with motor and transmission gear, ready to receive any desired form of body. Several types of car are illustrated in the list, as also is a new variable gear giving two speeds and reverse. Other pages are devoted to chains, hubs, tires, engines, boilers, etc.

ONE of the cars of the Edinburgh Autocar Company came to grief last week in Shandwick Place, Edinburgh, under peculiar circumstances. It is believed that one of the oil tubes burst, and the oil becoming ignited, the flames were carried to the framework of the car, which was running along the thoroughfare with its usual complement of passengers. The driver immediately drew up, and all alighted without any damage being done to themselves or their clothing. The woodwork of the car was quickly consumed, and the firemen could do little more than cool the heated iron frame and run it into the side of the street.

AUTOMOBILISM IN HOLLAND.

AUTOMOBILISM has not developed in Holland to such a degree as the good condition of the roads in such a flat and level country would make one think it should. Still, it is steadily and continuously marching forward. It is admitted already that the motor-car is not altogether a nuisance, and it will not be long before it will be recognised as a necessity. Dutch farmers, who look with animosity upon any new invention which might possibly frighten their horses, are compelled to acknowledge their impotence to bully the motor-vehicle off their roads, as they tried to do the bicycle, luckily in vain. To prove my assertion, remarks Mr. G. A. Von Hunteln in the *Horseless Age*, that the progress of automobilism is not in proportion to the number of inhabitants, I may state that, with a population of 5,000,000, only about 300 automobiles are to be found. The first motor-car crossed the frontier about five years ago, and was soon followed by a good many more.

In 1897 some owners of motor-vehicles founded the "Nederlandsche Automobiël Club" (Dutch Automobile Club), headed by the president of the Automobile Club of France, Baron van Zuylen van Nyevelt, as honorary president. The number of members soon increased, and now amounts to some 180. The task the club has set itself is practically the same as that of the greater part of bicycle touring clubs. In 1899 and 1900 the club organised several excursions, followed by the customary festivities and an annual club meeting, which, on the whole, were a great success. In March, 1900, its board collaborated with that of the Dutch Bicycle Dealers' Association in organising a bicycle and automobile exposition, which attracted a great many visitors and even brought some profit to its organisers.

All automobiles running in Holland are fitted with petrol motors, with the exception of those used by the Royal Postal Department for the collection of mails from the letter boxes in the principal cities, viz., Amsterdam, Rotterdam and The Hague, which are electrical. As we have not yet a motor industry of our own (we shall have a factory putting motors of its own invention and make upon the market ere long), nearly all automobiles are of foreign origin, chiefly German and French; these are giving satisfactory results so far. The type of vehicles used varies according to the work they are expected to do, from two-seated light vehicles of 3 h.p. to heavy passenger 'buses. The greater number of motor-vehicles belong to wealthy gentlemen who are "on pleasure bent," and only a few are serving industrial purposes. Among the latter we reckon the electric mail wagons referred to above, which, by the way, did not prove quite a success.

Automobile traffic in Holland is regulated by Royal and municipal acts and edicts. The pace at which motorists are allowed to run is brought within a reasonable limit with an eye to the safety of pedestrians and horse drivers. All automobilists must hold a licence, granted by the Home Secretary of State on application after inspection and test by a state official. This officer pays special attention to the ability of the driver, and every vehicle must be fitted with powerful brakes, so that, when driving at top speed within the limits of the regulation, it can be brought to a dead stop in about 20 yards. This test successfully performed, the licence is granted, and the owner of the carriage has a right to drive freely on State roads and highways. The vehicle has to show a plate bearing the registered number of the licence. This register number is of great convenience to the police officials in signalling and bringing before the court anyone who dares defy the regulations. Following the steps of the Ministerial Department, municipal boards of government also thought fit to issue laws and by-laws prohibiting furious driving in order to prevent accidents to traffic in some streets, either narrow or crowded ones, and in very rare instances prohibiting altogether the use of automobiles within the limits of their jurisdiction, thus causing an impediment to the free and healthy development of automobile traffic. In Amsterdam every automobile must carry a plate bearing the signature of the chief police commissioner, as a proof that the owner holds a municipal licence. Automobile traffic (the speed

not to exceed the moderate trot of a horse) is free, except in asphalted streets, which are nearly all narrow, notwithstanding their being the principal thoroughfares.

Vexations from police officials are seldom heard of, although Mr. Von Hunteln knows of a driving case in which the *chauffeur* was fined 20 guilders by the justice of the peace, and on bringing this case before a higher court it was dismissed. The attorney for the crown considered this an unjust verdict and brought the case before the Supreme Court of Justice. The bench decided that the J. P.'s verdict was right, although the bar severely criticised the deposition of the constable who arrested the defendant, and fined that unlucky gentleman (look at the unfathomable depths of the paths of justice!) the sum of 40 guilders, judging that the fine imposed by the J.P. was not sufficient for the seriousness of the infringement. In a second case this very same gentleman was brought before the court in a furious driving case, although he could prove, and two witnesses could swear to the fact, that his automobile, on the day he was arrested, was in a more or less defective condition, so that he was unable to drive at the "*grande vitesse*," or more than five miles an hour, strictly in conformity with the regulation. The case was dismissed with hilarity.

THE ROCHET-SCHNEIDER 12-H.P. CAR.

LA SOCIÉTÉ ROCHET AND SCHNEIDER, of Lyons, France, have lately completed the first car of a new type, and of which an illustration is given herewith. The vehicle is a radical departure from the cars hitherto turned out by the Lyons firm. The latter have been provided with horizontal engines and belt transmission; the new car follows closely the Panhard system, it being fitted with a



four-cylinder motor of the Daimler type of 12 h.p. The engine is located under a bonnet in the fore part of the frame, and transmits its power through a progressive friction clutch to the variable-speed gear box. Four speeds forward and a reverse motion are available, the changes being controlled by a single handle. There are several interesting features in the Rochet-Schneider motor. The valves are arranged in a special way to enable them to be withdrawn for inspection by the removal of a couple of nuts, one for each valve. Ample brake power is provided, while the artillery-type wheels are shod with pneumatic tires. Steering is controlled by the usual sloping wheel. Altogether the new Rochet-Schneider car has the appearance of being substantially built, and since it has been placed on exhibition in Paris it has attracted considerable attention.

ACCORDING to a German contemporary, the Motorfahrzeug- und Motorenfabrik Gesellschaft, of Marienfelde, Berlin, has received orders from an English concern, the value of which is roundly £25,000.

The Mildé Electrical Vehicles.

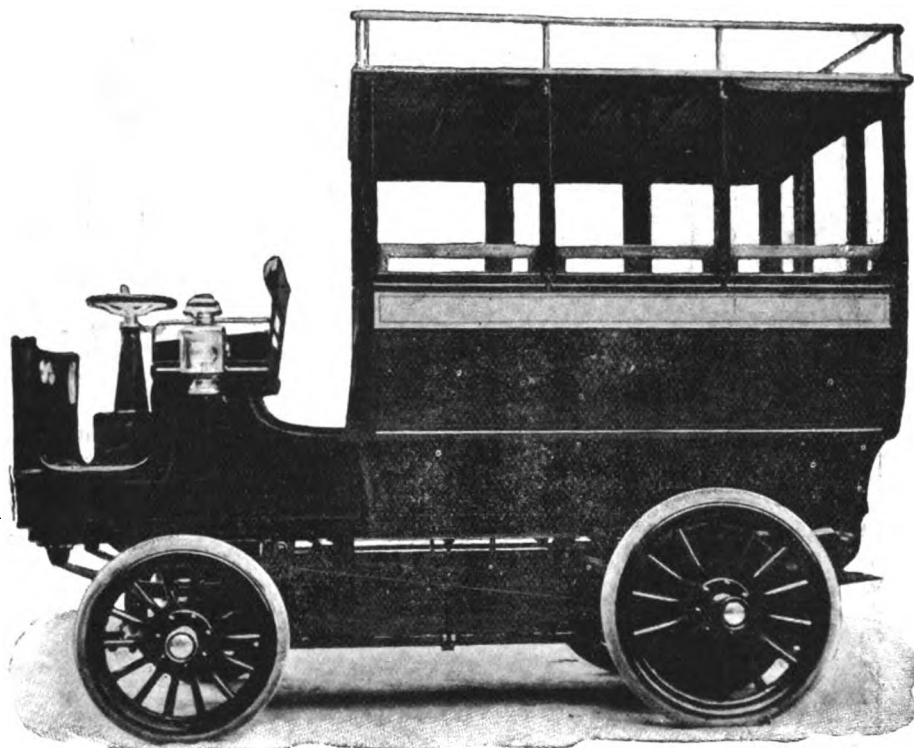


FIG. 1.—THE MILDÉ ELECTRICAL 8-SEATED OMNIBUS.

AMONG the many firms in France devoting attention to the construction of electrical vehicles is Messrs. Ch. Mildé, Fils, and Co., of Rue Desrenaudes, Paris, several types of whose cars we are now able to publish some particulars and illustrations. The Mildé motor is of a special type composed of two armatures revolving in one field, so that, acting as a differential, it suppresses the mechanical balance gear, and thus greatly simplifies the mechanism. It is claimed to be light and to have a very high efficiency, while, being of the compound type, it can be employed for electric braking and for recuperating the batteries on down grades. The motor shaft carries spur wheels, which gear directly on to toothed wheels fixed on the driving axle. This has, of course, necessitated a careful system of suspension. The bed of the motor is hinged at one end on the axle, and at the other it is supported from the under-

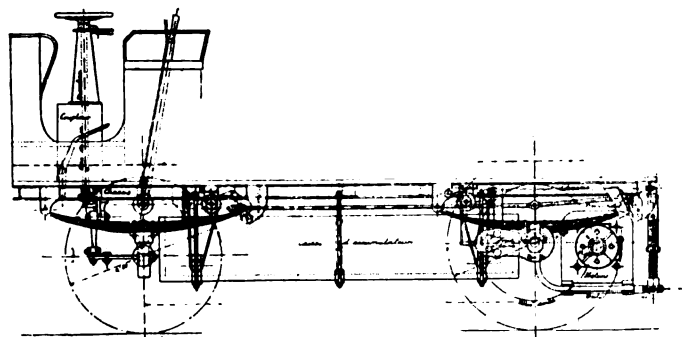


FIG. 2.—ELEVATION OF FRAME OF OMNIBUS.

frame by a vertical spindle pressing down on the spiral spring. The effect of this arrangement is to give the motor a segmental motion around the toothed wheels, so that, however unlevel the road traversed may be, the pinions are always in close connection with their corresponding wheels. The motor and gearing are entirely enclosed.

The accumulators employed are of the Heinz type, to which it is claimed a great durability is imparted by the method of binding the plates with asbestos to prevent disintegration. The battery, which comprises forty cells, is suspended from underneath

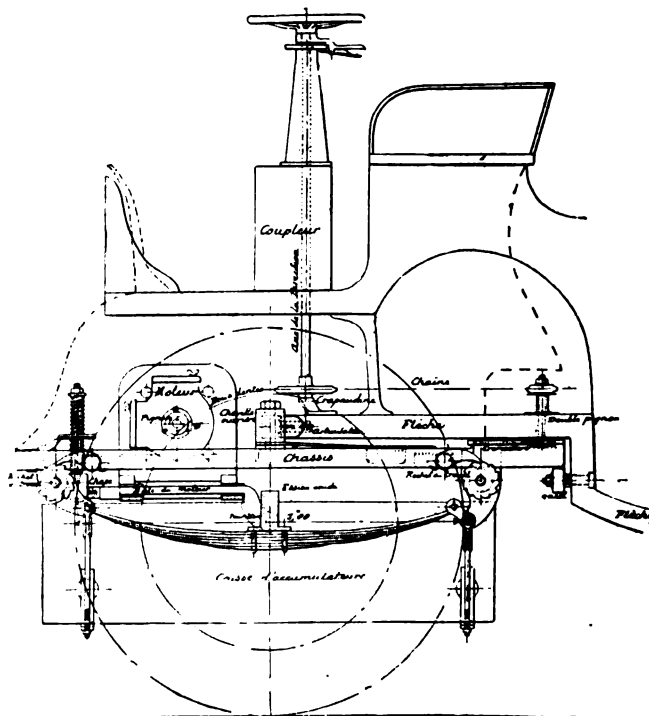


FIG. 3.—ELEVATION OF "AVANT-TRAIN" OF LANDAULET AND CAB.

the car by cables and pulleys, one end of each pulley being wound round a shaft carrying ratchet wheels at the ends, so that it can be easily lowered to the ground. The car is then pushed forward

clear of the battery, and is run on to another, which is attached by the cables and raised in position. The operation can be performed, if necessary, by one man. The speed controller shaft is concentric with the vertical steering rod, the controller hand lever being fixed below the steering hand wheel. The cells of the battery remain always in series, and the controller has thirteen different positions, giving six speeds ahead, with two reverse

omnibus complete, with its load of eight to ten persons including the driver, is about three tons.

Figs. 3, 4, and 5 represent two examples of Messrs. Mildé's type 2 and 3—viz., a three-quarter landaulet and a cab. In this type the motor and accumulators are all connected up to and carried by the fore-carriage. The advantage of this arrangement is that it can be adapted to any type of carriage without modifying the body. This placing of so much of the load on the front axle would obviously seem to affect the steering, but this difficulty has been overcome by the adoption of a steering gear consisting of the usual vertical spindle terminating in a large pinion and connected by a chain with a smaller pinion running on a toothed segment which constitutes the back part of the frame carrying the motor and battery. This arrangement gives to the fore-carriage a great amount of lateral rigidity, and at the same time allows of a very wide steering angle. The landaulet is provided with a motor weighing 264 lbs., and giving an output of 2,400 watts at 76 volts and 1,600 revolutions per minute. The vehicle is geared up to a maximum speed of about twelve miles per hour, the consumption on the level being from 28 to 30 ampères. The cab is equipped with a motor having an output of 1,700 watts at 76 volts and 1,900 revolutions per minute. The battery of the landaulet comprises forty cells, having a capacity of 150 ampère hours, sufficient for a run of from 70 to 75 kilomètres, the weight being about 960 lbs. In the cab a 100 ampère-hour battery is employed.

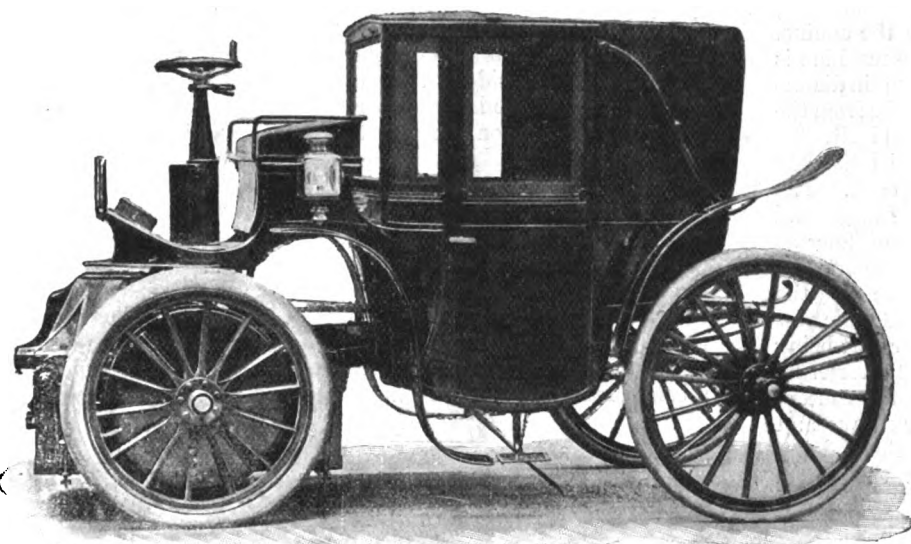


FIG. 4.—THE MILDÉ ELECTRICAL LANDAULET.

speeds, two electric braking positions, two stops, and a battery recuperation notch.

In Fig. 1 we illustrate one of the Mildé heavy types of vehicles—an eight-seated omnibus. These are equipped with a standard frame, to which any type of body, such as that of a lorry, delivery van, or brake, can be fixed. The frame is made of U iron, and is supported by four strong semi-elliptic springs. The steering is effected by means of a steering hand wheel, a vertical rod, a bevel pinion, a gear sector, a connecting rod, two steering spindle levers, and a connecting rod between the latter. The motor has two armatures on independent shafts, revolving in the same field frame, and each working through spur gears on one of the rear road wheels. The motor is carried on an oscillating base, pivoted on the rear axle, and suspended from the frame by two coil springs. The gearing is enclosed in a casing, and the ratio of reduction is 1:15. The weight of the motor is 484 lbs., and it has a normal output of 3,800 watts (5 h.p.) at 76 volts and 1,200 revolutions per minute. The latter motor speed corresponds to 80 revolutions per minute of the road driving wheel, and a speed of eight and a half miles on the level. With the maximum load of 6,600 lbs. the current consumption on the level is from thirty-six to thirty-eight ampères, and the specific energy required per ton mile is, therefore, about 114 watt-hours. The battery has a capacity of 200 ampères at a five-hour discharge, and its total weight is between 1,550 and 1,600 lbs. A single charge is sufficient for a run of thirty-eight miles.

Besides the electric brake and the recuperating action of the motor, two mechanical brakes have been provided. The first of these is a hand brake, acting on brake drums, fastened to the hubs of the driving wheels and concealed in the gear case. It is operated by a double-foot lever, placed under the feet of the conductor, on each side of the controller. The lever to the left simply acts on the switch, breaking the current when it is desired to slow down, while the lever to the right first interrupts the current and then draws on the brake. The other brake is a shoe brake on the rims of the rear wheels, operated by a hand lever to the right of the conductor. The road wheels are of the artillery type, shod with solid rubber tires. The weight of the

MR. CORNELIUS J. FIELD, manager of the De Dion-Bouton Motorette Company, Brooklyn, N.Y., delivered a lecture last month on the automobile and its uses, before the students of Sibley College, Ithaca, N.Y. He favours the petrol motor for general light work, but sees a field for steam and electricity in heavy work.

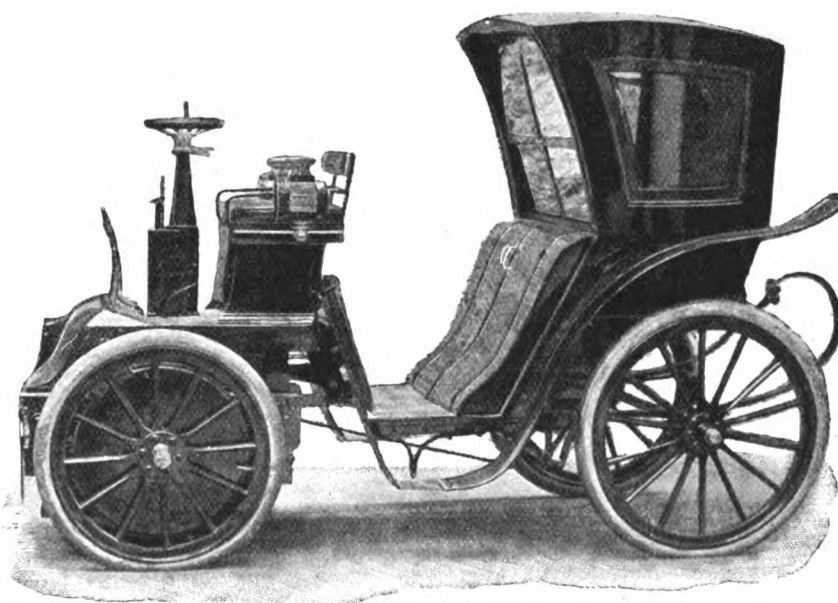


FIG. 5.—THE MILDÉ ELECTRICAL CAB.

THE Moto-Club de France has changed its proposed "Tour de France" to a "Tour des Vosges" of 1,111 kilomètres (695 miles) to be covered in 10 days, starting on May 26th. The itinerary will be—Reims, 160 kilomètres; Mézières, 87 kilomètres; Verdun, 103 kilomètres; Nancy, 105 kilomètres; Epinal, 96 kilomètres; Gérardmer, 72 kilomètres; Plombières, 80 kilomètres; Vittel, 75 kilomètres; Bar-le-Duc, 110 kilomètres; and Paris, 225 kilomètres.

THE BAINES MOTOR-BICYCLE.

THE adaptation of the two-wheeler single track form of cycle, the bicycle, to motor use finds many advocates. This week we are able to illustrate and describe a new motor-bicycle which comprises several novel points. The machine is the invention of and has been patented by Mr. E. A. Baines, works manager for his brother, Mr. W. A. Baines, Central Works, Church Street, Gainsborough, and he has made the whole of it except the engine. As will be seen from the illustration, the frame of the machine is low-built like the "Cob" bicycle. The back wheel is 26in. in diameter by 2½in., the front one 28in. by 2½in. The lower tube from the bottom of the head to where the pedals are usually placed is divided half way down and, with the main down tube, which is also divided, forms the frame for the motor—a 1½-h.p. De Dion. The down or "seat" tube forms the silencer, which is very large and does not get heated. The outlet consists of a series of holes at the bottom; it is stated to act perfectly, and its form—short and wide—prevents back pressure. The back stays are of the swinging type. The back wheel is provided with two double row ball bearings carried in spherical-seated cages, the outer part being hinged so that the back wheel can be removed without interfering with the adjustment of the bearings, thus facilitating the work of repairing tire punctures. The front forks have duplex stays and the whole machine is built especially strong to withstand any strain. The mudguards are 4in. in diameter, while the petrol



tank, which has a capacity of 1½ gallon, is made oval in shape so that there shall be no rough corners.

As already mentioned, the engine used is a 1½-h.p. De Dion; the valve box has been moved from the side to the front so as to be in line with the machine, and so reduce the width. The sparking plug is under the valve box and induction valve; there is thus only two inches of exposed wire in any part of the machine, so that the risk of short circuiting is materially minimised. The throttle valve, which is located immediately over the inlet valve and close to the carburettor, is operated by a rod passing through the tank, on top of which is a small handle; it is so arranged that it can be fully opened to the carburettor or the outer air. When open direct to the air the valve shuts off the mixture and opens the cylinder to the air, so allowing it to cool when running down-hill. This handle also shuts off the current when the valve closes to the carburettor.

The carburettor is described as being on an entirely new principle; it is of the jet type, without a float. The petrol is kept at a constant level by means of an arrangement which allows the surplus petrol to overflow. A part of the exhaust is made to pass under the carburettor so as to prevent it becoming too cold. The compression also opens into the exhaust in order to prevent the usual noise at starting, when the compression cock is open. The flow of the petrol from the tank to the carburettor is governed by a needle valve set by a dial. The mixture needs very little adjustment.

There are no levers on the handle-bars except that for the band brake. The only taps are those controlling the throttle

valve, the compression cock, and the ignition. A "Blake" induction coil is used; this is carried in the top part of the case shown at the rear of the front wheel. The trembler is also well protected from wet; indeed, the ignition apparatus is much on the lines of that adopted in voiturettes. There are two Peto and Radford accumulators carried in the case, only one of which is used at a time.

The engine is so arranged that it can be run free, a friction clutch in the brass case being worked by swinging pedals which also apply the rim brakes on the back wheel. A metal guard is fixed on the right side of the motor, near the pedals; by pressing the front part of the latter downwards the engine is put into gear. Should an obstruction be met with, or in any other emergency, the rider "back pedals," in other words, presses the heels down, and the engine is disconnected and the rim brake applied, the engine being allowed to work till the rider desires to go forward again. To start, the engine is disconnected from the driving gear, which consists of chain and gearing, and the machine wheeled forward, the motor, having no load, starting easily. When ready to depart, the rider simply mounts and puts in the clutch. There are no pedals to revolve, it being considered that the engine is powerful enough for all purposes. In addition to the rear wheel rim brake, a band brake on the front-wheel hub is also being provided.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

Military Motor-Cars in Italy.

THE Italian military authorities have recently carried out some trials with the 50-h.p. De Dion steam-wagon lately ordered from Paris. The vehicle, in addition to carrying its own fuel and water sufficient for a run of twenty miles, has been shown to be capable of transporting loads of four tons at an average speed of from six to eight miles per hour, while hills of gradients of 8 and 10 per cent. have been mounted. Although the trials are to be continued, the opinion is strongly held in Italian military circles that such vehicles are likely to play an important part in the transport of heavy military stores in the future.

The Italian Tour.

THE work of organising the automobile tour of Italy, which is to take place in the month of May, is steadily progressing, and already the itineraries, as well as all general arrangements, have been definitely settled. To meet the requirements of all competitors alternative routes have been selected. The entire journey totals up to some 1,089 miles, but for those who cannot make the complete round a special category will be reserved, and here the motorists will have the choice of making either 632 or 670 miles. English automobilists should note that entries will not be accepted after April 15th, and that they should be accompanied by a remittance of three pounds if it is intended to make the entire journey, or two pounds if the shorter itinerary is to be followed. These fees include the right of stabling the car *en route*, and the supply of petrol at reduced prices. Coupons for board and lodging will be issued, so that participants in the tour will know exactly what the trip will cost them. The daily runs will in no case exceed 130 miles, and after the first week of travelling a day's halt will be made at Rome. It is anticipated that a number of Riviera automobilists will participate in this delightful tour, and it is probable that several motor men from Paris will also reserve the month of May for the purpose of this long jaunt. Here is the itinerary:—

First day	Turin, Asti, Alexandrie (lunch), Novi, Genoa.—110½ miles.
Second day	Genoa, Chiavari (lunch), Spezia.—68 miles.
Third day	Spezia, Viarege, Pisa (lunch), Pontevendra, Empoli, Florence.—104 miles.
Fourth day	Florence (lunch), Siennese.—104 miles.

Fifth day	Sienne, Grosseto (lunch), Ortebello, Civita-Vecchia.—130 miles.
Sixth day	Civita-Vecchia, Rome.—44 miles.
Seventh day . . .	Rest at Rome.
Eighth day	Rome, Civita-Castellana (lunch), Narni, Terni.—62½ miles.
Ninth day.....	Terni, Saint-Gemini, Todi (lunch), Perugia.—57½ miles.
Tenth day	Perugia, Gubbio, Scheggia, Toscombrone (lunch), Tano, Pesaro, Rimini.—107 miles.
Eleventh day.....	Rimini, Cesena, Forli, Faenza (lunch), Imola, Bologna.—70 miles.
Twelfth day	Bologna, Ferraro, Rovigo, Padua (lunch).—77 miles.
Thirteenth day ...	Padua, Vicence, Vérona (lunch), Brescia.—93 miles.
Fourteenth day...	Brescia, Lodi (lunch), Milan.—62½ miles.

A Law Suit.

THE first stage of a law suit, which for some time past has excited considerable interest in Parisian automobile circles, was reached last week, when the court found a verdict in favour of the petitioners, and decided the knotty question as to whether the offending driver was or was not in the employ of the owner of the car at the moment of the accident. The facts of the case are these. On September 20th, a certain *mécanicien-chauffeur*, named Dubuisson, was driving the automobile of the Duke of Chaulnes when, in the rue Réaumur, he knocked down a small boy some twelve years old. The parents of the victim promptly commenced an action against the driver and against the Duke as civilly responsible, and it was with regard to the latter question that the intricacies of the affair arose, for the nobleman declined to accept any responsibility in the matter upon the ground that Dubuisson was not in his service. After hearing the evidence of numerous witnesses and perusing the correspondence which had passed on this subject, the court found the case so difficult that judgment was held over for a week in order to permit of further deliberations. The court have now given a judgment, finding Dubuisson culpable, and condemning him to two months' imprisonment, with, however, the benefit of the Béranger law, or first offenders' act. Moreover, the unfortunate driver has been ordered to pay to the parents of the victim a provisional sum of £40, pending the report of the doctor appointed to examine the case. The court have also found the Duke of Chaulnes civilly responsible for the mishap, holding that although the driver had not been definitely engaged at the time of the accident, he was on trial for a permanent engagement, and consequently that the Duke was responsible for his actions. Such cases as this should awaken proprietors of automobiles to the risks they run, not only when driving themselves but also when their cars are in the charge of their servants. Only too many owners are either ignorant of, or totally ignore, this condition of affairs, and this too in France where the insurance companies lay themselves out to grant policies covering these risks at very moderate figures. Frequently it is a case of "penny wise and pound foolish," for there are many men who shrink from paying a five pound note, little appreciating the risks they run by not effecting the insurance. Insure then, all motor men, not with the idea of being able to drive less carefully, but with the idea of saving both time and money should by any chance an accident occur.

The Mors Company's New Features.

SEVERAL new features are being adopted in the 1901 models of the Mors cars. Firstly, it may be mentioned that the well-known combination accumulator and dynamo ignition is being superseded by a new rotary magneto-electric device which has been patented by the Mors Company. Another new department is to be found in a special regulator acting on the gas admission, a device which is claimed to materially reduce the amount of petrol consumed. In addition to the standard 5 and

10 h.p. cars, a new light car fitted with a four cylinder engine of 8 h.p. is being got ready for the market.

The Paris Salon.

BY the time these lines are in print the *Salon de l'Automobile, du Cycle et des Sports*—to give the exhibition its full title—will have opened its doors, and crowds of motor men will be thronging the Grand Palais in search of automobile novelties. As already announced in the columns of the *Motor-Car Journal* the original intention of the organisers was to inaugurate the show on Monday last, the 21st instant, but such was the difficulty experienced in clearing the palace of the thousand and one articles exposed there during the recent big exhibition, that Monsieur Rives and his fellow-workers found themselves with insufficient time to complete the work of installing the Salon, and on the 18th instant were compelled to issue a circular-letter announcing the postponement of the opening ceremony until Friday. To appreciate the labour one should compare the interior of the palace to-day with what it was a month ago. It has not simply been an affair of clearing out one lot of exhibits to make way for another, but the very palace itself had to be rendered practicable for a winter exhibition. The heating and lighting have been no slight undertakings, while the erection of the stands necessary for some 550 exhibitors has entailed a vast amount of work executed under high pressure. But even as I write all this is in perfect order, and in the evening the brilliantly illumined palace attracts much attention from the crowds accustomed to seeing its dark, unlighted mass looming up against the sky. It is, too, ideally situated for an exhibition, and with an ordinary amount of luck the exhibitors should do excellent business, and so forget their disappointment at the meagre results obtained from last year's big show. The Champs Elysées is easily reached from any part of Paris—bus, tram, and boat all can be utilised, and the visitor finds himself within a stone's throw of the Grand Palais, which is situated on the left-hand side of the avenue as one mounts towards the Arc de Triomphe. At present cycles and automobiles of every shape and form are to be seen entering, while all day long numbers of self-propelled machines are to be found before the doors awaiting the return of the owners, busily engaged in the chaos of the interior. It gives one a capital impression of the extent of the automobile industry here in France, and the bustling activity displayed affords abundant proof of the life and vigour of the trade in spite of last year's troubles. On Friday we are to have Monsieur Millerand, the Minister of Commerce, at the opening ceremony, and, doubtless, during the show other Ministers will evince their interest in the automobile movement by visiting the show. Unquestionably one of the most attractive sections will be that devoted to the exhibition of early and historic motor-vehicles, for never before has such a complete collection as that of the Grand Palais been brought together. From the Daimler Company at Cannstatt there comes the first bicycle, quadricycle, and motor made by the firm; from Benz comes his first tricycle (1886); the Decauville Company send their first four-wheeled voiturette; M. Jeautaud lends the first electric carriage built in France; De Dion and Bouton expose a complete series of their machines dating from 1895 to 1900; Peugeot sends a motor-quadricycle dated 1891; the Bollée family lend some of their famous vehicles, and others are forthcoming from firms too numerous to mention. Nearly the whole of these curiosities are already safely installed in the palace. Many of the big cars, too, are already in their places, and not the least interesting of these is the caravan in which M. Turgan recently accomplished a lengthy tour in Tunis. The exhibition will remain open until Sunday, February 10th, and next week I hope to give some particulars of the exhibits made by the various firms interested in the automobile industry. But come and see the show for yourselves, all English motor men. I am sure you won't regret the visit.

"L'AUTOMOBILE ILLUSTRE," Brussels, states that there is no truth in the statement that the King of the Belgians has ordered a 30 h.p. touring caravan.

THE LINSKY CUP RACE.

THE first race of the year 1901, known as the Linsky Cup, and organised by the Automobile Club of Nice, took place on the 21st inst. The course was Cagnes, Ville-neuve, Loubet, Le Rouret, Magagnosc, Grasse, St. Vallier, and the Col de la Faille, an altitude of 1,400 mètres; distance, 45 kilomètres, or under thirty miles. It is a give-and-take piece of road, but mostly uphill. The cup was presented to the A.C.N. by Colonel Linsky, and goes to the vehicle covering the distance in the shortest time.

The rules for this race are as follows:—1. Every competitor must have a thorough knowledge of the current racing rules of the A.C.F., and declare that he will abide by them; 2. This race is restricted to four-wheeled vehicles, fitted with a complete carriage body, and the total weight must not be more than 500 kilos.; 3. The vehicles must be provided with two seats, which shall be occupied, and must be driven by a member of a recognised automobile club; 4. The competing cars must start at intervals of one minute, and it is not allowed to effect repairs with anything besides what is carried on board. It is also forbidden to receive assistance by being pushed, except at the start; 7. The car covering the distance in the shortest time will be awarded the Linsky Cup. A silver medal will be given as second prize by the A.C.N., who will also award diplomas to all cars reaching the winning post within half an hour of the first arrival.

The following entries were received by the A.C.N.:

Fred. Flores	...	Cottéreau voiturne	...	5 h.p.
M. Lautard	...	Decauville voiturette	...	6 h.p.
B. Laumailié	...	Che-ray voiturette	...	8 h.p.
J. Bary	...	Renault voiturette	...	4 h.p.
P. Chauchard	...	Clément voiturette	...	4 h.p.
L. Oustric	...	De Dion voiturette	...	5 h.p.
A. Deville	...	Cottéreau voiturne	...	5 h.p.
De Chapuiset	...	Decauville voiturette	...	5 h.p.
L. Ravenez	...	Decauville voiturette	...	5 h.p.

Only six competitors, however, turned up at the starting point, three of them, Thierry, Gilbert, and Navello, taking the place of three other absentees. At 10 a.m. the competitors were sent off by M. Huet, the official starter, at intervals of one minute. The modest horse power possessed by these voiturettes must not be taken for granted, but with a grain of salt. Like the Scotchman "I hae me doots" that such a remarkable decline of horse power should be possible, when the Decauvilles were 8 to 10 h.p. last year. My friend 'X,' who is typical of *chauffeurs* generally, takes pains to impress me with his voiturette when I meet him on the road on ordinary occasions. Says he: "This is the finest and fastest voiturette in this part of the country, and is 10 h.p." Friend 'X' has forgotten all about this when I meet him at the starting point the day of the race, and says: "Of course, I don't expect to do anything to-day. My voiturette is a humble touring vehicle, a mere 5 h.p.!" To arrive at a correct horse power, a medium between the two statements is nearest the truth.

This race, I regret to state, cannot be considered a landmark in the history of voiturettes. The distance was very short, and yet—whisper it gently—only two turned up at the finish! It is almost incredulous in these days of vastly-improved motor-cars. Thierry only got a hundred yards from the start, and then gave up! Flores next had a puncture, then broke his trembler, and also gave up. Navello next had troubles with a pinion, and was put *hors de combat*. The epidemic spread to Gilbert, who reached St. Vallier, and was afterwards seen no more. This left only two in the field, or rather on the road. The race was now between De Dion and Decauville—Oustric and Ravenez. The members of the A. C. N. had motored to St. Vallier to see the winners come in. The panorama from the winning post at the summit of the Col de la Faille is magnificent, commanding a view of the Isles of Lérins, of Cannes, Nice, and even of Corsica on a clear day.

A shout! and here comes the winner! It is Ravenez, on a Decauville. For the 45 kilomètres his time is 1 hr. 32 mins. 3 secs., being an average of 30 kilomètres an hour on the whole course, extremely good when one considers the hilly nature of the road.

The next, and only other arrival, was Oustric, on a De Dion voiturette—time 1 hr. 45 mins. 2 secs.

After the race a *réunion* and lunch, arranged by the A.C.N., took place at Grasse, among the members who arrived in their motor-cars being Prince Lubecki, Count Broel, Barons H. de Rothschild and A. de Rothschild, Colonel Linsky, Messrs. Gondoin, Lemaitre, Jellinck, Desjoyeaux, Pinson, Roux, Gautier, Fernandez, Guidi, de Bary, Laumailié, Chauchard, Jouinot-Lambetta, Platés, Duditliu, Huet, de Chapuiset, Portal, Deville, Clerissy, Mical, etc. The president, M. Gondoin, gave the toast of "Colonel Linsky," the generous donor of the cup, which was received with immense applause. Other toasts followed, and the caravan commenced its return to Nice about four p.m.

LEOPOLD CANNING.

THE Newfoundland papers are giving prominence to automobile doings in Europe.

It is reported that two new cars of no less than 70 h.p. each are being built by the Mors Company, of Paris, for the forthcoming Nice week.

A MOTOR race has been held on the Tsarskoje-Selo-Strelina route in Russia. The distance was 40 versts, and this was covered in 1h. 36m. by M. Hendic in a voiturette.

THE *Motor World* of New York remarks that three "dollars and costs" is the usual charge in Chicago for motor-vehicle scorching—when the perpetrators are caught.

BRIGADIER-GENERAL GREELY, chief signal officer of the U.S. army, has sent a motor-vehicle to the Philippines for use by the Signal Service during the winter operations in the transportation of signal apparatus.

THE Automobile Club of Southern California has been formed at Los Angeles, Cal., U.S.A. The purpose is to promote a social organisation composed of persons owning, manufacturing, or interested in automobiles. Future plans include a club-house in the suburbs of Los Angeles, races, excursions, etc.

MR. J. E. McFARLAND, a student at Johns Hopkins, Baltimore, U.S.A., recently covered the distance between that city and Washington on a motor-vehicle in 3h. 14min., which performance was 7min. better than the journey has ever been made by any other automobile.

THE American Bicycle Company has acquired the patents of Mr. Elmer E. Sperry, of Cleveland, Ohio, relating to storage batteries and constructional features of electrically propelled vehicles. These patents have so far been exploited by the Cleveland Machine Screw Company, of Cleveland, Ohio.

MR. CLARENCE G. DINSMORE, a prominent member of the Automobile Club of America, is having built for his use a special German Daimler touring car which will be one of the finest specimens of up-to-date automobile work that has been turned out of the Cannstatt factory. The propelling power will be a 30-h.p. Mercedes motor.

THE major commanding the battalion of the 10th line regiment at Louvain, Belgium, has decided, in connection with the forthcoming spring marching manoeuvres, to carry out some trials with despatch bearers mounted on bicycles and motor-cycles. The victualling of the soldiers, too, will be maintained during the manoeuvres by means of motor-wagons.

MR. CROKER, chief of the fire brigade in New York, is interested in the automobile question, and believes that the motor-car can be used in the fire department with advantage to the department and to the city. He has examined all the various makes and styles, and states that he believes an electric vehicle guaranteed to run a considerable distance without recharging would come nearest to filling his official requirements.

CALLING in at Messrs. Friswell's dépôt in Holborn Viaduct, E.C., the other day, we were able to inspect a car that is new to the English market. The vehicle is of Belgian construction, but is built in accordance with the designs of Mr. C. E. Duryea, of Reading, Pa., U.S.A. As we hope to illustrate the Duryea car in an early issue, we will merely remark on the present occasion that the engine appears to run very quietly, and that even when the car is standing still and the motor is in motion no vibration is apparent.

SOME NEW CARBURETTORS.

WE have already illustrated one form of the "Abeille" carburettor (see *Motor-Car Journal*, December 29th, 1899) made by Messrs. Dalifol and Thomas, of Paris. The firm have since introduced a new form of carburetting device, of which a part-sectional view is given in Fig. 1. The device consists of a cylindrical body, which carries at its upper part an air inlet, and has at its lower end an L piece for connection to the inlet valve. The main feature of the carburettor is a double-seated valve *D* which shuts off at the same time the air and petrol supply. The air entering at *E* is to be drawn through or around some heated parts. Over the pipe at *E* is a sleeve. Both pipe and sleeve are pierced by an equal number of coinciding holes, through which cold air is admitted and mingles with the hot air. By turning the sleeve around on the pipe the opening of the holes and consequently the amount of air admitted through them can be adjusted, and thus the temperature of the air be regulated.

At every suction stroke of the piston the valve *D* is lifted off its seats, against the force of the spring on its rod. Air and petrol are thus admitted. The petrol enters by the pipe *B*, passes through the needle valve *C*, and is expanded over the corrugated surface of the valve *D*. It is instantly evaporated, and carried along by the air passing the valve. In the lower part of the carburettor chamber are placed some layers of metal gauze, and the mixture in passing through this gauze is rendered more homogeneous and more perfectly gaseous. On the lower arm, or connection *F*, of the carburettor is placed a sleeve, similar to that at *E*, by means of which the richness of the mixture can be regulated. This sleeve is provided with a lever arm *G*, and the regulation can be effected when the vehicle is running. The admission of the petrol is regulated once for all by adjusting the needle valve *C*.

Another French carburettor which is stated to have given good results in practice is the De Sales-Braley, illustrated in Fig. 2. The principle adopted is to cause air to traverse textile material saturated with petrol, so that the air takes up the latter, and a saturated vapour, consisting of air and finely-divided petrol, is produced, which may then be mixed with air

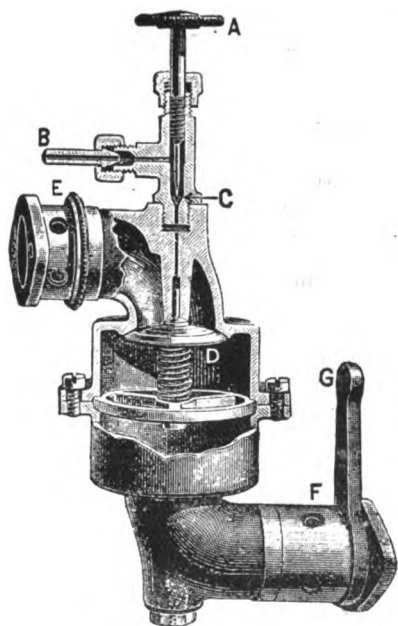


FIG. 1.—THE DALIFOL-THOMAS CARBURETTOR.

in any desired proportion, and the mixture used in the motor to produce an explosion. Referring to the illustration, it will be seen that the carburettor consists of a chamber, 1, divided into two compartments, 2 and 3, by means of a partition, 4. The compartment, 2, has inlets for the spirit which flows from the tank by the pipe, 5, closed reservoir past a needle valve, 6, which is opened by suitable levers, 7, against a spring,

8. This lever is actuated by the rod, 9, of a piston, 10, which moves by atmospheric pressure in consequence of the partial vacuum formed in the box, 3, by the suction of the motor. The piston, 10, which slides in a cylinder, 11, having openings, 12, closed by the piston when at rest and uncovered when

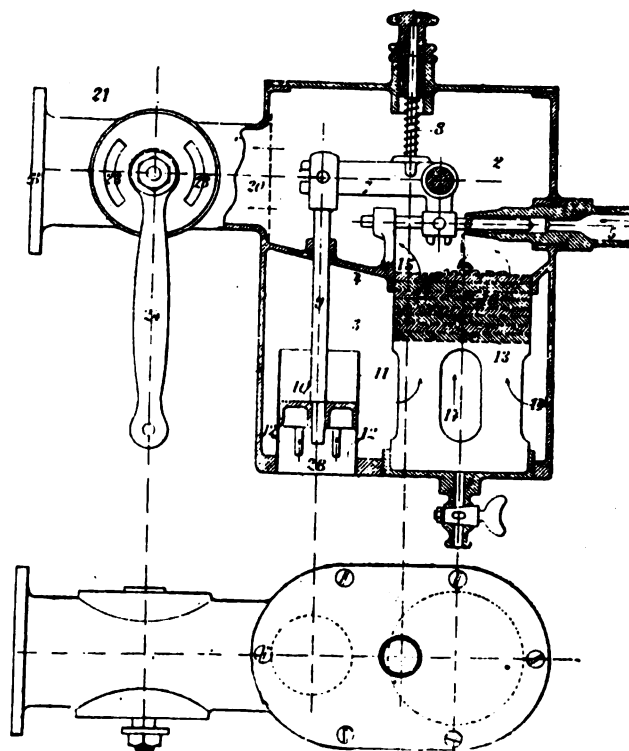


FIG. 2.—THE DE SALES-BRALEY CARBURETTOR.

it is raised by the atmospheric pressure. The air sucked in penetrates into a cylinder, 13, pierced with holes, 14. The upper portion of this cylinder is provided with alternate layers of metal gauze and a spongy fabric, 15, 16. The whole forms a cushion to which the density required for obtaining the desired degree of carburation is given.

The chamber, 2, communicates by an opening, 20, with a pipe, 21, to which fresh air is admitted through a valve, the openings, 23, of which can be regulated by the lever, 24. The method of operation of the device is as follows:—The suction of the motor causes a partial vacuum in the box 1, atmospheric pressure raises the piston, 10, air passes in by the holes, 12, into the compartment, 3, penetrates by the openings, 14, into the box, 13, traverses the fabric, 16, impregnated with petrol, becomes saturated and passes into the pipe, 21, where it becomes mixed with the required quantity of fresh air, the latter being admitted through the holes, 23, in the valve. The piston, 10, on rising actuates the lever, 7, through the rod, 9, which allows a predetermined quantity of petrol to escape past the needle, 6, and flow into the fabric, 16, which is thus at each aspiration impregnated with the quantity of spirit necessary to convert the air into vapour.

It is claimed for this carburettor that it carburets the air to saturation in such a manner as to prepare a homogeneous mixture. The explosive mixture is formed outside the cylinder in a restricted space. The admission of the petrol is regulated by the requirements of the motor itself in such a manner as to prevent waste. Hand regulation is reduced simply to the introduction of fresh air, that is to say, to the movement of the lever, 24. The delivery of the petrol is proportional to the quantity of air to be carburetted, by the simultaneous action of the piston and the needle valve.

SOME trials are being made in Barcelona, Spain, with an eighteen-seated electric omnibus which has been built in that city by La Compania General Espanola de Coches Automoviles.

HERE AND THERE.

SIR HICKMAN BECKETT BACON, Bart., has been elected to and has accepted the first presidency of the recently-formed Lincolnshire Automobile Club.

MR. H. WATERS, of Aston, Birmingham, informs us that arrangements have now been concluded under which he holds the sole and exclusive sale in the Coventry and Wolverhampton districts of all motor-car springs, axles, and ironwork manufactured by Messrs. Richard Berry and Son, of Alma Street, Birmingham, and Messrs. J. Brockhouse and Co., of West Bromwich.

AT the recent motor-car exhibition in New York an innovation in automobile sport was tried, in the form of a pursuit race. The competitors comprised a steam and a petrol car. The character of the machines made a flying start necessary for equity. After ten laps the petrol car was declared the winner.

MESSRS. Brampton Bros., Ltd., of Birmingham, have sent us a copy of their new catalogue, which, among other things, gives full particulars of the many sizes of motor-car chains and chain wheels made by this firm, and which are so largely used. Saddle and tool bags also find a place in the list.

WITH regard to the Mytholm Doctor's Car illustrated in our last issue, we find we were in error in stating that a Longuemare carburettor is employed, the Yorkshire Motor-car Manufacturing Co. informing us that they are using a special carburettor, one of their own construction, which gives equally good results without the disadvantages of the former.

By the last American mail we learn that the Electric Vehicle Company, of Hartford, Conn., has purchased the entire capital of the Riker Electric Vehicle Company. In addition to the purchase of the Riker Company's stock, the Electric Vehicle Company has acquired from Mr. A. L. Riker personally all his foreign patents for motor-vehicles. The organisation of the Riker Electric Vehicle Company, it was stated, will be maintained, control being held through stock ownership, and the Riker business will go on very much as formerly.

A MOST handy universal drilling machine is being put upon the market by Messrs. Wallach Brothers, of 57, Gracechurch Street, E.C. It will be welcomed not only by repairers but by all amateur mechanics. With it holes up to $\frac{1}{2}$ in. diameter can be drilled in any kind of metal by hand with little fatigue and great rapidity, in any position, and in every direction. The tool weighs but 7 lbs., and is particularly portable. Messrs. Wallach issue a circular giving illustrations of twenty-three positions in which this handy device can be used.

As mentioned in these columns some time ago, the London Autocar Co. of Gray's Inn Road, W.C., are now marketing a complete set of parts for converting an ordinary safety bicycle into a motor-bicycle. The set of fittings comprises the motor, carburettor, silencer, accumulators in case, petrol tank (three quarts), special rim for driving belt, electric wires and handles, etc. We had an opportunity the other day of inspecting an ordinary safety that had been converted by means of these fittings. The engine, which is of the vertical air-cooled type of 1 h.p., is bolted to the lower cross tube of the frame, the power being conveyed by a belt working on a small pulley on the engine shaft and a light pulley clipped to the spokes of the rear wheel. The engine, which is an excellent piece of work, the contact breaker being especially noteworthy, is set in motion by the usual pedals and chain gear. The converted machine weighs complete about 47 lb., and can attain a speed of from 20 to 25 miles per hour. Mr. Rush also showed us a new induction coil which, in place of the usual vulcanite case so liable to fracture, is enclosed in a 4 in. brass tube, enamelled to any desired colour. The coil is insulated by a thick layer of paraffin wax, so that short circuiting

from damp is well guarded against; in fact, we were informed that the coil would work even when immersed in water, so well is it insulated. It is intended for use in connection with the ignition of the charge in motor-cycles and light cars, and will, it is stated, give a $\frac{3}{8}$ in. spark.

KENTUCKY is famous for horses, and Colonel Watterson, who edits one of the papers published in that State, has been denouncing the automobile as a costly, foreign, and dangerous thing. Seeing that many pugilists have graduated from the hammer and anvil, he asks what would become of the prize ring were the horse deposed by the motor-car?

THE Board of Governors of the Long Island Automobile Club has decided to hold a trial contest of 100 miles in March next, open only to American-built motor-cars. The trial will take place over Long Island roads, and a challenge trophy, presented by the club, will be awarded to the winner. This trophy may be competed for half-yearly thereafter. The contest will not be one of speed entirely, as simplicity and cost of operation will be taken into consideration. Racing cars will be barred.

ONE of the latest converts to automobilism is M. J. Arnaud, de l'Arrière, the well-known French owner and breeder of thoroughbreds, who has purchased a 24 horse-power Panhard car, from Messrs. Charron, Girardot, and Voigt. He has further requested the latter firm to furnish him with plans of an automobile horse-van, to be used for taking his racers from their training quarters to the various racecourses and back.

FURIOUS DRIVING CASE.

AT Glasgow, last week, James Butchart, cycle manufacturer, was charged with having, on 22nd December, driven a motor-car in a culpable, negligent, and reckless manner, at an excessive speed, whereby two men were knocked down and injured. He was fined a guinea, with the option of 14 days' imprisonment.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editor's hands by Wednesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.

NOW that King Edward the Seventh can be added to the growing list of crowned heads who are also motorists, his doings in connection with automobilism are of added interest. One of the most attractive exhibits at the exhibition now being held at Paris is a 9-h-p. Serpollet steam car built for the present King of England. It will be remembered that when at Homburg recently he went for several drives with MM. Serpollet and Gardner, and we published an interesting photograph showing the Prince of

Wales on the car. Evidently an order was given about that time, and when the present season of mourning is over we shall look forward to the King's renewed interest in automobilism.

The Motor-Car Exhibition in Paris.

The event of the week in Paris has undoubtedly been the opening of the motor-car exhibition in the Grand Palais, near the Champs Elysées. M. Loubet, the President of the Republic, honoured the Exhibition with a visit on Monday. The President, who was accompanied by M. Pierre Baudin, Minister of Public Works, made an exhaustive inspection of the exhibits. Afterwards one of the organisers of the show, raising his glass to drink to the President, broached, in fear and trembling, the momentous question of motor road-racing. Discussions on the subject have, as is already well known, divided French automobilists into two hostile camps.

The French Government and Racing.

"THE Government," M. Loubet replied, "has never had any intention of prohibiting races." The President went on to say that, so long as the authorities were duly informed of intended contests, and were given ample time to arrange for police measures along the route, automobile races would be permitted. French *chauffeurs* now jubilate accordingly, and look forward to a more exciting season than ever next spring and summer. Only once during the visit were any reproachful remarks made by the President. He thought some motor-men were regrettably careless, and mentioned a General who drove over to see him at Rambouillet in an automobile, at the time of the autumn manoeuvres, and who ran over four dogs and a hen during his progress through the town. Another *chauffeur*, of whom the President spoke with some horror, positively boasted of having during his career as an automobilist crushed fifty canine victims.

The Serpollet Banquet.

ON Wednesday, the 23rd ult., at the Grand Hotel, Paris, the Union Automobile gave a banquet in celebration of the recent nomination of its president, M. Léon Serpollet, to the *Legion d'honneur*. Under the presidency of M. Pierre Giffard, some eighty automobilists gathered together to do honour to the

well-known constructor, who during the course of the evening was presented with a handsome diamond cross in commemoration of the event. Naturally there was a profusion of speeches of the usual complimentary character, and M. Giffard seized the opportunity to pass some comments upon the burning question of the day and the excommunication of the Union by the Automobile Club of France. M. Serpollet himself made but brief reference to the "affair," confining his remarks almost entirely to the early days of his steam cars, in the course of which he related some most interesting incidents.

Motor Dust Carts for Kensington.

AT a meeting of Kensington Borough Council last week, it was stated that in response to advertisements issued by the old vestry, inviting designs and estimates for a steam propelled street cleansing and watering machine, an offer had been received from Thornycroft's Steam Carriage Company to supply a machine in accordance with drawings and specifications submitted by them, for £725. The borough engineer and surveyor reported that in his opinion the drawings, etc., fulfilled the requirements as embodied in the advertisement, except that no mention was made in the specification of a reversing gear. He also expressed the opinion that the adoption of a motor-wagon would materially assist in efficiently scavenging the streets. The committee recommended that the tender be accepted, subject to conditions as under: That the machine be provided with proper turning and reversing gear; that foot valves be provided with water distributors; that the water tank be provided with lidded apertures for filling, one on each side; that the company work the machine in the borough for one week free of expense to the Council; that the company enter into a contract to keep the machine in proper repair for ten years for £72 per annum. In consequence of the death of Her Majesty the further consideration of the matter was postponed until the next meeting.

A Mayor on Speed.

It is very gratifying to recognise how cordially the mayors and authorities of our great cities have encouraged the automobile movement. On the question of speed, the Mayor of Salford has been making some very sensible remarks to a deputation that recently approached him. "Much," he said, "must be left to the good sense of the drivers of the cars, as a high rate of speed which would be highly dangerous in towns would be perfectly safe in the open country." The sooner everyone realises this fact the better will it be for all concerned.

Motor-Vans for Municipal Purposes.

THE wise men who constitute the Borough Council of Bermondsey are very cautious people. At the last meeting a proposal was made to purchase a number of horses, and Councillor Shand asked if the advisability of obtaining motor-vans had been considered. On behalf of the Horse Committee Councillor Widdows replied that the matter had not been overlooked, but no action had been taken because of the expense.

This is the foolish policy that only looks to the first cost, without any regard to the ultimate saving. Experience has demonstrated that motor-vans for municipal purposes can be reliably and economically employed, and that the higher original outlay may secure quicker and cheaper work than the ordinary methods employed. The Automobile Club will have to have a municipal motor-van crusade among the metropolitan boroughs.

Common Sense at Nottingham.

A VERY sensible course has been taken by the Nottingham County Council with regard to motor-cars. The Highways, Bridges, and Buildings Committee have been considering the suggestion of various county councils, and while content with the speed limit as it exists at present, recommended that motor-vehicles should be registered and numbered. After a very reasonable discussion Mr. Bayley said the committee appeared to be more frightened than hurt. He suggested that the recommendations should be withdrawn for the present, and brought forward again subsequently. When they had more information with regard to the use of motor-cars in the county they would be better able to arrive at a decision on the matter. Colonel Denison, the chairman of the committee, expressed himself as not at all keen about the recommendations. He quite agreed the thing was in its infancy, and though he thought there were certain motor-cars which contravened the laws he was prepared to withdraw this clause of the report, and bring it forward again. Ultimately this course was adopted.

The 1900 1,000-mile Trial.

THE Automobile Club has kindly furnished us with the photographs, taken by Mr. Edward Kennard, from which the accompanying illustrations are reproduced. The pictures show the obverse and reverse of the silver-gilt, silver and bronze medal, given by the Automobile Club de France for the three vehicles which, in the opinion of the A.C.G.B., were,



irrespective of section or class, the first, second, and third in merit. It will be remembered that the medals were awarded as follows:—First, silver-gilt medal, Mr. Kennard's 8 h.p. Napier (No. 110); second, silver medal, Wolseley voiturette (No. 40); third, bronze medal, New Orleans voiturette (No. 27).

The Reply of the Marquis.

HAVING started a much-noticed correspondence in the columns of the *Field*, the Marquis of Granby has brought it to a close with a letter in which, while endeavouring to maintain his original position, he recognises that all motorists are not alike and there are some reasonable people even among those who own or drive motor cars. The upshot of the whole matter is that automobilists will do well to bear in mind the recent warnings of the Automobile Club with regard to the road, and if they will do that the opposition of such decided opponents as the Marquis of Granby may be dispelled, in time.

An Australian-Built Motor-Car.

Mr. T. O'Grady, is a voiturette or buggy, and provides accommodation for three persons, including the driver. A petrol motor is used for propelling purposes, this being situated in the front part of the body, its power being transmitted through a belt to a counter-shaft, on which are pinions gearing into spur wheels fixed on the back axle. A single lever, which is manipulated by the driver's left hand, is responsible for all operations. The steering is also controlled by the left hand.

Horse-Owners and Automobiles.

VERY significant is the fact that many of the leading automobilists are keen lovers of the horse. The Earl of Carnarvon and other gentlemen in this country can combine their admiration of the noble animal with a keen interest in the motor-car, and the Baron de Zuylen, who is a leader in the automobile world of France, owns one of the best stables to be found in the area of the Republic. It is also interesting to note that some of the best-known members of the Automobile Club of America were among the prize-winners at a recent great horse show in the United States. Mr. Albert C. Bostwick was one of the largest exhibitors at the show. He had many horses from his famous stables at Mamaroneck on view, and secured several ribbons. In the amateur driving competition for four-in-hands four years old and over he took the second prize. Mr. Bostwick, besides being a most expert amateur *chauffeur*, is an excellent driver, and he certainly did very good work in the horse show ring. He also won the class for the best appointed brougham. Dr. J. Grant Lyman was another large exhibitor, and he secured several prizes.

Stop when Desired.

HOWEVER distasteful it may be to the motorist to see a warning hand, it is his duty to obey the injunction, and to stop. The law must be respected, especially at a time when determined efforts are being made by prejudiced people to secure a further lessening of the privileges of motorists. At the Hove Police Court a driver of one of the licensed motor-cars that there ply for hire has been summoned for not taking any notice of an equestrian who had previously cautioned him. The same thing applies also to private owners, and we would associate ourselves with the Automobile Club in a desire to secure the future of automobilism by conforming, as far as possible, with the law as at present established.

In the Eastern Counties.

THERE are many keen automobilists in the Eastern counties, and they will be interested to learn that the illustrated lecture by Mr. Shrapnell Smith, originally fixed for the 13th inst., has now been postponed till the 19th inst. Colonel Crompton, R.E., will preside, and the patrons will include the Automobile Club of Great Britain and Ireland, who, from February 15th to February 18th, will be demonstrating before the West Suffolk County Council at Lowestoft, Beccles, and Ipswich, and will then drive on to Chelmsford for the lecture, probably giving displays at Chelmsford during the day to members of the Essex County Council and others.

Irish Roads.

IN various parts of Ireland gentlemen are interesting themselves in the state of the roads, and it only needs a great automobile tour to adequately impress upon the local bodies the necessity of improvement. Something of the kind is needed to demonstrate the profitable traffic that is likely to be found when the roads are properly cared for, and to incite the authorities to real effort in the matter. Meanwhile, we

notice that Colonel Magrath has promised the Wexford Corporation £5 towards the expense of properly rolling a certain bad road in the town, and has also offered to pay the damage, up to £20, that may be done to pipes in the road by the action of a steam roller. But local spirit in the ruling bodies must have fallen very low when private citizens have to make such offers.

Electric Ignition Troubles.

OWNERS of Daimler cars who may have found anything like intermittency in the electric firings of their engines will be interested in a discovery that Mr. Henry Edmunds has made after being troubled by this cause. He found that the fault was due to some water which, through a vigorous use of the hosepipe, had got into the chamber where the induction coil was placed, and there was a shortage across the terminals in consequence. As he remarks—

Little "amps" of current, little volts so sly,
Perchance may find a leakage, and run the battery dry.

Lincolnshire Automobile Club.

A MEETING of the Lincolnshire Automobile Club has been held at the Saracen's Head Hotel, Lincoln, Dr. Cragg, of Billingborough, presiding. It was decided that the executive committee should consist of ten, and the following were elected: Messrs. W. R. Pennell, W. S. White, C. Nelson, J. H. Foster, C. Hannam, T. W. Beverley, W. Cottam, J. R. Richardson, Parsons Wright, and Dr. Russell. Mr. G. J. Wilkinson was elected secretary, with Mr. C. Nelson as hon. secretary; Mr. R. B. Wrenford, of the National and Provincial Bank, Lincoln, was appointed treasurer; and Mr. J. H. Foster hon. solicitor. The following were elected as district representatives and to be ex-officio on the committee: Mr. Heinle, Gainsborough; Mr. A. A. Padley, Market Rasen; Dr. Pim, Sleaford; Mr. J. G. Bates, Grimsby; Mr. Wright, Wold Newton; Dr. T. W. Steel, Dalsterworth; Mr. C. J. E. Parker, J.P., Grantham; Mr. W. J. Gilpin, Bourne; Rev. A. Smyth, Sutton-on-Sea; Mr. F. Richardson, Sibsey; and Mr. H. Sawyer, Winterton. The club colours are to be "Lincoln" green and white, and headquarters are at the Saracen's Head Hotel, Lincoln. Sir Hickman Beckett Bacon, Bart., the Premier Baronet of England, has accepted the Presidency of the Club, and the Right Hon. H. Chaplin, M.P., Viscount St. Vincent, Dr. E. Cragg, Mr. W. B. Jevons, the Mayor of Lincoln (Mr. C. W. Pennell), Captain J. A. Cole, and Captain J. F. Laycock are vice-presidents.

Saved by a Fire Engine!

MR. ROWLAND OUTHWAITE has been saved by a fire engine. Driving a motor-car along Leith Street, Edinburgh, at a moderate pace, he was hauled to the police court, and several witnesses declared he had been travelling at nothing less than seventeen miles an hour. Fortunately the officer in charge of the engine was able to say that his vehicle was not going more than twelve miles an hour at any point of the journey, while in Leith Street he was not exceeding nine miles an hour. The Sheriff found the charge "not proven"—a not very satisfactory ending, but one for which the motorist should be thankful in these days of prejudice and antipathy to the motor-car.

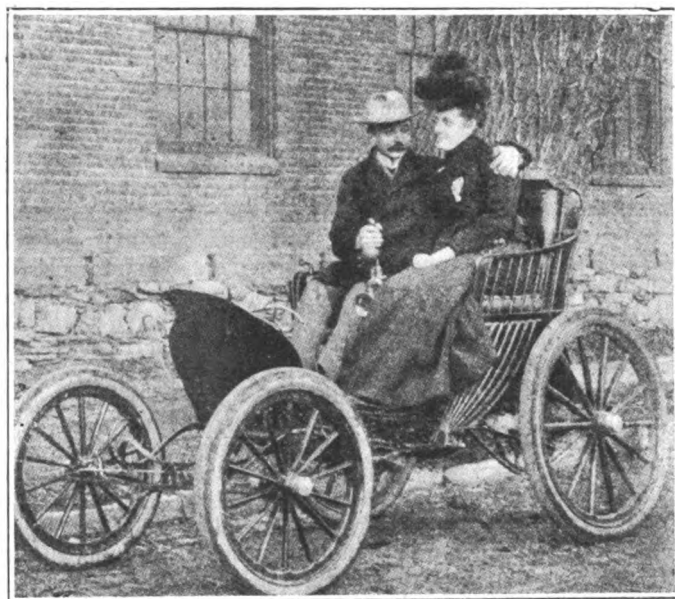
Choosing Cars.

IT is practically impossible to recommend particular cars for particular persons owing to the difference in the mechanical capabilities of people. Whether a vehicle will prove suitable or satisfactory for a given service depends largely on the roads over which it has to run, and on the mechanical abilities of the operator. We have frequent examples of vehicles of the same make, bought at practically the same time, of which one gives full satisfaction; while the other is sent back to the factory after several weeks because the owner was unable to

keep it running. As in these cases the vehicles were operating on the same roads, the only ground on which the widely different results can be explained is that one of the owners was less mechanically inclined than another. Correspondents frequently ask for advice as to the type of car best suited for them, but to answer such questions knowledge of the abilities and habits of the correspondents, their training and experience, the topography of their locality, the nature of the roads, etc., are matters that should be familiar. Briefly put, our advice to intending purchasers is to study the various systems with a view to making an intelligent choice, and, that having been done, a few trial runs will convince the prospective automobilist as to the vehicle most likely to fulfil his requirements.

A Motor-Tricycle Record.

MR. E. J. HARRISON, of the Polytechnic Cycling Club, has an Eadie motor-tricycle upon which, during last year, he rode 7,400 miles. His repairs were three exhaust valves, which were burnt out, and the total mileage included six consecutive return Sunday journeys to Brighton with never a stop other than for lubrication. He was fortunate in not having a puncture on any of these Brighton trips. Mr. Harrison's experience is certainly exceptional, and, as "Teuf, Teuf" suggests, his fellow-motorists will be interested to hear what type of battery he uses and how he has managed to avoid the "oil on the contact-breaker" trouble.



MR. C. E. DURYEA'S LATEST ARGUMENT IN FAVOUR OF SINGLE LEVER CONTROL.

An American 1,000-mile Trial.

As already mentioned in these columns, the Automobile Club of America is organising a "contest of efficiency," to take place early in the spring. The contest will not be a race except that speed will count in selecting the winner. Many other points will also be considered. The distance to be travelled will be between six hundred and one thousand miles. A route has not yet been selected, but when this is done the Club will be ready to accept entries. The test will be similar to the 1,000-mile Trial held under the auspices of the Automobile Club of Great Britain. The conditions of the race will be designed to bring out the following points, on which the awards will be made; cost of vehicle, weight, horse power shown by performance, persons carried, price in proportion to seating capacity, price in proportion to power of motor, power in proportion to seats occupied, power in proportion to weight, mechanical efficiency as shown by hill-climbing trials, simplicity of transmission,

accessibility of mechanism, quality and sufficiency of speed gear, easiness of adjustment, steering gear, brakes and brake gear, ignition arrangements and apparatus, general design (mechanically), general design (appearance), average speed on trial out of control in proportion to average of legal limit, workmanship, especially of machinery, condition of vehicle at end of trial, regularity of running on trial, breakages and defects not previously mentioned, and general observance of trial regulations.

An Australian View of English Cities.

AUSTRALIAN readers are being supplied with up to-date information with regard to the automobile movement in the old country, and from a leading Sydney daily just to hand we learn with amazement and amusement that "there is not a single horse omnibus in the principal streets of Edinburgh, all the chief routes being served by 6 h.p. and 8 h.p. motor-cars carrying from ten to sixteen people, and travelling, where the traffic will allow it, at more than double the pace of an ordinary bus. In other cities similar evidences of the growing popularity of the motor-car can be seen, especially in the manufacturing centres. In towns like Manchester and Birmingham the steam engine is greatly in favour for traction, nearly all the heavy loads being drawn from the foundries by means of these engines. Leeds, among other cities, has its motor omnibus service, and the only reason why the motor cabs in London were taken off the rank was that the company owning them made the mistake of installing electric instead of oil motors." Edinburgh, Manchester, Birmingham and Leeds will probably be surprised at this Australian view of their progress.

Petrol.

A NEAT booklet, considerably above the average of such publications, has been issued by Messrs. Carless, Capel, and Leonard dealing with petrol, what it is, and where it can be obtained. It contains all the necessary information for the safe storage of petrol, and the rules of the railway companies for its conveyance. In addition it gives particulars of Messrs. Carless, Capel, and Leonard's special lubricating oils and greases for motor-cars, as well as a list of the agents from whom they can be obtained. Seeing that more than a hundred fresh names have been added to the list since the earlier edition the value of the new list to motorists is easily apparent, and there should be many inquiries for a copy of the booklet, which Messrs. Carless, Capel, and Leonard will be pleased to supply to all applicants.

Motor-Vehicles for Industrial Purposes.

THE subject of the motor-vehicle for business purposes is an unusually broad and far-reaching one. The first and all-important requisite of any motor-vehicle designed for business purposes is that it shall perform at least the same amount of work as a similar horse-drawn vehicle, and do it at less cost to its owner. The man of means may use for his personal pleasure a motor-vehicle to operate which he spends more money than his coachman ever dared expect to see expended on the finest horse in his stable, but municipal bodies, the railway companies, or the managers of large industrial undertakings, must be shown a very considerable saving before they will authorise the outlay necessary to change their system from horses to mechanically propelled vehicles, and, all things being equal, the type of vehicle which shows the highest ratio of economy and reliability in operation will be the foremost in the race for supremacy. The first cost will enter into the calculation only so far as the interest on the additional capital invested figures as an expense in operation.

Motor Delivery Quadricycles for Tradespeople.

WE are glad to notice that an enterprising outfitting concern at Clapham Junction, S.W., has lately put in service a motor-tricycle with a trailing car behind in the form of a parcels chest. We believe that there is room for a considerable business to be opened up with up-to-date tradespeople

in the way of providing them with a convenient and quick method of parcels delivery. On another page we illustrate a motor delivery quadricycle, a type of vehicle which is now becoming largely used in Paris, and which appears to be more convenient and less cumbersome than the tricycle and trailer arrangement. Who will be the first to place such a vehicle on the English market? As already mentioned, if the merits and usefulness of such machines were brought before the notice of tradespeople a good demand would, we feel sure, quickly spring up.

Non-Skidding Tire Competition.

It is not often that wet weather is wished for in the case of an open-air competition, yet this is the case with regard to the *concours d'antidérapant*, or non-skidding tire competition which is being organised by the Union Automobile de France for the latter part of March or the beginning of April. The competition is open to all nationalities, and the points to be considered are the absence of skidding, the damage to the tires owing to brake application, to the absence of noise, and to the weight of the tires. The drivers of the competing cars will be required to perform all the manœuvres prescribed by the jury and under the conditions laid down. Entries will be received up to March 1st.

Motor-Cars in New Zealand.

MR. N. OATES, who has lately returned to Christchurch, New Zealand, from a trip to Europe, took with him a couple of motor-vehicles of the latest type. Mr. Oates visited the Paris Exhibition, also the majority of the principal motor factories in England, for the purpose of closely investigating the question of motor-locomotion, and its suitability to New Zealand roads. It is probable that a public trial of both vehicles will be given in Christchurch at an early date.

A Chance for Novices.

DEVELOPING from the Exhibition idea comes news of a new move in the automobile world of the United States, which is worthy of consideration elsewhere. There is need of the opportunity for the would-be motorist to familiarise himself not only with the different varieties of cars, but also with their manipulation and management. This is provided in a combined show-room and track. Thus the automobilist may obtain some idea of the machine suited to his capacity before actual purchase—an advantage which is obvious.

The "Doe" Electric Carriage Lamp.

A BRILLIANT light for motor-car lamps is that given by the "Doe" electric carriage lamp, which is fitted with the "Doe" electric battery, of which the late Professor John Hopkinson expressed a high opinion, and which Mr. H. F. Parshall, M.I.E.E., has reported upon very favourably after a series of tests. The cell consists of a zinc carbon element employing a colourless electrolyte. One element consists of a zinc cylinder dropped into a tube of vulcanite and making its own electrical contact by gravity so as to be instantly replaceable without making other external electrical connections. The constancy of the voltage over a long period is one excellent feature of the battery, which, in the case of the carriage lamp, consists of four cells contained in a vulcanite case about 7 inches high and 4½ inches square. This is enclosed in a wood box which is so constructed as to be easily placed in the "boot" of a carriage. An ordinary flexible wire, which can be adapted to any carriage without detracting from its appearance, connects the battery with the lamp, which is of such a form as to secure the largest possible illuminating area not only at the front, but also at the side of the carriage. The lamp is being introduced by the Doe Portable Electric-Light and Power Syndicate, Limited.

The French Motor-Car Exhibition.

(From our Own Correspondent.)



LE GRAND PALAIS, PARIS—THE LOCALE OF THE EXHIBITION.

ALTHOUGH actually open to the public from ten o'clock in the morning of Friday, the 25th ult., it was not until half-past two in the afternoon, in the presence of a brilliant crowd thoroughly representative of fashionable Paris, that *Le Salon de l'Automobile, du Cycle et des Sports* was formally inaugurated by M. Petit, representing the Minister of Commerce, M. Millerand himself being prevented from performing the ceremony by unexpected and pressing business in the Chamber of Deputies. As I made my way to the Grand Palais at about two o'clock, I found the Champs Elysées in an extraordinary state of animation, while the Avenue Nicolas II. was almost impassable. Carriages of all descriptions, from the humble cab to the superb landau, were passing in a long defile before the entrance to the exhibition, kept fairly clear by the efforts of the *Garde Republicaine*. Upon the opposite side of the avenue, and before the portals of the Petit Palais, there were ranged some sixty automobiles, which, having deposited their passengers, were awaiting their return. Viewed from the steps of the Palais, it was a wonderfully interesting scene, the animation and brightness of which was heightened by the brilliant sunshine of a summer-like day. And if the exterior presented an animated spectacle, what must be said of the interior of the Palais? Crowded to excess—during the day there were some 46,000 visitors—one saw there celebrities in every phase of Parisian fashionable life. Politicians, artists, sporting men, actors and actresses, all had come to the big building in the Avenue Nicolas II. to see the automobile novelties for the coming season. Naturally the members of the Automobile Club were there in great force, and among those whom I saw inspecting the latest types of self-propelled vehicles I may mention the names of Baron de Zuylen de Nyvelt, Comte Recopé, Marquis d'Haucourt, Comte de Gosselin, Prince de Furstenberg, Comte d'Andigné, Baron Henri de Rothschild, Comte d'Harcourt, Viscomte de Lambertye, MM. René de Knyff, Krebs, Huillier, Girardot Sancier, Rives, Michael Lévy, Loisel, Camus, Binder, Clément, Charron, etc., etc. Under the great central dome the orchestra Dufayel found place, and throughout the afternoon a dense crowd surrounded the stand and revelled in a brilliantly executed musical programme. On Saturday there was again a capital attendance, and the day was rendered noteworthy by the visit of M. Waldeck-Rousseau, the President of the French Council, who, as a practical motor-man, was only too eager to see all that was

new. His stay was a long one, and his careful examination of a multitude of vehicles manifested the great interest which he takes in the new means of locomotion.

In spite of the terrible weather Sunday's holiday crowd patronised the show in great force, and during the day the total attendance mounted up to the respectable total of 15,000 persons. On Monday M. Loubet, the President of the Republic, and M. Pierre Baudin, the Minister of Public Works, paid an official visit to the show, where they were received by the Committee of Organisation. During the course of a long and minute examination of the various exhibits, among other topics, the question of racing was discussed, and it is infinite pleasure to learn that the head of the State is entirely favourable to its continuance. M. Baudin also shares the same opinion, and the Committee of the A.C.F. will now be able to make their requests for the necessary permission with every prospect of the authorisations being conceded. This is, indeed, good news, and, if for that reason alone, the Salon should receive the thanks of every automobilist, for it has afforded those in power the opportunity of seeing for themselves to what an extent the industry in France has already spread, thanks principally to the holding of races. And now, having followed the events of the first few days at the show, let us make a tour ourselves of the stands and see what the exhibitors have to show us.

Upon entering the exhibition from the Avenue Nicolas II., the first stand which attracts attention is that of MM. Gobron and Brillié, Boulogne-sur-Seine. There, conspicuously placed upon an elevated platform, is the new light car which the firm are presenting to the public as their novelty for the season. This vehicle is of the type for which a great demand has been steadily growing up, that is, the light carriage, something between the ordinary car and the voiturette. The specimen shown—a *tonneau* in natural wood, by Belvalette—bears not the slightest resemblance in appearance to the cars previously constructed by MM. Gobron and Brillié; indeed it follows the lines of a Mors or a Panhard. Built upon a tubular frame, the car carries an 8 h.p. vertical motor in front. This engine possesses two cylinders and four pistons, and runs with that absence of vibration for which the firm's motors are so justly celebrated. It is contained in a very shapely case, the fore part of which is open in order to permit of the attachment of the water-cooler. The steering is of

the inclined wheel type, upon the pillar of which is carried a lever regulating the admission of air, and at the same time the point of ignition. At the driver's right hand are placed three levers, one acting upon the band brakes, one giving the forward and reverse motions, and the third actuating the speeds, of which there are three. Intermediate speeds are obtained by one of two pedals, the other acting upon a band brake upon the differential. The weight of the car complete is about 1,000 lbs., and it runs up to thirty-five miles per hour on level ground. No chains are employed, the drive being direct. A reservoir is placed in front, and it can be filled with petrol or alcohol, or both, just as circumstances arise, for the Gobron-Brillié motor runs equally well under all three circumstances, and this, too, without making the slightest change in the carburettor. A striking proof of this quality was given in the consumption of fuel competition promoted by the *Auto Vêlo* last autumn. Upon that occasion MM. Gobron and Brillié entered two cars, and upon the day of the competition left it to the organisers as to which vehicle should run on petrol and which on alcohol. Both cars acquitted themselves most creditably. While visiting the stand of these constructors one is rather apt to overlook the larger vehicles in the pleasure of finding such a real novelty as the small car, but it is a mistake, for they are well worthy of attention. As now white four-seated phaeton, in which the ordinary driving chains have been suppressed, is particularly attractive in appearance; and then, too, there is a handsome dark blue car of somewhat similar type but fitted with a leather hood over the front seat. Both these cars are provided with 10 h.p. engines. Then one finds a specimen of the 12 h.p. six-seated carriage of which the firm have also made so many. This car accommodates two of its occupants behind in the *tonneau*, two on the driver's seat, and two in front, a disposition but seldom if ever seen except in the case of the Gobron and Brillié vehicle. Another 12 h.p. car is a victoria, tastefully painted in red and black, with black leather upholstery. The list of exhibits is completed by a 14 h.p. brougham, fitted with a removable top and closing hood. It is a remarkably handsome car, and, in spite of the heaviness of the body, the motor should drive it along at a great speed. Before leaving MM. Gobron and Brillié's exhibits I may add that the price of the new small car, complete with *tonneau* body, is but £272, a price at which the constructors will assuredly be inundated with orders.

In close proximity to MM. Gobron and Brillié one finds the stand of Mm. Turgan, Foy and Co., of Levallois-Perret (Seine), and a goodly show it is, for no fewer than eight of the firm's small carriages are there grouped together. All are fitted with the Filtz motor, an engine too well known to require detailed description. The two-seated cars generally carry the 4 h.p. air-cooled model, while the larger vehicles are fitted with water-cooled motors, developing 6 h.p. In both cases there are a couple of cylinders placed horizontally and end to end. The ignition is effected by electricity. The engine is placed in the fore-part of a frame built up of steel tubes. In the case of the cheapest type of vehicle made by the firm the four speeds are obtained by the use of belts, but in the more expensive models gearing is employed. In the former type, too, the steering is effected by means of a small wheel placed at the driver's right hand, whereas in the firm's better class vehicles an inclined wheel is provided. As at present arranged the gear-driven cars are fitted with two pedals: that upon the right actuates a couple of brakes upon drums attached to the rear wheels. The left pedal half down disconnects the motor, while if the movement be continued a couple of brakes upon the differential are applied. The forward and reverse gear lever, as well as the handle changing the time of ignition, and the lever actuating the speeds, are all attached to the steering pillar, conveniently to hand for the driver; indeed, the management of the car is remarkably easy, thanks to the capital arrangement of the controlling levers. For those automobilists who believe only in vertical engines, Messrs. Turgan and Foy are now making a 3 h.p. water-cooled motor upon this system, and a specimen—only air-cooled—is to be seen upon a tricycle at their stand. The firm's novelty is, however, a new rotary motor, which they are now building in

two sizes, viz., 3 and 5 h.p., and of which much is expected, the tests having proved very satisfactory.

The sight of the stand of Messrs. Marot, Gardon and Co., of Paris, calls vividly to mind the fire which, on the 11th ultimo, practically gutted their factory and destroyed many of the cars destined for the exhibition. Fortunately some were saved, and others being at the firm's Paris show rooms, a capital little exhibition is made. A couple of dainty 6 h.p. voiturettes with the water-cooler coiled round the motor casing in the manner identified with the firm, and a 6 h.p. motor and frame give a good idea of the excellence of the work turned out. Then there is Cormier's 5 h.p. tricycle upon which he won last year's Bordeaux-Périgueux race, averaging over 65 kilomètres per hour, and a new racing three-wheeler fitted with a 6 h.p. engine and a petrol tank of extraordinary proportions. The motors of both these machines are of De Dion and Bouton's construction. The list is completed by a two-seated voiturette with a motor case in front, but actually carrying the engine behind. In this instance it is a 6 h.p. Soncin, and the little car has been built for speed purposes. I fancy, however, that the position of the foot-pedals would be found extremely inconvenient, for they are raised fully eight inches from the bottom boards.

The ignition is electric, the Hydra dry battery being used. Among the small voiturettes none hold a better position than those constructed by the Etablissements Pieper; so little wonder, then, that around this company's stand is continually congregated a goodly crowd of motor men. Three two-seated cars and one three-seated—the third occupant being carried on a "spider" behind—make up the entire collection, but the daintiness and quality of the work make up for any lack of quantity. The models shown are of the type so well known, and it speaks well for their popularity that no new feature has been found necessary.

(To be continued.)

SOME AUTOMOBILE CLUBS' BADGES.



The French Automobile Club.



The Moto-Club de France.



The Automobile Club de Charleroi, Belgium.



The Automobile Club Normand, Rouen.



The Italian Automobile Club (Venice Section).



The Automobile Club of Flanders, Ghent.



The Württemberg Automobile Club.



The Frankfurt Automobile Club.



The Automobile Club of Alsace-Lorraine.

THE COLLIOT VOITURETTE.

THE feature of the voiturette illustrated in Fig. 1, and lately introduced by Messrs. Deliry and Sons, of Soissons (Aisne), France, lies in the motor. This is of the two-cylinder air-cooled type and is of 4 h.p. The two cylinders are arranged in the form of a V, the two pistons being connected up to a single crank on the engine shaft. The diameter of the cylinders is 80mm., while the stroke is 100mm., the speed ranging from 1,000 to 1,400 revolutions per minute. The ignition is, of course, electrical. As will be seen from the plan, the motor is located in the fore part of the frame and transmits its

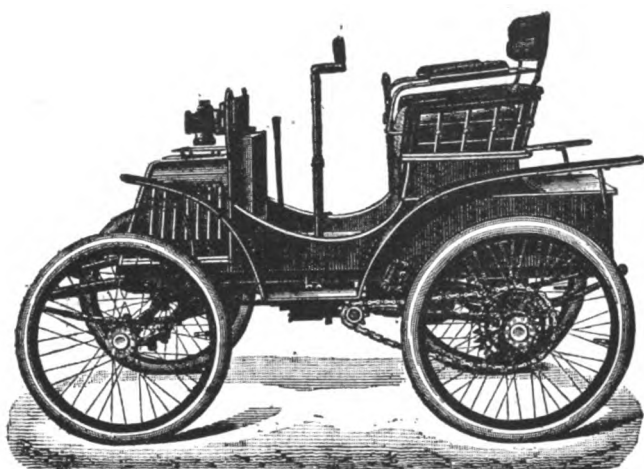


FIG. 1.—GENERAL VIEW OF CAR.

power through a friction clutch *C* to the variable speed shaft. Four speeds forward—ranging from 6 to 30 kilometres per hour—and a reverse motion are available, the shaft carrying four pinions (Fig. 2), any one of which can be made to mesh with corresponding spur wheels on a short parallel shaft. The latter is geared by bevel wheels to the differential shaft, from which the

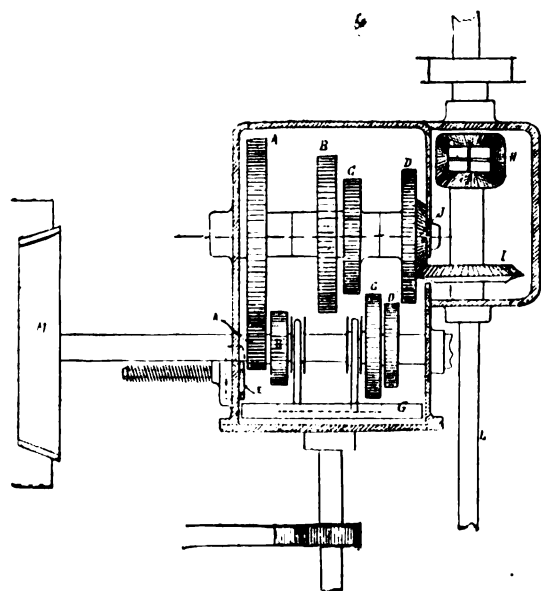


FIG. 2. SECTION OF VARIABLE SPEED GEAR.

power is transmitted to the rear wheels through the usual chains and sprocket wheels. The illustration shows a car fitted with bar steering, but in the more recent vehicles the steering is controlled by a vertical hand-wheel, on the standard of which the various control handles are mounted. Ample brake power is provided, while special attention has been given to the lubrication of the working parts. The frame is of tubular construction, and is spring supported on cycle-type wheels fitted

with pneumatic tires. Complete, the car weighs about 6 cwt. Messrs. Deliry are also making a similar car, but fitted with a water-cooled engine.

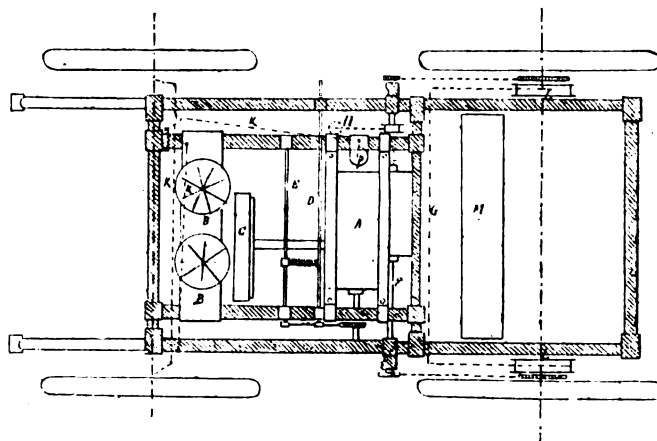
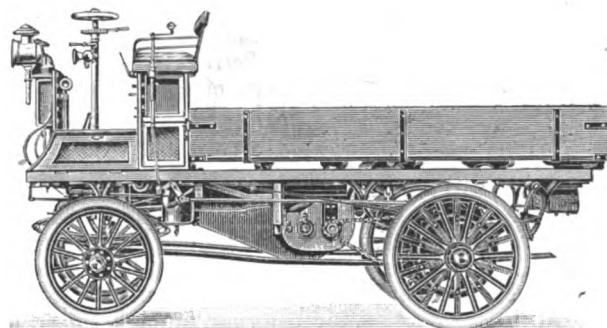


FIG. 3.—PLAN OF CAR.

THE BENZ MOTOR-LORRY.

AS recently briefly announced in these columns, Messrs. Benz and Company, of Mannheim, have lately taken up the construction of motor-lorries, and this week we are able to give an illustration of one of these vehicles. The lorry illustrated is intended for a load of 1 ton 5 cwt., and is fitted with a 6 h.p. petroleum-spirit motor. As will be seen, the engine is located in the fore part of the frame; it transmits its power by a single belt to a countershaft, which carries a train of spur wheels, any one of which can be made to mesh with corresponding pinions on the differential shaft, from which the usual chains and sprockets convey the power to the rear axle. Four speeds forward and reverse motion are available, the change-speed gear working in a dust-proof oil-containing case. The



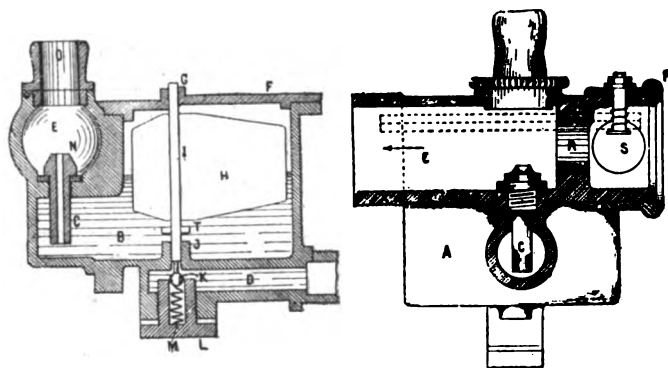
engine is of the horizontal type, the water circulation being maintained by a pump. Artillery type wheels are fitted, and these are shod with solid rubber tires. The lorry measures 11ft. 10in. in length by 5ft. 3in. in breadth, while its weight, empty, is about 1 ton 2 cwt. With its full load the vehicle can, it is stated, attain a speed of ten miles an hour on the level, and ascend gradients of one in ten. Messrs. Benz are also turning out lorries intended for carrying loads of 2½ tons to 5 tons, the former being fitted with a 10-h.p. motor, and the latter with one of 14 h.p.

At the nineteenth annual meeting of the Institute of British Carriage Manufacturers, held at the Westminster Town Hall, Mr. Alexander Naughty, J.P., of Dingwall, N.B., has been elected president for the ensuing year.

LEADING men in Southsea and Portsmouth have given five valuable prizes for various contests in connection with the suggested run of the Automobile Club to the former town in the summer.

A NEW PANHARD-LEVASSOR CARBURETTOR.

MESSRS. PANHARD AND LEVASSOR, of Paris, have recently taken out patents for an improved form of carburettor, sectional views of which are shown in Figs. 1 and 2. The device consists of a body A, cast in a single piece, and comprising a reservoir cavity B, a lateral chamber C, a conduit D, by which the petrol arrives and a "depression" (or vacuum) chamber E. A cover F closes the reservoir B, and is provided with a guide G, for the stem I, of the float H. A ball K, forming a valve, rests on the edge of the orifice J. A plug L serves as a guide for the ball, the plug being drilled as shown. A coil spring M, located in the drill hole of the plug, presses against the ball from below, tending to force it against the edge of the orifice J. The reservoir C communicates with the "depression" chamber E by means of an adjusting piece N, which is screwed into the wall separating these two chambers, and extends to within several millimetres of the bottom of reservoir B. A chimney O is screwed on the depression chamber, above, and in the axis of tube N. The "depression" chamber has a reduced section R at the end, where the air enters, corresponding with the orifice of the adjusting tube N. Besides the air, admission may be regulated by the cap P, which, according to its position, obstructs more or less the passage of air through the air-admission orifices S.



FIGS. 1 & 2.

The operation of the carburettor is as follows:—The reservoir B being empty, the float H, by the intermediary of the collar T, reposes on the wall of the orifice J, and the ball is forced against the spring by rod I. The petrol now flows freely into the reservoir B until, after reaching a certain level, the buoyancy of the float overcomes its weight, and the ball-valve closes. When a suction stroke of the motor produces a rarefaction of the air in chamber E, the hydro-carbon liquid is drawn up through the orifice in N, and the motion of the jet being perpendicular to the motion, air entering through the reduced portion R is pulverised at once by the column of air. If there is a return of gases from the cylinder to chamber E, the consequent over-atmospheric pressure will force the liquid back through N, and the gases passing through the orifice will fill the upper part of reservoir B, and cannot return to the cylinder at the next suction stroke. The next charge will, therefore, be normal as regards carburation, contrary to the effect produced in carburettors now used, in which the adjusting piece N communicates with reservoir B by a channel of more or less suction. The tube O is intended to vary the carburation by means of a supplementary introduction of air, and to this end is connected by suitable piping to a valve or cock, which can be regulated by hand.

MR. C. G. WRIDGWAY is on a flying visit to this country.

MR. CLARENCE MACKAY is having built a motor-car, which is to "beat everything in America." The *New York Herald* states that he has cabled to a Parisian firm an order for a racing machine of about 32 h.p. The vehicle, which is expected to be capable of attaining speeds of fifty and sixty miles an hour, will be ready in May next and will cost over £3,000.

CORRESPONDENCE.

THE DE DION VOITURETTE.

TO THE EDITOR OF *The Motor-Car Journal*:

SIR,—Living away from ready help—and having trouble with De Dion pumps, I should be glad if any of your readers could inform me if these engines can be run on the circulation principle, without displacing tank from present position—and is the circulation principle effective. I have also had some trouble owing to the speed-clutch not gripping; is there any real remedy for this.—Yours faithfully,
AUGUSTUS KENT.

BURSTING OF IGNITION TUBES.

TO THE EDITOR OF *The Motor-Car Journal*:

SIR,—I have read with much interest the correspondence on the above subject, and feel I should like to say something on the matter. Of course, I am not a motor expert, but I have a car which was built by the Daimler Company two years ago, during which period I have made this question a study.

I have driven my car no less than 37,000 miles, and the two platinum tubes now in are the same as were fitted when the car was built, and I see no reason why they should not last as long again as they have. I am aware that most motorists expect to have to renew their ignition tubes often, but I believe I have overcome, to a great extent, that trouble and expense. I believe that ignition tubes should be taken out often, thoroughly cleaned, and then carefully adjusted, which is very important. I have known a tube to burst at the first explosion, and two others burst on the same car in one day. I do not, therefore, think it fair to attach all blame to the platinum, when more often the fault lies in another direction.

Again, a regular heat should be maintained, but owing to the uncertainty of the lamps at present in use this matter is one of considerable difficulty. How the desired result can be obtained I cannot, for various reasons, go fully into at the moment, but your readers may take it that further particulars will shortly appear in your columns.—Yours truly,
W. R. YOUNGS.

MOTOR-CAR SERVICES.

TO THE EDITOR OF *The Motor-Car Journal*:

SIR,—The correspondence which has lately taken place in your columns with regard to motor-cars for public services leads me to hope that we shall see a great improvement in the services at seaside resorts during the coming summer. Many of our leading towns on the coast have their motor-car services, but some have got into disrepute because of the careless way in which the cars are sent out—muddy and dirty from the previous day's running. This is a serious oversight, and one that will do more to repel the public against automobilism than anything else.—Yours truly,
A. K.

TUBULAR steel wheels for automobiles are being introduced by the Midgley Manufacturing Company of Columbus, Ohio, U.S.A. It is claimed that this wheel will always run true and will stand the most severe use. The spokes and hubs are coated inside with brass and the rims are made in two pieces in cross section, forming a continuous tube. The spokes are made from carbon cycle tubing and the hubs from the same grade of steel drawn and formed in dies.

A NEW steam engine for motor-cars, known as the "Acme," is being introduced by Mr. J. Coop, 7, Mornington Road, Southport. It is a two-cylindrical upright, double-acting engine, the cylinders being 2½ in. by 3½ in. with ground joints under heads. The valve gear consists of a plain slide valve and link-reversing motion, and the case, being on the outside, admits of easy inspection and adjustment. The crank shaft is hollow, forming an oil reservoir for automatic lubrication for the four main bearings. These are placed two on each side of the driving sprocket and connect the rods and eccentric straps. It is claimed that there is a correct distribution of weight, while the advantages include automatic lubrication, the automatic locking of the stuffing-box glands, centre in place of side pull on reversing links, and the interchangeability of parts.

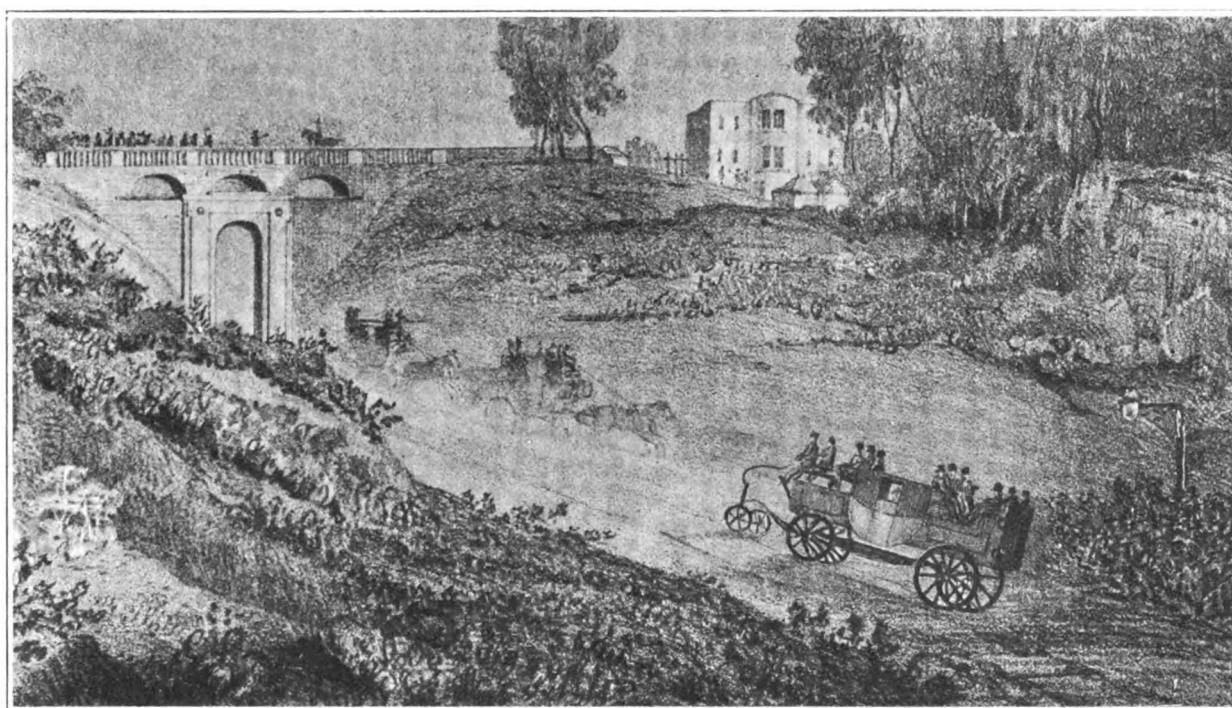
THE GENESIS OF THE MOTOR-CAR.

SO suddenly has the automobile sprung into prominence that many of us are apt to look upon it as one of the remarkable and startling products of an inventive age. But the motor-car is by no means new. Horseless carriages are old, very old, and can be traced back to early times. At the beginning of the last century it was by no means uncommon to see an automobile, driven by steam, winding its way through the streets of London.

The history of the automobile is interesting, states Dr. Neuberger in the *Automobile Magazine*, because it teaches us something of a technical problem which long baffled many a keen mind, and which at last seems to have been solved just as a new century is dawning. If we examine the monumental records of the human race we find carved upon the stone memorials of the Egyptians a wagon or chariot driven by the repellant force of a jet of steam. Whether the vehicle was ever actually built or whether it was the idea of some brilliant inventor born out of his time archaeologists have not been able to determine. Be that as it may, at all events these graven records of a bygone

fragments of his writings which have come down to us he describes methods of building motor-carriages. It is not very certain when Hero lived. But it is generally agreed that he flourished between the first and second centuries A.D.; so that the theory that he was the builder of the chariots of Pertinax may have some foundation. With Hero and Pertinax the automobile seems again to have been lost. But in the writings of the scientist-monk Roger Bacon (1214-1294) mention is again made of wagons "which were moved only with the help of science and art, without the use of beasts." The passage is very obscure; nothing is said of mechanical construction. Nevertheless it can hardly be doubted that Bacon had a dim idea of an automobile.

The first motor-carriage which is actually known to have been used was that constructed in 1649 by John Hautzsch, a Nuremberg watchmaker. The vehicle was driven by a clock-train; and although the spring had to be wound up at intervals of a few minutes, it managed to crawl along at a speed of one mile per hour. Although its swiftness of motion was not very startling, the carriage met with the royal approval of Prince Karl Gustav of Sweden, who bought it for £100. In 1663 the



A STEAM CAR ON THE ROAD TO BARNET IN 1828—APPROACHING HIGHGATE ARCHWAY.

[Reproduced from an old engraving.]

[Kindly lent by Mr. S. F. Edge.]

day prove that the idea of a wagon propelled by some mechanical means was known in the time of the Pharaohs, and that the realisation of this idea was attempted by a method which, technically considered, was far from being the worst that could have been chosen. With the fall of the Egyptian Empire the automobile seems to have disappeared for a time from the memory of man. It is not until we come to the Roman Emperors that we find traces of the automobile in the documents which have been handed down. There must have been some mechanically-driven vehicle in the time of the Emperor Pertinax (192-193 A.D.), for we find in the well-known life of that Emperor a passage which reads: "Emperor Pertinax sold everything which belonged to his predecessor, Commodus, and among other things newly-invented wagons in which a very ingenious but complicated mechanism automatically turned the wheels and simultaneously operated fans which served to cool the driver. The wagons also indicate the distance travelled and the time elapsed." These wagons may possibly have been devised by Hero of Alexandria, a well-known physicist, who constructed a great number of mechanical contrivances and scientific toys. In the

celebrated Isaac Newton also built an automobile, which, like its Egyptian predecessor, was driven by the recoil of a jet of steam.

By the close of the eighteenth century a number of automobiles were in use, all of them clumsy, heavy, and slow. In Augsburg an unknown craftsman built a wagon driven by steam and human power, which carried a cannon and three artillerymen. A similar vehicle was constructed in 1765 by Nicolas Cugnot for the Marshal of Saxony, which seemed to have a will of its own; for on its first trial (which was also its last) it ran against a stone wall, despite all the efforts of its driver to guide its course, and completely destroyed the masonry. In 1771 Cugnot built a better machine, which was to be used in the transportation of artillery. The inventor of the steam-engine, James Watt, devoted his attention to the construction of an automobile, and although he did not carry out his own ideas, nevertheless he lent his assistance to William Murdoch, to whom our modern system of gas-lighting is due. Murdoch, in 1781, succeeded, with Watt's help, in producing a tricycle driven by steam. Evidently the inventors to whom the modern motor-carriage owes its origin were men of prominence in the mechanical world.

Passing over the contrivances of Evans (1786), Symington

(1786), Trevithick (1802), and others, we come to the vehicle invented by a man to whom, more than any other, the automobile is due, Sir Goldsworthy Gurney. In 1822 he built a steam-carriage with which he even climbed hills. His ideas were further developed by Walter Hancock (1799-1852), whose heavy omnibuses, each with no less than six smoke-stacks, ran merrily along the highways of England. Only a single accident can be traced to the Gurney omnibus—an accident which suddenly checked the development of the automobile in England. The accident in question occurred in June, 1834, on the road between Glasgow and Paisley. As a result, however, the railway companies, who had long been enviously watching the rapid strides of automobilism, forced a bill through Parliament which stipulated that a man carrying a red flag was to walk before every "road locomotive" and that the speed was not to exceed four miles per hour. Naturally the enforcement of such a law completely checked the development of a motor-car.

Other countries took up the cause of automobilism. France seems to have been most interested in the efforts of inventors to provide practicable automobiles. But the vehicles were all driven by steam, and the necessity of providing sufficient boiler-space and fuel capacity had the effect of rendering the construction exceedingly cumbersome. It was not until the early seventies that the automobile began to assume the form to which we are gradually becoming accustomed. About that time the well-known manufacturers, De Dion et Bouton, were beginning to build vehicles driven by steam, which were lighter, more elegant and graceful than the awkward contrivances of Gurney's day. With the invention of a benzine carriage the future of the automobile seemed assured. But its inventor, Pierre Ravel, who received a patent for his contrivance, was compelled to wait many a year before his dream was realised. As he completed his model, war broke out between France and Prussia. His model was kept in an out-house, which was on the Parisian line of defences. One day officers appeared who gave orders to have the out-house pulled down, in order to make room for fortifications, under which the first benzine automobile to this day lies buried.

A TRADESMEN'S MOTOR DELIVERY QUADRICYCLE.

WE illustrate herewith a novelty in the shape of a motor delivery quadricycle, which is meeting with adoption by many enterprising tradesmen and newspaper publishers in Paris. The machine, which is made by Messrs. Wehrle and Godard-Desmaret, of Neuilly-sur-Seine, needs but



little description, for, as will be seen, it is simply a motor quadricycle, with a parcels chest in front, in place of the usual passenger seat. The motive power is supplied by a De Dion motor of 2½ h.p.; the parcels chest, which is very light, being made of aluminium, will carry a load of about 400lb.

MOTOR-CARS ON THE CONTINENT.

(From Our Own Correspondent.)

At Cognac.

THE example set by Lyons in compelling every automobile to carry a number when in the town would appear to be contagious, for the Mayor of Cognac has embodied a similar regulation in the bye-law which he has recently issued for the purpose of better regulating the vehicular traffic. Indeed, M. Duras goes one better than his colleague at Lyons, for he orders numbered lanterns to be carried by every automobile and every cycle; and the numbers must be legible at fifty yards. The limit of speed within the city boundaries has been fixed at four miles an hour, and as nearly every horse-drawn vehicle regularly exceeds this speed, people are asking why they also are not to be numbered. Needless to say, the automobilists and cyclists of Cognac are up in arms, and, aided by the local press, are determined to do all in their power to prevent M. Duras' bye-law being carried into force. May their efforts be successful will be the wish of every motor man.

A Projected Alcohol Competition, and the Union Automobile.

WITH the object of further opening up the inquiry into the use of alcohol for light oil motors, the Union Automobile of France proposes to organise for Monday, the 25th inst., a contest open only to those vehicles which were classified in the recent Alcohol Competition. A short course has been selected at Asnières, and the vehicles will be required to cover this once using petrol as fuel, and twice employing alcohol as the propulsive agent. It is required, in particular, to obtain reliable data as to whether or not the use of alcohol necessitates any change in a carburettor constructed for the employment of petrol, and to ascertain whether any difficulty exists in the starting of a light oil motor using alcohol as fuel. A scheme of judging similar to that used for the classification of the competitors in the alcohol contest has been drawn up; but people are asking whether the Union have not gone to a lot of unnecessary trouble in formulating these details, for, in view of the A.C.F.'s communication, it is doubtful whether any competitor will be courageous enough to put in an appearance. And it is not only the competitor himself who will suffer, but also the firm of contractors who make use of any result obtained for advertising purposes. It is obvious that a firm might depute one of their employees to compete regularly in any contests organised by the Union and then advertise on their own behalf the results obtained. To avoid this possibility the A.C.F. have added a clause to the original decision whereby any firm advertising the results obtained by one of the vehicles constructed by them in an Union event will be disqualified equally with the driver of the vehicle from participating in any races or competitions promoted by the Automobile Club and the societies in union with it. I do not think that the events—if any—promoted by the new society are likely to be very successful under these circumstances. *Apropos* of the name *Union Automobile* recently adopted in place of *Moto Club de France*, I should not be surprised if this also is relinquished at an early date; for, if rumours be true, the *Automobile Union*, whose shop is situated in the Champs Elysées, are of opinion that the name is likely to cause confusion with their own, and may take steps to prevent its use. As the new society appears to have no luck in its selection of names, would it not be as well to call it simply MM. Giffard, Serpollet, et Cie.?

A Practical Joke.

A CURIOUS automobile story comes from Agen, a story which illustrates very forcibly the folly of attempting practical jokes when in charge of a self-propelled vehicle. M. Lafon owns a motor-quadricycle, and while out driving one day last week he saw a friend quietly walking, heedful of motors and

their dangers. At the sight, M. Lafon was struck with the brilliant idea of driving his machine against his friend, and with out a moment's hesitation put his project into execution. But the intended victim, hearing the "teuf-teuf" of the motor, saved himself just in time, and, moreover, had the pleasure of seeing his humorous assailant, who had quite lost control of the machine, go sailing serenely through the window of a chemist's shop, which was conveniently placed for his reception. Then up came the "man in blue," or his Agen equivalent, and he promptly showed his appreciation of the affair by summoning the crest-fallen motorist on the score of furious driving. Sundry cuts and bruises, a damaged cycle, and a fine in prospect—such are the results of M. Lafon's outburst of humour. Moral, don't attempt practical jokes when motoring.

A German Electrical Delivery Van.

THE accompanying illustration shows an electrical delivery van constructed by Herr Heinrich Scheele, of Cologne. It is intended to carry a load of about 1½ ton, and is propelled by means of a 6-h.p. electro-motor. The motor shaft is geared to the rear axle by special chain gearing. The battery consists of forty-four accumulators, having a capacity sufficient to run the



vehicle 50 kilomètres on one charge. The cells, which complete weigh about 11 cwt., are carried in a box which is supported on springs to overcome the vibration due to the vehicle being fitted with iron-tired wheels. The controller is arranged to give three forward speeds, ranging up to 18 kilomètres per hour, and two reverse motions.

In reply to J. W., the address of Messrs. Dalifol and Thomas is 183 bis, Faubourg Poissonnière, Paris.

OWING to the death of the Queen the run of the English Motor Club to Farnham, which was fixed for February 2nd, has been postponed until February 9th. The arrangements as to starting time and route remain the same.

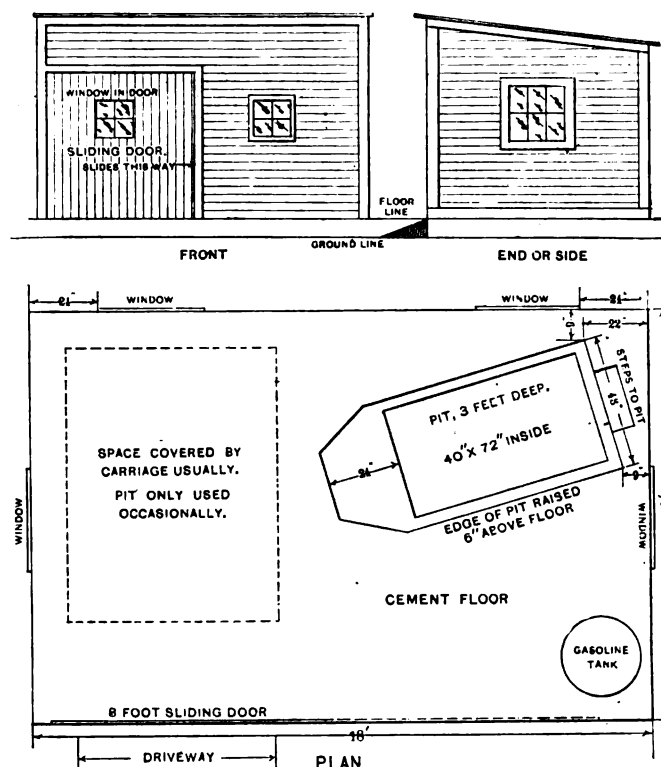
AN exhibition of motor-bicycles will be a feature of the meeting of the Society of Arts on Wednesday next, when Mr. Joseph Pennell will read his paper on "Some experiences with motor-bicycles."

WITH a registered office at 7, Hope Street, Wrexham, Messrs. J. Coleman Gittins, Limited, has been registered with a capital of £5,000, to carry on the business of cycle and motor manufacturers, etc.

THE Fabrique Nationale Automobile, Limited, has been registered with a capital of £20,000. Object, to adopt an agreement with Mr. H. T. Cheswright and another, and to carry on the business of motor-car, cycle, and motor-cycle manufacturers, carriage and vehicle manufacturers, etc.

A PRIVATE MOTOR-"GARAGE."

THE question of housing a motor-car is one that has to be considered as well as the buying of it. Mr. Frank C Hudson, of New York, sends an interesting communication on the subject to an American contemporary. "My space is," states Mr. Hudson, "limited, and a house 12ft. by 18ft. is about the limit at my disposal, so I have drawn out the plans shown, and would like suggestions from those who have had more experience as to improving them. The plan view shows the general idea, and it will be noted that the door is on the side, and slides to the right. The windows in the door and in the house are arranged so as to come together when the door is open, in order to admit light in either position. The dotted lines show where the car is to stand generally, and I have allowed 6ft. by 9ft., room enough for a large car, and also space to get around it to clean, oil, and repair. The floor I propose making of cement, and raised about a foot. The pit is on an angle in the corner with steps down from the back end. It is 40in. by 72in. inside, has raised sides to prevent running the wheels



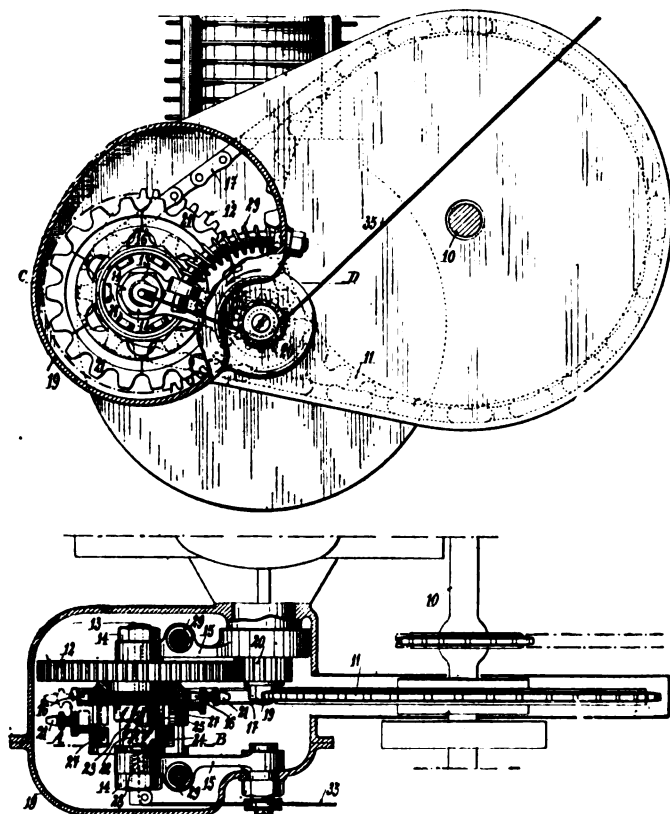
in the pit, and pointed front end to aid in getting car in position. The idea of the angle is that the carriage can be backed on from the door, and can be run straight out through the door without doing the obstacle race act. The petrol tank is in the corner, as shown. As I have no use for an upper storey I have drawn a slant roof, although the house might be more artistic with a gable roof. If I had to economise space still more, I should put the pit under the carriage, in its main position, and have a sliding plank cover, which would be closed, normally, but could be rolled open at will. Having a separate pit, however, gives one the opportunity of housing a friend's machine when he comes to spend the night, instead of having to hunt up a livery stable."

MME. NEO, BOYER, the wife of the well-known Parisian motor manufacturer, has just passed the examination as a *chauffeuse*, and obtained a licence to drive through the thoroughfares of Paris.

At a meeting of the general committee of the National Cyclists' Union, held on Saturday last, a letter was read from the Secretary of the Automobile Club asking the union to sign a petition opposing the proposal of the county councils to frame by-laws restricting the speed of motors to ten miles an hour, and making the numbering of motors compulsory. It was decided to support the petition.

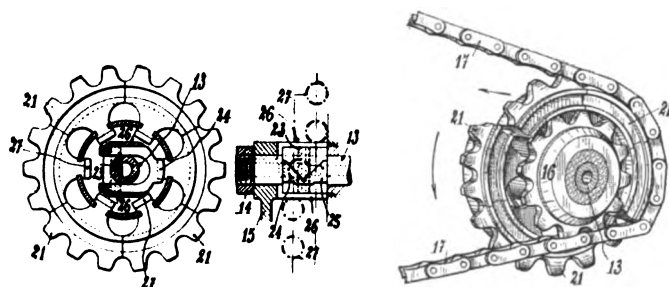
THE LEVASSEUR-WERTHEIMER VARIABLE-SPEED GEAR.

FIGS. 1 to 5 illustrate a new two-speed gear for motor-tricycles, which has lately been devised by Messrs. Levasseur and Wertheimer, of Neuilly-sur-Seine, France. The makers claim for their gear that it introduces no additional friction in the transmission, the change of speed being obtained by introducing in, or withdrawing from, the



FIGS. 1 AND 2.—ELEVATION AND SECTIONAL PLAN.

periphery of the pinion on the motor shaft several toothed segments, by which variations in the diameter of the driving pinion are obtained. It will be seen that the large pinion on the tricycle axle 10 is replaced by a large sprocket wheel, driven by a chain 17 from the sprocket 16 or the segments 21, according to which gear is in action. The sprocket 16 and



FIGS. 3, 4, AND 5.—DETAILS OF GEAR.

the segments 21 are rigidly connected with a pinion 12, and carried on a short shaft 13, supported in arms 15, in such a way that it can oscillate round the motor shaft 20. The spur-wheel 12, therefore, works as a satellite around the pinion 20, and transmits the power of the latter to the sprocket 16, or to the segments 21. The super-position of the latter to the pinion 16 is effected by two cleats 24 and 25, arranged on the shaft B, the ends of the cleats being helicoidally cut, in opposite directions. The cleats can be perpendicularly dis-

placed on the shaft 13; they are guided by the small fixed plates 26, and work in such a way that as one is drawn back the other is pulled forward until its helicoidal end is located in the line of rotation of the pieces 27 connected with the segments 21. The first segment which comes in contact, by means of its piece 27, with the helicoidal end of the cleat is displaced on the shaft 13, either in one direction or the other, according to which of the cleats are in contact with it. The cleats are moved by means of a rack and pinion gear 22 and 23, manœuvred by a cable 35, extending to the top bar of the frame of the machine. Owing to the shaft 13 being able to move round the motor-shaft 20, the length of the driving chain remains constant, notwithstanding the variable diameter of the driving sprocket. The tension of the chain is maintained constant during the operation of changing the gear by means of the springs 29. The change of speed is claimed to be made progressively, and without any shock or jar.

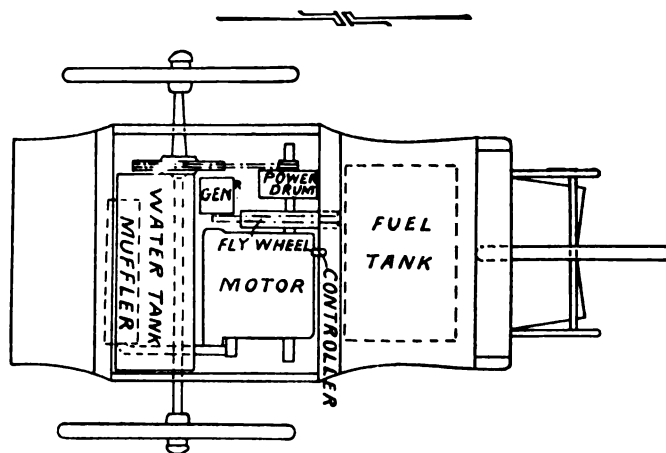


FIG. 1. THE DURYEA TWO-SEATED PHAETON. (See opposite page).

THE De Dietrich Company of Leunéville, France, have just established a large automobile garage at Mustapha, Algeria.

A CORRESPONDENT at Saigon, Cochin China, reports that the automobile movement is beginning to attract attention in that part of the world, there being already one motor-tricycle, two quads, and four voituresses in the city.

THE voituress is the vehicle now in fashion. Its moderate price and the facility with which it may be stowed offer to those who aspire to become chauffeurs the possibility of owning a carriage. So, establishments are everywhere to be seen actively at work in this line of manufacture. The success of the voituress is easy to understand. It supplies a want of the public; that is to say, it renders it possible to own a light and economical vehicle of reasonable price and capable of carrying two, three, or four persons at a medium speed.

THE Autocar Company of Ardmore, Penn., have lately completed a new type of two-seated car. The frame is built up entirely of steel tubing, while the differential gear on the rear axle is encased and is dust-proof. The wheels are of cycle construction, running on ball-bearings, and are provided with 2½-inch pneumatic tires. The motor is of the tandem double cylinder type, of 5-h.p. By means of a small lever, attached to the controlling handle, the speed of the motor may be varied from 240 to 1,000 revolutions. The cylinders, heads and valve chambers are all water-jacketed, and cooling water, to the amount of 3 gallons, is carried in a copper tank, located in the rear of the vehicle. The transmission from engine shaft to driving axle is by means of a chain and sprockets, and a gear wheel on an intermediate shaft, directly over the driving axle. A lever located to one side of the seat controls the entire transmission mechanism. A slight forward motion of the lever causes the vehicle to move slowly in a forward direction; by increasing the forward motion of the lever the speed of the vehicle is increased, while a backward motion of the lever will reverse the motion of the car. The weight of the vehicle, complete with supplies, is stated to be 725 lbs.

THE DURYEA MOTOR-PHAETON.

THERE are many motorists who will remember the excellent performance of the Duryea car in the memorable run to Brighton in 1896. Since that time many have wondered what had become of Mr. C. E. Duryea and his vehicle. We learn, however, that he has been busy at work perfecting his car, which is now being manufactured on a commercial basis by the Duryea Power Company, of Reading, Pa., U.S.A., and of which an illustration is given in Fig. 2, the official name given to it being a two-passenger driving phaeton. Power is supplied by a three-cylinder horizontal petrol engine of $6\frac{1}{2}$ h.p. The cylinders are $4\frac{1}{2}$ in. diameter by $4\frac{1}{2}$ in. stroke, and are fed by a single pipe from a simple vaporiser, and exhaust into a single muffler. Magneto-electrical ignition is adopted, a single generator furnishing the current. The cranks are set at 120 degrees, which gives regular impulses and with little noise or vibration. If one cylinder fails for any reason, the other two are amply able to drive the carriage home. The motor measures about 18 in. square by 9 in. deep, and weighs with fly-wheel only 200 pounds. The cylinders are water-cooled, the circulation being on the thermo-siphon system, while a throttle valve acting on the inlet pipe is provided, by means of which the speed of the engine can be varied between fifty and one thousand revolutions per minute. A detachable handle is provided for starting the engine, a feature of which is the employment of a hollow crank shaft.

As will be seen from the plan (Fig. 1) (page 814) the engine is located about the centre of the car. On an extension of the engine shaft is mounted the variable-speed gear, the connection between this and the rear axle being by means of a single chain. The variable gear is adapted to give two speeds forward and a reverse, and a position in which the engine is disconnected from the transmission. It consists of a compact epicyclic train in which the spur wheel is fixed upon the engine shaft, and in which either the intermediate part carrying the planet wheels, or the external circular rack can be held stationary, and in which, as a third alternative, these two portions can be locked together. A feature of the gear is that at ordinary speeds none of the auxiliary wheels are in operation. Intermediary speeds are obtained by means of the device which acts on the inlet pipe varying the amount of explosive mixture admitted to the cylinders. The driving chain employed is of a special type; it is of the block variety of $1\frac{1}{8}$ inch pitch; its feature is that it is self-oiling. The blocks are bored out in the centre, the chamber thus formed being filled with a piece of felt soaked in oil; this chamber intersects the rivet holes and permits oil to find its way on to the rivets. The felt also projects from the face of the block and

contacts with the chain wheel, deadening the otherwise sharp click of the chain, and keeping the face of the sprocket wheel well oiled. This arrangement is claimed to insure a life to the chain many times that found in other chains.

Attention may be drawn to the single front-steering wheel, owing to the fact that a stationary supporting spring passes completely through its centre. A transverse spring is attached at either end to the frame of the vehicle, and at its centre carries pivoting points both on its upper and lower sides. Pivoted upon these points is a false hub, to which steering arms are attached. The true hub of the wheel runs upon ball bearings about the inner block. For steering the vehicle cables are attached to the arms, and these pass over pulleys to the steering lever. The car complete weighs about 6 cwt. and is strongly built throughout. It has 3 in. tires, 30 in. and 36 in. wooden wheels, and a large one-piece axle extending through both rear wheels. Steering is controlled by a single lever pivoted to the front edge of the seat, operating the steering wheel without lost motion and making a very steady steering. The motor throttle and the variable speed

gear are operated by the same handle. Being between the riders this handle may be manipulated by either rider at will. The fuel admission is regulated by a twist of the steering handle. Raising or lowering the handle starts or stops the vehicle or changes the speed, while a side-wise motion of the handle effects the steering. A safety button is provided on the handle, which insures that the vehicle cannot be started accidentally, although the motor may be running. The body framework, which is of strong construction, performs the service of running gear, body frame, and motor support. The few mechanical parts are all enclosed within the body, but by lifting up the seat the machinery is exposed for inspection and repair. The sloping dash deflects the air



FIG. 2.—THE DURYEA TWO SEATED PHAETON.

downward, rendering, it is claimed, fast riding less unpleasant than in some vehicles. The low centre of gravity and the long wheel base are said to secure the greatest steadiness in running, and freedom from danger from upsets. The water and petrol tanks are easily accessible for filling purposes, and have a capacity sufficient for a run of 100 miles. A powerful hand brake is provided, operated by a central foot lever and acting on the chain wheel hub in either direction.

In addition to the phaeton illustrated in Fig. 1, the Duryea Company are building four-seated cars with seats dos-a-dos, or facing forward. These vehicles use the same mechanism as above described, and the same description applies throughout, excepting the number of passengers carried and the weights of body and axles. In a letter to us, Mr. Duryea informs us that while they make three-wheelers preferably, because they are lighter, simpler, more convenient, cleaner, and easier handled, they also build to order cars on the same principle but with the regulation four road wheels.

THE MILDÉ ELECTRICAL VOITURETTE.

IN addition to the vehicles illustrated in a recent issue, Messrs. Mildé, Fils, & Co., of Paris, are building the novel two-seated three-wheel electrical car illustrated in Figs. 1, 2, and 3. In this vehicle the motor and accumulators are located at the rear, the back wheels being the drivers.

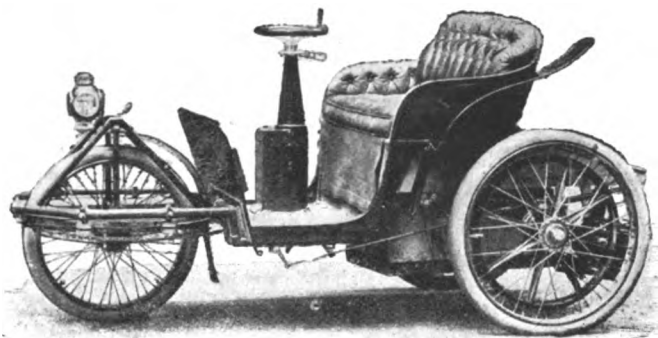
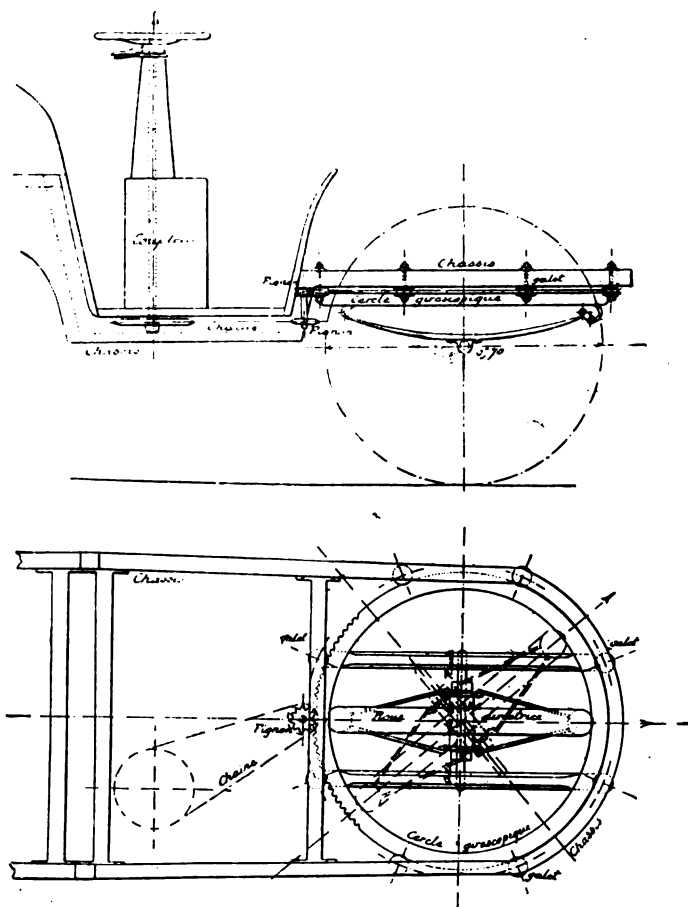


FIG. 1.—THE MILDÉ THREE-WHEEL ELECTRICAL VOITURETTE.

The front wheel, it will be seen, is mounted on a special horizontal giroscopical circle, which moves within the front circular portion of the frame of the car, rollers being suitably interposed. The motor has an output of 1,000 watts, at 76 volts, and 2,100 revolutions per minute. The total weight of the vehicle, with passengers, is 1,474 lbs., and with this load the current consumption ranges from 11 to 13 ampères,



FIGS. 2 AND 3.—ELEVATION AND PLAN OF FORE CARRIAGE.

the car being geared up to a speed of about 12½ miles per hour. The battery comprises forty cells, having a capacity of 65 ampère-hours, or sufficient for a run of fifty to fifty-two miles on one charge. The Mildé vehicles are all fitted with ampère and voltmeters, and with the necessary instruments required for re-charging the batteries. In fact, the electrical equipment of the carriages is very complete, comprising as it does lamps and an electric foot-warmer.

SOME NEW MOTOR-BICYCLES.

THERE are several points of interest in the new motor-bicycle which has lately been put on the market by Messrs. Constantin, Cabanes, Rouanet and Company, of Argelliers, Aude, France. As will be seen from the general view of the machine (Fig. 1), the frame is exactly similar to that of an ordinary safety bicycle, no alteration being necessary except that of making the frame stronger than usual in order to carry the additional weight. As will be seen, the motor is located horizontally within the main frame; the petrol tank is fixed in the rear frame under the saddle; the induction coil is supported on the top bar; the silencer is situated under the

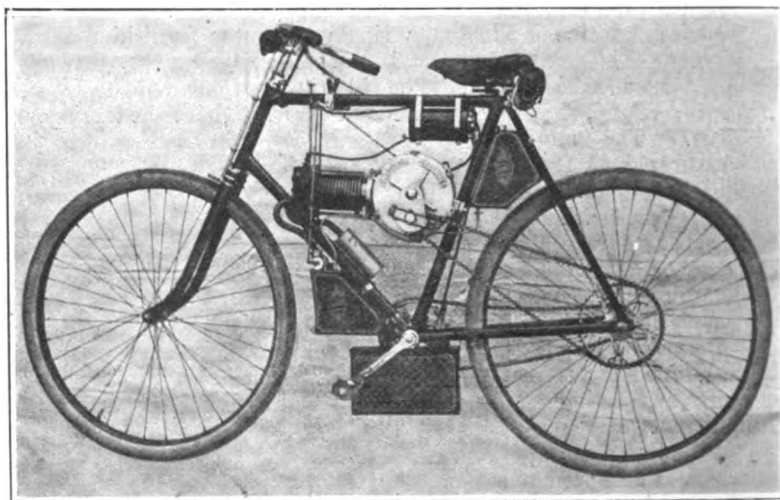
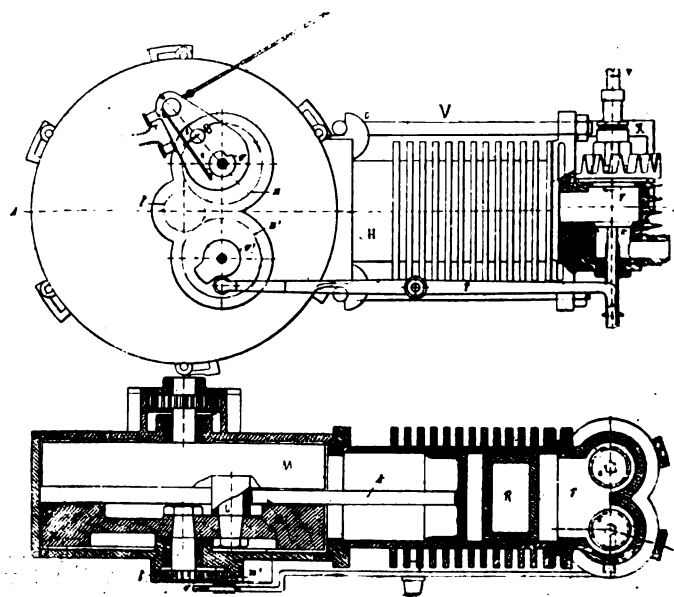


FIG. 1.—THE CONSTANTIN MOTOR-BICYCLE.



FIGS. 2 AND 3.—ELEVATION AND SECTIONAL PLAN OF MOTOR.

motor; on the lower tube of the frame below it is the carburettor, while under the bottom bracket between the pedals is the case containing the batteries. To deal first with the engine (Figs. 2 and 3), which is of the horizontal single air-cooled cylinder type. At a speed of 2,400 revolutions per minute it is capable of developing 1½ h.p. The valves, which are located one above the other, are so arranged that they can be quickly removed for inspection or other purposes. The exhaust valve, it will be noticed, is operated by means of a cam and pivoted lever. It will also be noticed that instead of the sparking and exhaust cams being mounted on the same short half-speed shaft they are supported on distinct shafts, this arrangement having been adopted in order not to have too large a projection on the

crank case. The latter is of aluminium, and is made in two parts. As above mentioned the carburettor is attached to the lower main tube of the frame. As will be seen from the sectional view, Fig. 4, it is almost triangular in shape. It is provided with a float showing the level of the petrol, while to facilitate the carburation part of the hot exhaust gases are made to pass by the pipe Z round the bottom of the tank. Coming now to the transmission, the motor-shaft carries a pinion gearing

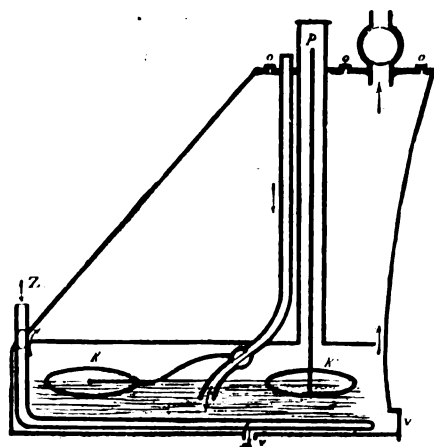


FIG. 4.—SECTION OF CARBURETTOR.

with a small spur-wheel carried on a short adjustable shaft. On the end of the latter is a sprocket wheel which transmits the power by a chain to a large chain wheel attached to the left side of the rear wheel tube. The object of the pair of spur wheels and the short movable shaft is not only for the purpose of demultiplication, but also to allow of any wear of the driving chain to be taken up. The short intermediary shaft is mounted in slots, similar to the back fork end of a bicycle, except that the slots are semicircular instead of straight, so that the tension of the chain can be adjusted without the pinions coming out of the mesh. The usual pedals and chain gear are provided to start the engine and assist the engine up steep hills, a free-wheel clutch being contained in the hub, so that the pedals and chain can be held stationary when the engine is doing its work. The

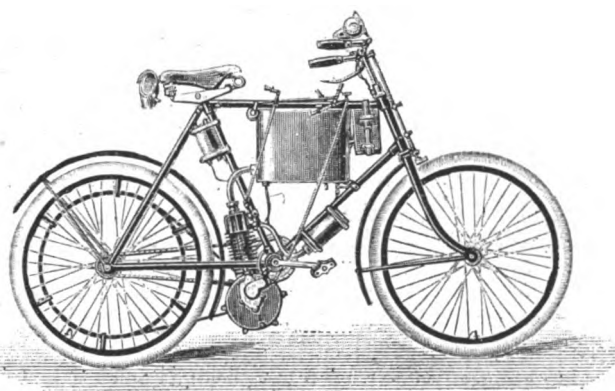


FIG. 5.—THE PROGRESS MOTOR BICYCLE.

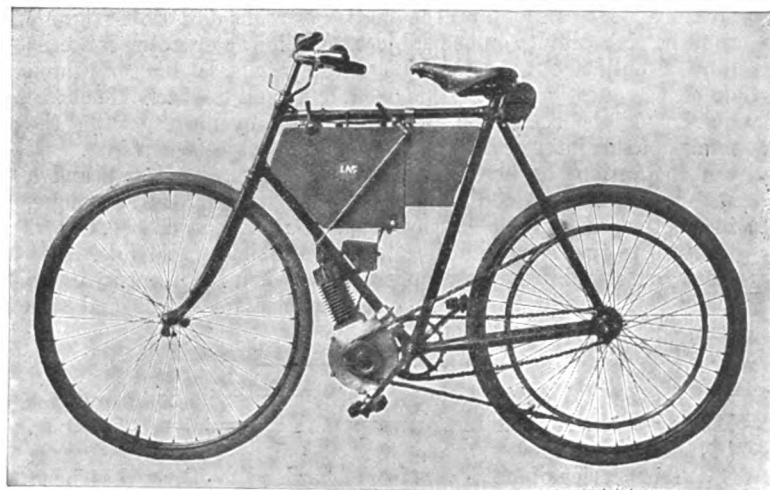
making and breaking of the electrical circuit is controlled by the left handle, as usual with motor-tricycles; there are also four taps or small handles on the top bar—one controlling the compression, one the carburation or mixture, one the volume of carburetted air admitted to the explosion chamber, and one the variable electrical ignition. The location of the engine and its various accessories are claimed by the makers not only to reduce the vibration usually felt, but also to render the machine very stable by reason of the low centre of gravity. The machine can, the makers state, ascend any ordinary hill, and on the level can attain a speed of 45 kilometres (28 miles) per hour. In view

of its low price (850 fr. in France), the machine should meet with a ready sale.

Still another motor-bicycle which has lately been put on the market is the "Progress," made by La Société Le Progres, of Vervins (Aisne), France, and of which an illustration is given in Fig. 5. The air-cooled petrol engine of 1½ h.p. is carried behind the bottom bracket and between the chain stays; it drives the rear wheel by means of a belt working on a light pulley. The engine is started and assisted by the usual chain and pedal gear, a free wheel clutch being fitted on the rear hub. The machine, which weighs about 66 lbs., can, it is stated, attain a speed of thirty miles an hour on the level and mount 10 per cent. gradients out with it being necessary to use the pedals.

SOME MOTOR-CAR TOURING HINTS.

IN contemplating a long tour by motor-car the first question which presents itself is that of suitable motive power. The average automobilist is, and will be, one who has no training in mechanics; therefore the carriage with the simplest, most easily mastered method of operation should appeal to him, provided that the carriage can travel over bad roads and can climb steep hills. The essential element which provides the power must be one that can be procured everywhere at points not more than 35 or 40 miles apart. The motor must also be of such



THE LONDON AUTOCAR CO.'S MOTOR BICYCLE.
(For description see page 802 of last issue).

construction that ordinary little repairs can be made by the talent procurable in smaller cities and villages far away from the "experts" domain. Mr. W. H. Stemmerman, accompanied by a companion, recently took an automobile trip on a light steam-car of something more than 600 miles through the United States, and it is from the experience gained in long-distance touring during the past season that he makes the following suggestions in the *Automobile Magazine*. Those who are waiting for the carriage in which you "touch the button" will probably continue to wait until they are past their motoring age. Nothing without labour, and for the immense amount of power exerted by a motor-carriage some return in the way of care and fuel must be made. Before a tour in a steam or other carriage is attempted it must be assumed that the operator has had at least several months' experience in running it, and knows the use and workings of every part of the mechanism. Many purchasers of motor-cars refuse to learn any more about their motors than to fill the petrol and water tanks and to start and stop. This is a mistake, and while they are not to be censured if they are not inclined to become machinists, they will soon find that it is absolutely necessary to master some details and soil the hands very often. Frequently some trifling derangement if seen and adjusted at once averts serious trouble.

Too much importance cannot be laid on the subject of oiling every part that needs it. Taking the oil can and blindly shower-

ing the engine with oil is not the way to do it. Every oil hole should receive individual attention. For the smaller parts, in which the holes are very small, a bicycle oil can should be provided. With such a can the oil can be forced into the place intended for it. A car upon which the brake does not act when going backwards as well as forwards is dangerous and should not be used. Before starting out on each day's run see that the petrol tank is completely filled, no matter how little of it may have been used the day before. Unknown roads are before the traveller, and ordinary calculations as to the amount likely to be consumed are very apt to be wrong. Therefore it should be put down as a rule to lay in a supply of petrol whenever it can be had.

Goggles made of plain mica with felt rims should be carried ready for use. In towns they are necessary on windy days to keep out dust, and in the country because it is sometimes impossible to see to steer the car on account of the myriads of winged pests that abound at certain hours of the day, and which are blown into the eyes unless they are protected. In putting the car away for the night when away from home it is well to see that it is either under lock and key or in the hands of a responsible party. There is always some one at hand either malicious or curious who may cause a mishap by meddling with things that should be sacred to him. A first-class man who is used to cleaning fine carriages may be allowed to clean the car, but no one should be permitted to touch the engine but the operator.

The enjoyment of a tour is made or marred by the travelling companion. A congenial, helpful companion, if found, is a treasure. He can look up the matter of roads and cross-examine the local inhabitants on the subject. While the operator concerns himself only about the machine and its needs, let his companion do all the questioning. It is well to get all the facts about the quality of the roads and distances every evening, getting the names of the intermediate towns between objective points. If the suggestions as here briefly outlined are carried out and a system of work adopted a motor-car tour will be found a unique, instructive, and enjoyable way of spending a week or two. It is not well to try to "make time" or to formulate a schedule. Lay out a route and make no promises as to when the return will be made. This will permit lingering in pleasant places, and side trips that may present themselves.

LA Société de l'Autogare is the name of a company that has just been formed in Antwerp with a capital of 35,000 fr. (£1,400).

THE service of motor cars from Aberdeen to Torry has been temporarily suspended by the Aberdeen District Motor Service Company, but will be resumed in April.

A SALE by auction of part of the stock of cars of the Automobile Association, Ltd., will be held at 1, Prince's Road, W., on February 7th, when Mr. C. Friswell will make his *début* as an auctioneer.

MR. GEORGE VON L. MEYER, the new American Ambassador to Italy, is an enthusiastic automobilist. He has also been personally interested in the practical part of the business, having lately resigned the presidency of the New England Electric Vehicle Transportation Company.

WE learn from an American contemporary that Mr. W. P. Kidder, of the Kidder Motor Vehicle Company, New Haven, Conn., is about to visit London and the Continent next month, bringing with him one of the company's new steam carriages.

THE managers of the Pan-American Exposition, at Buffalo, N.Y., are desirous of having the Automobile Club of America choose that city as the terminus of the Endurance Test which the club proposes to hold next autumn. One of the inducements which they offer is a road race, to be run on a stretch of road fifty miles long, near Buffalo.

IT is reported that the authorities of the Chicago Public Library may inaugurate an automobile service in place of the present delivery wagons, seven in number, which are in use for distributing books from the central library to the sub-stations. The proposition has met with support by reason of the fact that electric power for the vehicles could be furnished from the library plant.

ALLEGED FURIOUS DRIVING.

BEFORE Sheriff Henderson, in the Edinburgh Police Court, Rowland Outhwaite, manager of the Edinburgh Autocar Company, was charged with driving a motor-car furiously down Leith Street on the 17th December last. The accused pleaded not guilty. The evidence for the prosecution was given by four constables. They all agreed in saying that accused was going down Leith Street at the rate of seventeen or twenty miles an hour. The motor-car was at the back of a fire engine. None of the constables saw the car pass the fire engine, but one of them stationed at Pilrig said he noticed that the vehicle was making up on the tender every second. The accused said it was impossible to estimate the exact rate of speed, but as far as he could judge from the mechanism of the car, he was travelling at the rate of eight miles an hour. Lieutenant Barclay, who was in charge of the fire tender, said he was not going more than twelve miles an hour at any portion of his journey, and in going down Leith Street the tender was going at nine miles an hour. The Sheriff found the charge not proven.

MOTOR CAR LITIGATION.

IN the Chancery Division of the High Court of Justice, before Mr. Justice Farwell, Mr. A. J. Walter, last week, said he had two motions in the actions of the British Motor Traction Company v. Schlamm and the British Motor Traction Company v. Friswell and the Automobile Palace, which motions were for interim injunctions to restrain what was alleged to be infringements of patents, but it had been arranged with both sets of defendants that they should stand over till the trial, and that the costs of the motions should be costs in the actions. His Lordship concurred, and the motions stand over accordingly.

MOTOR-CAR ACCIDENTS.

A SERIOUS motor-car accident occurred near Bath on Sunday. A 6 h.p. car was being driven by Mr. William Whiting, who was accompanied by two friends, when one of the front wheels suddenly came off and the car was overturned, throwing the occupants into the road. One of the gentlemen sustained concussion of the brain, another a severe scalp wound, but Mr. Whiting, although he fell under the car, escaped with a severe shaking and bruising. All three gentlemen were conveyed to Bath Royal United Hospital.

ON Friday last week a singular motor-car accident occurred at Brookfoot, near Brighouse, Yorkshire. A young man named Naylor, of Preston, was making a journey from Littleborough to Wakefield, and when, in the darkness, ascending the rather steep hill at Brighouse Wood, something went wrong with the machinery, which suddenly stopped. The car, which was then half way up the hill, began to run backwards. Naylor was unable to stop it, and the result was that at the bottom of the hill the car ran into a wall. The driver was thrown out, and received a nasty cut on the face. He was conveyed in the Brighouse ambulance to the Halifax Infirmary, where his injuries were attended to. Strange to say, the car was only slightly damaged.

A DENSE fog marred the recent run of the Chicago Automobile Club to Milwaukee, U.S.A. Of the six vehicles that started only two reached Milwaukee, those of Mr. A. J. Eddy and Mr. H. M. Brinckerhoff. Mr. Eddy's car has a petrol motor, and made the run of about ninety-nine miles in seven hours. The other five vehicles in the run were steam cars.

THE Moto-Club de France is organising a ten-days' tour of France for May next. The tour, which will be on the lines of the English 1,000-mile Trial, will extend over a distance of about 1,500 kilometres. Messrs. Serpollet and Meyan have been entrusted with the arrangements. It is proposed to include two hill climbing and one speed contest.

A 20 h.p. touring car has lately been completed in Italy by Signor Ciro Bonacini, of Modena. The vehicle, which has accommodation for eleven passengers, is fitted with a 20 h.p. Bolide motor, the transmission consisting of a combination of belt and gear wheels. On the level a speed of 20 miles per hour can be attained by the car when fully loaded, while it is claimed to be capable of mounting 12 per cent. gradients at seven miles an hour.

AT a meeting of delegates from twelve of the leading American automobile clubs, held in New York, it was decided that steps should be taken to place guide posts at intervals along the principal roads leading out of New York to the various points of the compass, and extending as far as Boston to the east, Philadelphia to the south, Albany to the north, and Buffalo to the west. The work will be commenced in the spring.

THE Motor-Car Journal.

Vol. II.]

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COMMENTS.

A MEETING of the International Commission in connection with the Gordon-Bennett Cup was held in Paris on Friday, the 1st inst., to settle the date of the contest. Mr. C. Johnson repeated the representations which had been made by letter and telegram from the A.C.G.B.I., that the race should not be held earlier than the 1st July. M. de Knyff, who represented the A.C.F., stated it was the opinion of the A.C.F. that the

Gordon-Bennett race should be held prior to the Paris-Berlin race, inasmuch as the Gordon-Bennett race is looked forward to as the race of the giants of the respective countries, and if these cars were to take part in the Paris-Berlin race, and the Paris-Berlin race were held before the Gordon-Bennett race, the result of the latter would probably be a foregone conclusion, and the interest which is attached to the race would be forfeited. Count Sierstopff, who represented the Automobile Club of Germany, was not present at the Commission, but had registered on behalf of the Automobile Club of Germany a vote in favour of the Gordon-Bennett race not being held later than the beginning of June. The A.C.G.B.I. being, therefore, in the minority in proposing July, it was agreed that the Gordon-Bennett race should take place on Wednesday, 29th May; that is to say, the Wednesday after Whit-Monday. The course is to be from Paris to Bordeaux. The start will take place at about 3.30 in the morning from Ville d'Avry. The route will probably be by Ablis and Chartres and take in Chevanceaux and Monguion. The motor vehicles representing Great Britain and Ireland will be painted red. On the same day other racing motor-vehicles will take part in a race from Paris to Bordeaux. The start will be given half an hour to three-quarters of an hour after the start of the Gordon-Bennett cars. It will thus be possible for two out of the five carriages which are entered by the British Club for the Gordon-Bennett race which may not be selected to represent the club to take part in a race on the same day over the same course.

The M.M.C. Competitive Car.

As already announced, the Motor Manufacturing Company, Ltd., have entered a car for the forthcoming Gordon-Bennett race, and although no definite particulars as to the horse-power, etc., have been given out, we are informed that the designs have been drawn up and finally approved by the directors. The work of construction is already well in hand, and within a short time it is hoped to subject the new car to a series of trials on the roads in this country.

An Irish Tour.

EFFORTS are being made to secure an automobile tour in Ireland, and it is being urged in Irish newspapers that as the 1,000-mile Trial in Great Britain last year must have put at least £2,000—a very modest reckoning—into the coffers of the hotel keepers, a similar trip through a part of Ireland would be a

good thing for the country, and we believe it would be a good thing for the motor-car industry as well. There is now an Irish Automobile Club, and the scores of enthusiastic owners in all parts of the country would welcome an English automobile invasion.

Motor Dust Carts in the North.

LAST week we reported that two metropolitan boroughs had had attention drawn to the adaptability of steam motor-vans for the collection of street refuse. Now comes the news that the Corporation of South Shields have, for a fortnight, been conducting a series of experiments with a steam motor dust cart, and have been comparing its working with that usually employed. On one of the latest days of the trial there was a saving of twenty-five minutes in the loading and deposit of rubbish at given places, as compared with the horse and cart system. The decision of the authorities with regard to its adoption will be awaited with interest.

A Motor-Car Pawned.

MR. WAYLAND CHAMPION is a farmer of Reading who gave special attention to poultry farming, in which pursuit he made a loss of £1,000 in a year. Among the expenses he incurred while engaged in the venture was £200 for a motor-car. In the Bankruptcy Court the other day the Assistant Receiver was curious about the motor-car, and suggested that Mr. Champion had "pawned" the vehicle for £120 and gone to Paris with the money. The debtor agreed that the proceeds of the motor-car had been thus employed—a use for the automobile which hardly commends itself to keen motorists.

Automobiles and the Fire Brigade.

COMMANDER WELLS, R.N., has just issued his report on the fires in London, from which it appears that the strength of the Metropolitan Fire Brigade is about 1,000 of all ranks. The plant includes sixty-five land steam fire-engines, and, although hand appliances are very numerous, 250 horses are in the service. Surely the time is fast approaching when our fire brigade will have to consider the adoption of other motive power, and a start might be made by the employment of motor service wagons. This is already done in Paris, where an electric service wagon stands ready at most of the fire stations. This is able to get away more promptly than horse-drawn vehicles, while its rapidity of movement enables it to outstrip the horse with an ease and reliability that should secure a favourable consideration from all English visitors to the French capital.

Motoring in the Snow.

IN connection with motoring in the snow, recorded a few weeks ago, the following from an American correspondent will be of interest:—"An excellent example of the utility of the motor-car was clearly proved recently in Atlantic City, where the Electric Vehicle Company maintains an automobile service for the hotels. Twelve inches of snow fell the other day, blocking railroads, trolley cars, and nearly all the public conveyances. The motor-vehicles, however, continued to operate almost with the same degree of regularity as under normal conditions of

traffic. Those of the horse-owning cabmen who were able to weather the storm sought to make a golden opportunity for extortionate rates. The electric motor service ran under its regular rates, however, and won general favour for its service-ability in the emergency. A similar situation was encountered during a snowstorm at Lakewood, where a Columbia vehicle is in operation for the Lakewood Hotel. There was no interruption in the service, and patrons were carried between the hotel and the railroad station without delay, regardless of snow and slush."

French Cars for America.

CALLING in at the big garage in the Avenue de la Grande Armée, Paris, of Messrs. Charron, Girardot, and Voigt, last week, we were just in time to inspect one of two 12 h.p. Panhard car about to be despatched to America. The body took the form of a *tonneau*, the back being somewhat higher than usual; the woodwork was painted maroon, and this combined with the polished brass fittings gave the car a handsome appearance. The cars, which were being taken across the Atlantic by M. Combet, the firm's manager, form, we understand, part of an order for twelve high-powered vehicles received from a New York house.

Through Mud.

THE mud encountered in our London thoroughfares is not of very stiff consistency, but of the thin, watery character that helps the slipping of wheels and the skidding of cars. Not so some of the mud in country districts and in the United States. The accompanying photograph shows a



"Locomotive" going through adobe mud in Lake County, California. It will be seen that the rear wheels of the vehicle are practically free from dirt, showing that they are doing the driving, and that the carriage is not stuck in the deep and stiff mud.

Motor-Cars in Winter.

RECENT reports have shown how well automobiles have been able to withstand the most wintry weather. At Bourne-mouth and Lincoln the motor-bus services were not dislodged by the snow, while the ordinary horse-drawn bus arrangements were greatly interfered with. Similar circumstances have arisen with similar results in Newport, U.S.A., where automobiles have easily held a monopoly of facile transportation during the snow storm, and motor-carriages merrily rolled along over the ice, turning out occasionally where the highways had been obstructed by disabled teams and generally disproving any reputation of being fair-weather vehicles only.

Ice storms are accustomed to be dreaded in America, since for a time they put an effective blockade on all horse traffic, and even electric cars are sometimes stalled when the trolley wire is thickly coated with ice, but the automobile is a winner in such weather, and almost exclusively. Tests were made by Newport drivers for the purpose of seeing what could be done under such conditions, and the results were eminently satisfactory. One gentleman ran a steam motor-vehicle ten miles out into the country during a sleet storm, and experienced no difficulty whatever, while the horses were completely helpless, and wagons were frequently passed abandoned by the roadside. The little steam buggy made a record trip, and returned with a glassy coating that was a veritable varnish of ice, but it had solved the transportation problem during a snowstorm.

The Good-Roads Movement in America.

It has been recently decided by the Automobile Club of America to increase the membership of the club's committee known as the "Albany Post Road Committee." The object of the committee is to devise a plan for promoting the construction of a road from New York to Albany on the east bank of the Hudson—this road to be "boulevardized" wherever possible—and to establish along the road convenient stopping-places for luncheons, refreshments, etc., together with charging, repair, and supply stations. Mr. J. M. Hill, the chairman of the committee, believes that the territory through which the proposed highway will be made can be divided up into short sections in which local influences can be brought to bear to interest the people through the county commissioners and the other local authorities having under their government the construction of roads. Though there is little immediate prospect of carrying out the project, it is reasonable to believe that in two or three years such a road could at least be made to reach from the metropolis to Rhinebeck, after which, with the development of a little energy and public spirit, the plan might be consummated through the success obtained from the construction of this short stretch.

Motoring in California.

AN excellent test of the durability and practical utility of the motor-car was recently made in California by Mr. F. H. Holmes, a fruit grower of San Jose, who is the owner of a Stanley steam car, made at Lawrence, Mass. Mr. Holmes, after taking several shorter journeys through the country adjacent to his home and determining to his complete satisfaction the substantial character of his carriage, set out on a trip through the famous Yosemite Valley, into which several owners of light steam carriages had ventured with far from satisfactory results. Mr. Holmes, however, accomplished the entire trip of almost 2,000 miles without a breakdown, going in and coming back on his own wheels and with his own power. The roads in many places are exceedingly sandy or littered with stones, which are a severe strain on the tires, as well as on the whole running gear of the machine. During the year past, the period of time this carriage has been in service, it has made over 6,000 miles, and we understand that that the only part replaced was a new burner, which was substituted for the old-style burner in use at the time the car was purchased.

Enterprise Wanted.

LIFE from beginning to end is a re-adaptation. What is good this year is antiquated next season. This applies to motor-vehicle matters and methods, as well as to bonnets and cycles. Conditions change, and methods must change with them. The means and media by which success could be obtained in 1897 are now obsolete and worthless. The manufacturer who is not capable of growing and expanding, of noting and pressing into his service the new elements and forces that arise, will never secure that measure of success which will warrant him in staying in the motor-vehicle business. Only by carefully watching the doings of other firms and other countries can British firms gain a good position at home.

Motors versus Horses.

THE Hon. Chas. S. Rolls, presiding at a meeting of the Society for the Promotion of Kindness to Animals, at the Hon. Mrs. Henniker's house in London, has been putting in a word for the automobile. He said much cruelty to animals might be avoided by employing motor-vehicles for hauling heavy loads long distances, cab work, and work involving over-exhaustion to horses. Motor-vehicles were capable of travelling 400 miles a day, were tireless, and might be used for military transport in countries like Africa, where thousands of animals had been sacrificed owing to climate and difficulties of transport of fodder. Animal lovers should discourage the attempt by county councillors to fetter the use of mechanical transport in Great Britain. This is an aspect of the case which should not be overlooked.

The Virtue of Modesty.

MODESTY is a virtue that is a jewel in the character of the motorist. We remember a motorcyclist who once got to Brighton in an hour and a-half disclaiming any such rapidity in a police court. In fact he declared he could do the journey in about four hours. Another motorist of our acquaintance who frequently travelled at the rate of twenty to thirty miles an hour invariably avoided public confession, and when driven into a declaration always discounted his performances. Such modesty does credit to our British automobilists, especially when compared with the sensational speeds at which American drivers are too wont to startle the world. From the time that he took his famous German Daimler to America Mr. Vanderbilt has been written up and down in the daily papers in such a way as to make gullible readers believe that his driving is ever and always a combination of recklessness and high speed such as no other man in the world has ever been guilty of. Whether this reputation was bestowed upon Mr. Vanderbilt through his own desire or not no one but himself knows; but be that as it may, the result has been an injury to the cause of the vehicle, and no very desirable notoriety for Mr. Vanderbilt. Bucolic law makers, egged on by saffronised newspapers, are never over strict in their regard for accuracy, and Mr. Vanderbilt is in a fair way to prove this to the discomfort not only of himself, but of every man who owns a motor-vehicle in the United States.

Motor-Cars for Medical Men.

AN electric automobile was recently employed in a most novel and entirely satisfactory manner by Dr. Joseph Steadman, a prominent physician of Boston. The physician, in company with a professional associate, was recently called upon to perform a delicate and dangerous operation on one of his patients. The light in the room in which the operation was performed being of poor quality, Dr. Steadman ran a wire from his automobile, which he had driven up on the sidewalk in front of the house, to the operating room, attaching one end of the wire to the battery of the vehicle and the other to a thirty-two candle-power incandescent lamp. Turning on the current he gained a light sufficiently bright to enable him to perform the operation successfully. After such an incident who will be bold enough to assert that the motor-car is not pre-eminently the vehicle for medical men?

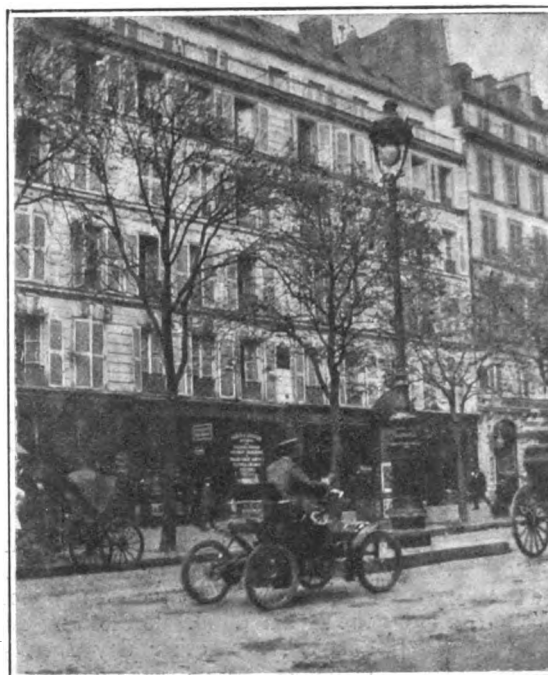
Saturday Runs.

A BUSY season is in prospect for the Automobile Club and a series of Saturday afternoon runs is about to be inaugurated, which should do much to promote sociability among the members. On the 9th prox., there will be a run to Virginia Water; on the 23rd of the same month a run to Sevenoaks, and on the 30th a run to High Wycombe. The Easter tour of the Club will be held from April 4th to the 11th, and on April 20th a run to Dunstable has been arranged. On April 27th a trip to Hertford will be the last of the series before the great exhibition

at the Agricultural Hall. Then on May 18th, there will be a run to Guildford; on June 8th, to Boxhill; on the 15th, to Sonning-on-Thames, and on the 22nd, to Reigate. These runs will start at 2 p.m. from the Club-house, and will be followed by a dinner on each occasion.

Feeding Boilers from Horse Troughs.

DRIVERS of steam cars must be careful as to where they replenish the water in their boilers, for the Works Committee of the Islington Council is considering the question of prosecuting a man who recently took water from a horse trough to feed the boiler of a steam trolley. Of course the horse troughs are primarily provided for the old-fashioned steeds associated with the antiquated method of road locomotion in London and other places, but to worry itself with such a matter as the replenishment of a boiler such as this seems to lead to the conclusion that the Islington Council has not much to do. The sooner it looks after the condition of its main thoroughfares the better, for judging by the condition of the streets on Tuesday there was plenty to keep every councillor busy from morn till eve.



ON A PARIS BOULEVARD.

Automobile Volunteers.

STEADILY the list of vehicles which are offered to the War Office in connection with the proposed corps of automobile volunteers is increasing, and, although there is no great excitement over the matter, a good deal of interest is being taken. It only needs a formal and sympathetic invitation from the War Office to secure many more promises of support. Meanwhile we hear that Earl Russell is willing to place his four-seated 8 h.p. Haynes Apperson petrol car at the disposal of the War Office, and that Mr. Frank Butler is willing to lend three vehicles—his 6 h.p. Panhard car, his 5 h.p. Renault voiturette, and his 12 h.p. Panhard car.

The Manchester Automobile Club.

A GENERAL meeting of the Manchester Automobile Club has been held at the Queen's Hotel, Manchester, when the hon. secretary, Mr. J. Hoyle Smith, in his report of the past season, said the club was founded on December 21st, 1899, and the first general meeting was held in the March

following. There were then thirty-eight members. This number has now increased to fifty-three, and there is no doubt will be considerably added to during the coming season. At the last general meeting the committee announced that they had undertaken to make all the local arrangements for the 1,000-Mile Trial, expenses of which were guaranteed by members of this club. The guarantors were never called upon to pay, for when the trials took place the Manchester arrangements were universally acknowledged to be very good and the show very successful. The total receipts of the show amounted to £127 0s. 9d., and the total expenditure to £102 0s. 9d., leaving a balance of £25, which was duly paid over to the War Fund. During the past year he regretted to say that the hon. treasurer, Mr. A. Mackillop, had to resign his position owing to ill-health, but Mr. S. Okell was elected to take his place. All the old members and officers of the 1900 committee had been re-elected, and in addition Dr. Marshal and Mr. F. E. Baron. During the past season there had been several runs. These were very successful as far as they went, but were not as well attended as it was hoped they would be this year. The committee will be glad of any suggestions from members of the Manchester Club as to dates, places to visit, etc., in connection with a series of runs it is proposed to hold. The treasurer's report was then read, showing that the club started the new year on a firm financial basis. Votes of thanks were passed to Mr. W. E. Rowcliffe for giving the use of a meeting room for the committee, and to the hon. secretary for his services during last year.

An Automobile Christening.

AUTOMOBILE marriages have frequently taken place, both on the Continent and in this country, and in that wonderful country known as the United States funerals by steam have been reported. Now comes news of a christening on an automobile which has taken place at the Church of St. Croix, at Brussels. This is, we fancy, the first time such an event has occurred. Probably some may imagine it adds a new terror to the ordeal; but apparently on this pioneer occasion everything went well—even the infant, who was naturally the central figure of the function. During the journey snow was falling, but that did not disconcert the party, and the baby from beneath the shadow of the umbrella looked on the world with the easy assurance of one who is making rapid progress.

Motor Delivery Vans.

MOTOR-CARS for commercial uses are likely to come prominently into notice in the future, and at the annual meeting of the Hyam Wholesale Clothing Company, Limited, the other day Lieut.-Colonel Colville referred to a motor-car which they had started at their factory at Colchester. He said he had been informed by the manager that the vehicle was a great success. The motor-car in question is a 9 h.p. Napier car, and is illustrated on another page of the present issue.

An "Experience" Meeting.

AN "experience" meeting has been held at the Waldorf-Astoria, New York, by members of the Automobile Club of America. Messrs. Chamberlin, Shattuck, Scarritt, Lyman, Buzby and others related experiences they had had the past season on the road, the object being purely educational. Mr. Scarritt made a plea for truth in the industry in general as well as in the exchange of minor experiences on the road. Dr. Lyman suggested that the club should start a subscription for the placing of substantial iron signposts on the main roads leading from New York to Philadelphia, Albany and Boston, as a guide to automobile tourists. Evidently the automobile is coming along in the United States, and promises to revive the interest of Americans in the scenery of their own country. From the express trains of the States little can be seen of the minor villages and settlements on the lines of recognised travel, but the motor-car will enable tourists to visit places hitherto inaccessible, and probably promote a more kindly feeling for the lesser known beauties of the country.

Sales and Wants.

WITH the development of the automobile industry and the improvements now being made the trade in motor-cars by private owners wishing to dispose of their vehicles is becoming extensive. We have lately noticed some advertisements of motor-cars for sale by private owners in the general newspapers; this, we would point out, is an extravagant and generally useless effort to dispose of such vehicles. The most effectual way, we would take this opportunity of suggesting, is by announcement in the columns of the automobile journals. And in this connection the wide circulation of the *Motor-Car Journal* among owners, buyers, and other interested persons serves a useful purpose.

A Self-Starter for Motor-Cars.

THE vibration associated with a motor-car when standing is so very unpleasant that anything calculated to obviate that is to be welcomed. An electric self-starter, which can be applied to all vehicles which have motors of two or more cylinders, has been devised by Messrs. Hayward and Fox, of Norwich, and has been successfully tried on a Daimler car for some months past. The vehicle can be left for hours standing, and when it is required to start all that is necessary to start the motor is the moving of the starting switch, while the driver is sitting on the car. The idea is certainly a good one, and its satisfactory development a matter of interest and importance to motorists.

Moving Faster.

THINGS moved so rapidly in the bygone Nineteenth Century that people are wondering whether the pace can be safely accelerated in the Twentieth. In many departments of activity the speed cannot be increased; in locomotion on the roads it is likely to quicken very considerably, especially when the crowded condition of our main thoroughfares is mitigated by the adoption of motor-vehicles occupying one half the space now required by the horse-drawn vehicle. Then new methods of regulating the traffic will be necessary, for the clatter of the horses' hoofs will have greatly ceased to add to the noise of cities. With the lessened irritation of sound and the much increased rate of speed recognised crossing places, just as are now necessary at several points in the City of London, will have to be established.

In the Rostrum.

IN the motor-car world Mr. Charles Friswell is so widely known that considerable interest attached to his *debut* as an auctioneer. This occurred on Thursday on the premises once occupied by the Automobile Association, and, surrounded by cars and faced by bidders Mr. Friswell seemed quite at home. About fifty lots were knocked down in good time, and with a pleasantness that gave quite a zest to business. Two Ducroiset 10-h.p. wagonettes, to seat eight and six persons respectively, were sold for £200 each, and for Sir David Salomon's Serpollet steam-car £80 was bid and taken. A 14 h.p. Benz wagonette fetched £275, and a Mors petit duc £110. Only three lots failed to find buyers. The sale attracted a goodly number of dealers and buyers, and Mr. Friswell is to be congratulated on the very favourable impression he made in his new capacity. A stranger would not have thought it to be his first appearance in the rostrum. A word should also be said in praise of the convenient way in which the lots were arranged for inspection.

A MOTOR club has been formed in Buenos Ayres, South America. The number of motor-cars in the capital of the Argentine Republic is reported to be rapidly increasing.

THE Washington Automobile Club has just been organised in Washington, U.S.A. The objects of the organisation are the same as those of other clubs already in existence. Mr. Charles E. Foster was elected temporary chairman, and Mr. W. J. Foss temporary secretary, and a committee of five was appointed to draft a constitution and by-laws.

The French Motor-Car Exhibition.

(From our Own Correspondent. Continued from page 808.)

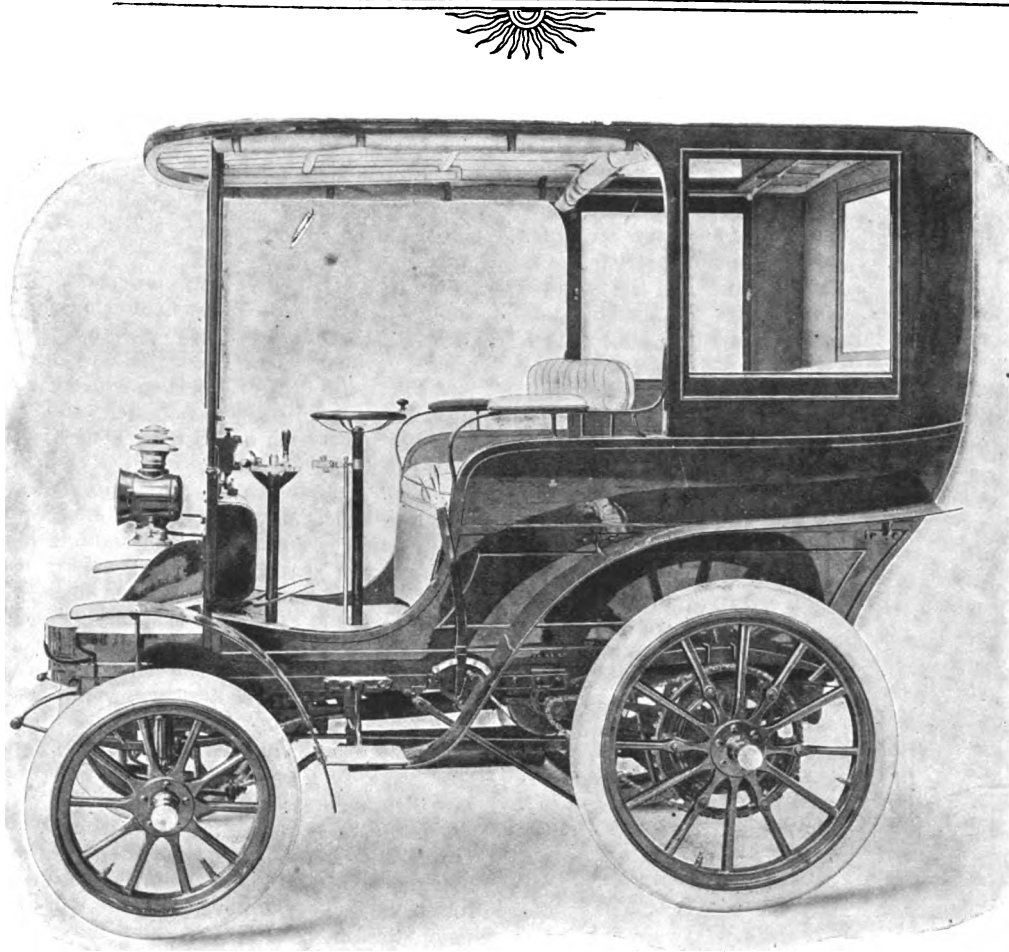


FIG. 1.—THE GEORGES RICHARD 8 H.P. "LIMOUSINE" CAR.

NO carriages are more graceful or better finished than those of the Société des Automobiles Peugeot, Audincourt (Doubs), and many beautiful specimens of the company's work are to be found upon their stand, No. 38. No startling novelty is there shown, but the system of ignition employed upon one of the cars exhibited is interesting. The vehicle is a 5 h.p. four-seated light car, the front seat of which can be turned round to face forwards or face the driver, as may be desired. The motor is carried behind, and the two platinum tubes are so placed as to permit of their being heated by a single burner. Electric ignition is also provided, but it is intended that the tube or electric system be employed separately and not in unison as is so often done. Among the carriages, the new *tonneau* carrying a 5 h.p. engine in front is a beautiful vehicle, and illustrates the firm's new system of transmission by means of a chain from the motor to cross shaft and a chain from the cross shaft to the road driving wheels. Among the other cars are three of those handsome carriages especially designed for town work, which have done so much to render famous the name of Peugeot. These are, respectively, a victoria, a cab, and a coupé, all three constructed upon dropped frames, and fitted with 8 h.p. motors. A small 5 h.p. phaeton with awning and an 8 h.p. six-seated nondescript sort of vehicle complete the list of carriages, but there is a 4 h.p. light delivery van and an 8 h.p. lorry, the latter vehicle being intended for service in Madagascar.

La Société Anonyme d'Automobiles et de Traction, Quai National, Puteaux (Seine), only exhibit a couple of their cars built under the Bardon patents. These are respectively a "spider" and a *tonneau*, both fitted with 5 h.p. motors. No changes what-

ever have been effected in these vehicles. It is interesting, however, to learn that the company expect to turn out about April next the first of a series of light cars built under the Charron, Girardot, and Voigt patents. This carriage will weigh complete between four or five hundred kilogrammes and will carry a balanced motor developing from eight to ten horse power. It is anticipated to put this car upon the market at a remarkably low figure, and its appearance is awaited with interest in Parisian automobile circles.

La Société des Établissements Georges Richard, Avenue de la Grande Armée, Paris, make a special show of their small voiturette, and here again the *tonneau* form of body is shown marked favour, for no fewer than four of the six cars exhibited carry this type of body. With four persons up, this small vehicle contested the Chanteloup and the Gaillon hill-climbing races, and in the former made an average speed of thirteen kilometres per hour, while the latter was negotiated at the still higher average of fifteen kilometres. In the Consumption of Fuel Competition the cost of transporting the four occupants of the car over the seventy kilometres of route was only one shilling and tenpence—a truly remarkable record. In addition to these *tonneaux* (Fig. 2) there is a "spider" and a coupé, with small seat behind for mechanic. All these voiturettes are provided with three forward and one reverse speeds and three powerful brakes. The large cars comprise an 8-h.p. "Limousine," (Fig. 1) a four-seated phaeton in natural wood by Binder, and a curious kind of coupé. Driving from the inside, this car carries a seat at the back covered over by an extension of the coupé's roof. It presents a very smart appearance, but is probably a somewhat heavy vehicle for its 8 h.p.

motor. In the heavy-car class M. Richard exhibits a motor and frame, to which is attached the brake invented by M. Ernest Cuénod Vice-president of the Swiss Automobile Club. This appliance serves three purposes—viz., wheel jack, sprag, and brake. Placed right beneath the car, it consists of a couple of levers, each carrying at its lower extremity a shoe which can be forced into contact with the earth by means of a long and powerful lever placed to the driver's left hand. By bringing this lever into action the back wheels are lifted entirely free from the ground, and in case of emergency the brake should prove invaluable. The usual sprag can be entirely dispensed with, as also the jack, for, fitted with the Cuénod brake, a car carries both appliances combined in a single apparatus, and so placed that instant use can be made of it. I am of opinion that this appliance will be very largely employed, especially by users of cars in mountainous districts.

Unquestionably the most interesting features of the stand of the Société des Voitures Automobiles des Etablissements Decauville aîné, Boulevard Malesherbes, Paris, are the company's new light car and chassis. The new car weighs 450 kilogrammes, and carries upon the fore-part of the frame a motor of two cylinders of 0m. 095 diameter and 0m. 100 stroke. This engine develops 6 h.p. at 850 revolutions, and $8\frac{1}{2}$ h.p. when running at 1,200 revolutions. The two cylinders, which are in a single piece, are water-cooled, the circulation being effected by a centrifugal pump. A special feature is the absence of tremblers from the arrangement of the electric ignition, these parts being replaced by a disposition of an evidently more durable character. Placed just above the motor shaft is a shaft revolving at one-half the

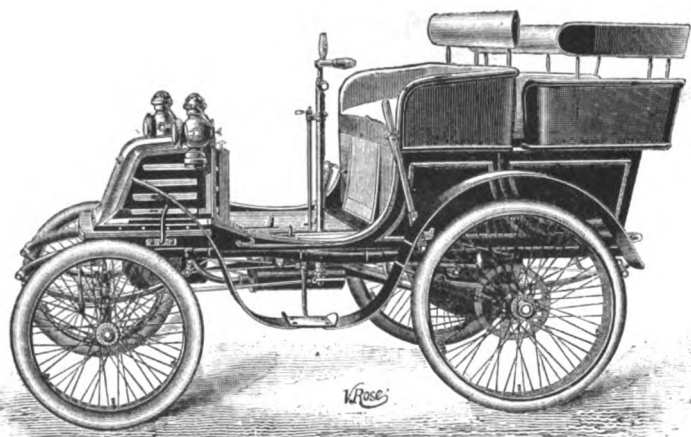


FIG. 2.—THE GEORGES RICHARD 4-H.P. TONNEAU VOITURETTE.

speed. The end of this shaft has a small flat portion which serves as a cam. Passed over it is a box containing the contacts. These consist of two pivoted pieces of metal attached together by a spiral spring at their lower extremities, and at their upper extremities making and breaking contact with two platinum points. The shaft separates these two metal pieces, but in the course of the revolution its flat side permits the spiral spring to pull them together, and first the one and then the other makes contact with its corresponding platinum point. The transmission of the motive power is direct, the gear, differential, etc., being carried right at the back of the frame. Three forward speeds and one reverse are provided, and the car can run up to forty miles an hour on level ground. One lever only is used to actuate the change of speed and the forward and reverse motions. The other controlling appliances are a brake lever, a couple of pedals, respectively used for disconnecting the motor and applying brakes, and a small hand lever placed upon the inclined steering wheel pillar, for advancing the moment of ignition. The model shown is a *tonneau* of which the well can be instantly removed and replaced by a spider seat, a coupé, or other type of body. The price is £260 with *tonneau* body, which should bring the car within the reach of many would-be *chouffeurs*. The Decauville Company also exhibit a chassis of this model. Among the other vehicles shown is the historic 5-h.p. of the wonderful thousand miles non-stop run at the Crystal Palace. Another 5-h.p. model as well as two 8-h.p. cars call for no par-

ticular attention, but the type of vehicle designed for the use of banks is distinctly interesting. Placed upon an 8-h.p. frame, the body is by Jeantaud and resembles a cross between a coupé and an omnibus. The driver and the passenger beside him are protected by a wooden roof and then behind them is a compartment provided at one side with a seat, at the other with a locker up to the height of the window, and at the back with a large and strongly-constructed cupboard. It is a capitally arranged vehicle and one which should appeal strongly to firms engaged upon work necessitating the continual conveyance of specie, etc.

Nothing new is to be noted upon the stand of MM Renault Frères, Rue du Point-du-Jour, Billancourt (Seine), but no visitor can pass without stopping to admire in particular the beautiful finished frame and motor there exposed. It is a splendid piece of work and affords the best argument in favour of confiding orders to this firm. Three *tonneaux*, two spiders, and a delivery car make up the rest of the exhibition, but the photographs of the Renault search-light car are worthy of attention as showing to what a variety of uses the horseless vehicle can be put.

The stand of MM. de Dietrich et Cie., one of the largest and most imposing in this year's Salon, is in every sense worthy of a firm which has been in existence some two hundred and seventeen years, and which possesses at the present time no fewer than six factories. Of these works those situated at Reichshoffen (Alsace) and Lunéville (Meurthe-et-Moselle) occupy themselves with the construction of automobiles, those built at the latter place being naturally for the French market. It was in 1896, after the excellent performances of the Amedée Bollée vehicles in the Paris-Marseilles race, that MM. de Dietrich et Cie. entered into negotiations with the Le Mans firm, negotiations which eventually resulted in the construction at Lunéville of the Amedée Bollée cars. These vehicles are so well known that a detailed description of them would be out of place, but it will interest English readers to learn that the type now in vogue will be superseded at no far distant date by a car provided with a cross shaft and driving chains on to the rear wheels. The present system of two lateral shafts, carrying at their forward extremities pinions which gear with cog wheels on the road driving wheels, will therefore be no longer employed, and this will be an undoubted improvement, as this gear, after some use, becomes distinctly noisy. The first vehicle to attract the attention of the visitor when inspecting the stand is a large six-seated *tonneau*, carrying in front under a square casing an 18-h.p. motor giving some 24 h.p. on the brake. Weighing 13,000 kilogrammes, this car runs up to eighty kilometres, or fifty miles, per hour, and as its tank can carry eighty litres of petrol, some 300 kilometres can be negotiated without recharging. The motor is of the four-cylinder horizontal type; inclined wheel-steering is fitted, and to this pillar are attached the manipulating levers. The speeds are four in number, and the reverse is brought into action by means of a lever placed to the left of the driver. The tires on all four wheels are 120 mm. Michelin, and the vehicle is priced at £800. A somewhat curious car is a Berlin coupé, in which to the ordinary coupé there has been added at the back a seat protected by a large hood. Six people can be accommodated on this carriage, which is fitted with a 9 h.p. motor. Another original type is a six-seated car, of which Kellner has built the body. All the occupants face the same way, and the awning carries three glass screens, one at either end, and one which divides the driver from the passengers behind. Both these cars have curved splashboards to which the radiators are attached, but there are, in addition, a couple of vehicles upon the stand provided with the pointed prow characteristic of the Dietrich cars. These vehicles are respectively a "spider" and a *tonneau*, and each carry a 9 h.p. motor. The remaining vehicle shown upon the stand is a 12 h.p. omnibus destined for the use of the Société Française des Automobiles en Corse, Bastia, Marsiglia. It accommodates eight people, three upon the driver's seat and the remainder behind. A door at the side gives entrance to the middle or coupé portion of the car, while the other passengers reach their seats by means of a door right at the back. The arrangement is very neat, and the vehicle, painted in green and yellow, looks both smart and serviceable. MM. de Dietrich also exhibit in the heavy car class,

one vehicle being a 9 h.p. lorry as used by the military authorities.

As would be expected, the exhibition made by MM. E. Delahaye & Co., 10, Rue du Banquier, Paris, is an extensive one, and as the chassis constructed by the firm lends itself very readily to the carriage-builder's art, a great variety of types are to be found upon the stand. Looking at the smaller vehicles one remarks three examples of the well-known *voiturette* fitted with 6 h.p. engines. The first of these is a *tonneau*-shaped wagonette in natural wood, the upholstery of which is in a smart slate-coloured cloth. A dainty two-seated car, painted in blue and yellow, with a basket placed upon the platform behind, is the second example, while the third is a similar vehicle but is provided with a third seat at the back. This latter type is known in France as a "spider," and is much in favour, for the additional seat affords accommodation for the engineer. Among the larger cars one is at once attracted by the appearance of a 10-h.p. "Limousine," a kind of coupé, the two rear seats being entirely covered in, while the driver is protected overhead only. The bevelled glass windows of this carriage and its smart upholstery and painting combine to make a very attractive vehicle. Another car is the 7½-h.p. *tonneau*, while for those buyers who are on the lookout for a town vehicle a six-seated covered-in wagonette and a four-seated cab are well worth attention. A snowy-white phaeton upholstered in red leather is also a pretty car, and is one in much demand. Upon none of these vehicles is there any new feature excepting the ignition timing arrangement which is now being attached to all the cars constructed by MM. Delahaye & Co. The exhibition is completed by two motors, one developing 6 h.p., and the other 10-h.p., both being mounted for stationary work.

The car constructed by the Société Industrielle des Téléphones, 25, Rue du Quatre Septembre, Paris, under the Ader patents, is of such recent date and has given such satisfactory results that novelties are not to be looked for there. I described the car in detail in these columns during the Exposition Universelle, and I would therefore simply remind readers that the engine itself is at present made in two sizes. The one is of the two-cylinder air-cooled type, developing 3½ h.p. at 1,800 revolutions, and weighing about 56lbs. The other is a two-cylinder water-cooled engine giving 6 h.p. at 1,200 revolutions, and fetching down the scale at 100lbs. In both cases the cylinders are angled at about forty degrees, in this respect somewhat resembling certain of the earlier Daimler engines. The cars shown at the Grand Palais comprise a two-seated and a three-seated vehicle, the latter being of the "spider" type. Complete, these carriages weigh about 960lbs., or some 8½ cwt. There is also a very handsome cab with a small seat at the back for the engineer. Motors, frames, bodies, upholstery, etc., all come from the company's own works, an excellent guarantee of their quality.

The disastrous fire at Monsieur Vinet's factory in the Rue Brunel has not prevented that constructor from making a capital little show at the Grand Palais. Built upon a tubular steel frame the Vinet *voiturette* at once attracts attention by reason of its low centre of gravity and by its system of transmission. Without perhaps presenting any entirely novel features, this latter is deserving of notice on account of its simplicity and the smoothness of its action. The motor being carried in front the propulsion force is conveyed by means of a leather belt to a pulley keyed on to a shaft placed at the back of the frame and upon which slide three gear wheels. A lever placed at the left hand of the driver, who is seated on the left hand side of the car, actuates these gear wheels, which engage with corresponding wheels carried upon the back axle, thus giving the speed desired. Placed before the driver is a foot pedal which operates upon a jockey pulley destined to release the driving belt from the tension which may be given to it by the application of a powerful lever also placed at the driver's left hand. By this arrangement the motor is thrown in and out of gear with remarkable smoothness, and the trouble of a stretching belt is entirely overcome. The motor employed is the 3½ or the 5 h.p. De Dion, and a radiator is carried in front of the engine casing. The water circulation is effected by a centrifugal pump driven by a special chain, and the two band brakes with which the car is provided

act in both directions. M. Vinet gives a wheel base to his *voiturette* of 1 mètre 45, and its width is 1 mètre 215—measurements which, with the low centre of gravity, render the upsetting of the car practically impossible. A reverse gear is also provided. The cars shown are a couple of *tonneaux*, a three-seated "spider" and a two-seated "Duc," in addition to which a wheelless chassis gives the curious an opportunity of studying the details of the mechanism. I may add that M. Vinet's present address is 61, Rue de Villiers, Neuilly-sur-Seine.

La Société des Automobiles Koch, 14, Rue du Bac d'Asnières, Clichy (Seine), show a very interesting car intended for the transport of carrier pigeons employed for military purposes.

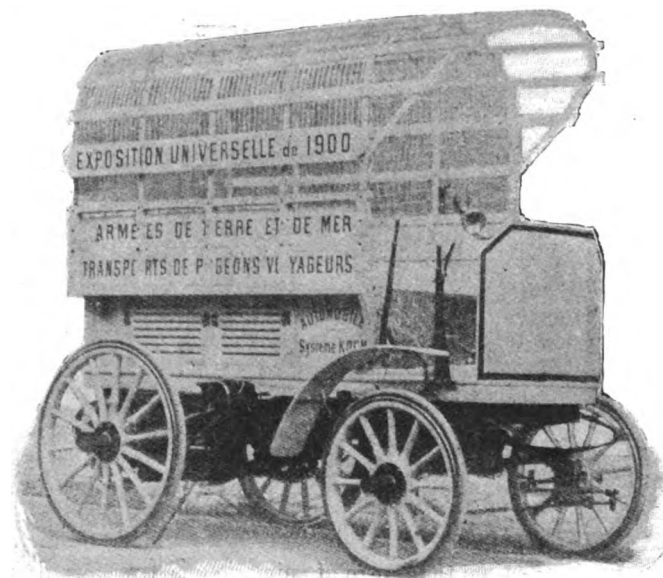


FIG. 3.—THE KOCH MILITARY PIGEON TRANSPORT CAR.

This vehicle (Fig. 3) resembles a large cage on wheels, and with its slate-grey paint looks every bit an army car. A smart phaeton, with a wooden coupé-like covering over the rear seats, and a dog cart are the other vehicles shown.

Among the *voiturettes*, that constructed and exhibited by Monsieur de Coster, Rue Petit, Saint Denis, is of particular interest, as the arrangement adopted for the protection of the motor and vital organs of the car is very ingenious. The specimen shown is a two-seated car, propelled by a 5 h.p. water-cooled Aster motor. This engine is carried in front under the usual case, which, as well as the splash-board and the flooring of the car, can be removed in a few minutes. When this is done one finds that the underside of the frame is cased in, and that the motor and gear rest as though in the bottom of a boat. By this arrangement every vital organ can be as easily inspected and worked upon as though placed upon a bench. Attached to the outside of this under casing is the radiator. Three speeds and reverse are provided, and the transmission is direct. The steering is of the inclined-wheel type, the ignition is electric, and the car exhibited is provided with a handy basket attached to the platform at the back of the frame. The price is £172, and M. de Coster will shortly be able to supply *tonneau* cars fitted with 6 h.p. Aster motors. The disposition of the engine and gear in their case is an excellent idea, and should render the vehicle entirely free from all those troubles so common in small, slow *voiturettes*.

(To be continued.)

MR. MARK MAYHEW, L.C.C., is to open the discussion on the 1,200-mile Trial at the Automobile Club on Wednesday next.

THE Ariel Cycle Company, of Birmingham, are putting a new two-seated *voiturette* on the market. The car is fitted with an Ariel 3½ h.p. water-cooled motor. A change-speed gear, giving normal speeds of 8 and 22 miles per hour, is fitted; the intermediate speeds being, of course, obtained by varying the electric ignition. The car is 7ft. long by 4ft. in width, and weighs 4½ cwt.

FRENCH SHOW GOSSIP.



THE Salon has been organised in the main by the Automobile Club de France, although various other bodies have also assisted in the promotion of a show which includes over five hundred exhibitors, most of whom appropriate a large amount of space. The whole of the vast floor is utilised, and the same may be said of the gallery, while several of the halls that lead therefrom are also occupied with exhibits of one kind or another. Though termed an international exhibition, it is undoubtedly French, as the entire number of foreign entries could be counted on two hands.

THE painting of the bodies of the cars is a study in itself; bright tints seem to prevail, and very effective they are.

CONSIDERABLE interest is being shown in the steam travelling caravan "Quo Vadis," in which M. Turgan, of Messrs. Turgan, Foy and Co., recently made a tour through Tunis.

THE effect of the cut in prices by Messrs. Panhard and Levassor is the leading topic of conversation, price lists with revised quotations being already largely the order of the day.

ONE of the most interesting exhibits in the gallery is undoubtedly that of M. A. Deschamps, who displays his auto-incandescent ignition device. The arrangement has attracted considerable attention.

QUITE a number of new motor-bicycles have made their appearance at the exhibition.

ONE of the cars which is attracting considerable attention is that shown by M. De Coster. The motor and transmission gear are laid, as it were, in the bottom of a boat. The front seat and bonnet are readily detachable, giving access to all the working parts, the wooden bottom shielding them from mud and dirt.

AT closing time the centre of animation is transferred from the inside to the outside of the exhibition, the large number of motor-cars drawn up in line waiting for their owners and passengers being a most striking object lesson of the great practical strides automobilism has made in France.

ONE of the busy men at the exhibition is M. Tourand, the proprietor of the well-known *garage* at Havre, from which place he drove to Paris *en auto* in less than six hours.

THE exhibition has been well visited by English motorists and motor-car manufacturers and agents. To undertake to say who was at the show would be to practically compile a directory of the trade, but hardly a day has passed without several familiar faces being seen, while last week end there was an unusually large muster.

THE Koch Company are reported to have so improved their heavy oil motor as to be able to turn out a car which shall be absolutely odourless.

ASTER motors are now being made up to 4 h.p. capacity air-cooled, and 6½ h.p. water-cooled.

ONE result of our visit to the show is the elicitation of the fact that there are quite a number of French motor-car builders anxious to fix up agencies for their cars in this country.

ALTHOUGH the Show is one for motor-cars and cycles, the former not only completely overshadow the latter in point of size, but also in numbers. We see from the *Vélo* that while there are only 562 bicycles and tricycles, there are in the building no less than 637 automobiles, consisting of cars, vans, motor-tricycles, quads, and bicycles. And this without including the motors and the thousand and one automobile accessories.

A SIDE hall of the Salon is devoted to an exhibition of motor "ancient history." Prominent among the old cars is the original steam carriage of Cugnot, built in the eighteenth century. There are also the first motor-vehicles designed by Gottlieb Daimler, dating from 1885; the first types of Benz vehicles; the early Bollées and Dion-Boutons; the first electric car; a Draisienne (1797); and many other cycles of historic interest.

ONE of the first persons we saw at the exhibition was M.

Charron. He has no necessity to have an exhibit of his own, as all the time he is surrounded by clients and others. It is Charron's firm that has secured the order for a powerful car from Mr. Clarence Mackay, referred to in the *Journal* last week.

MEETING Mr. Farman, of Messrs. Farman and Co., of Paris he informed us that they are about to open a London *dépôt* at 100 to 104, Long Acre, W.C., where a large stock of cars, for which they hold the agency, will be kept on hand.

AMONG the many English visitors to the show last week were Mr. and Mrs. Kennard, of Market Harboro', who have, we hear, ordered a "chainless" car.

MR. JOHNSON, the secretary of the Automobile Club, was among those who visited Paris last week. His visit was, however, of the briefest. Reaching the capital about 11.30 a.m., a short spin in a 8-h.p. Panhard car was first indulged in. In the afternoon he spent some time at the A.C.F. headquarters, followed by an hour or so at the exhibition. At 7 p.m. the same evening Mr. Johnson was on his way back to London.

A VEHICLE which has come in for a large amount of inspection at the hands of visitors, is the bank or commissionaire's wagon, to be seen on the stand of the Decauville Company. It is like a sort of small omnibus, the inside being fitted with cash drawers, lockers, etc. An automobile with strong boxes is certainly an original idea.

MOST of the English visitors to the show have eagerly sought the stand of the Serpollet Company to inspect the car built to the order of King Edward the Seventh which has been stated right and left as being on view. They have, however, all been doomed to disappointment, for, as a matter of fact, the Royal car as yet only exists in the drawing office. It is, however, a fact that the Serpollet Company are building a car for His Majesty; it is hoped that the vehicle will be completed within the next three months, and it is possible that it will be on view at the Agricultural Hall in May next.



FASHIONABLE florists in New York are using expensively decorated automobiles to deliver their goods.

THE A.C.G.B.I. is still considering the acquisition of suitable premises for a *garage*.

THE Marquis of Hertford was present at the recent automobile demonstration at Warwick.

WHEN a man with a new automobile first meets his friends he holds his breath while they proceed to examine the interior workings of the vehicle and its mechanism.

THE Georges Richard 8 h.p. "Limousine" car illustrated on another page is known in this country as the "Prince," the agents being the Automobile Manufacturing Company, of Long Acre, W.C.

WHEN the motor comes into its own the sight of overloaded horses driven and urged on by a brutal or careless driver, straining every muscle and nerve to move their loads up stiff, hard gradients on a greasy surface, will be relegated to the past.

THE "York" car is the name given to a new light motor-car introduced here by the British and Colonial Motor-Car Company, Ltd. It can be fitted with a 5 h.p. De Dion or a 6 h.p. Aster motor at the option of the purchaser. Electric ignition is fitted, and three speeds forward and a reverse available.

A CYCLE and motor-car exhibition was opened at Liverpool on Tuesday. Among those exhibiting motor-cars are Mr. William Lea, of Birkenhead, who has a big display, including a number of Benz-type cars, a Progress voiturette, a Decauville voiturette, a De Dion tricycle, a Butler tricycle, and a Werner bicycle. The Liverpool Motor-Car and Motor-Cycle Company display a Perfecta quadricycle, a Marot-Gardon voiturette, and motor accessories and fittings. The Locomobile Company show their well-known light steam car; Mr. W. Johnson, Wavertree, a Dechamps and Victoria; Mr. Robert Crabtree, Birkenhead, a Star motor-car; Messrs. R. Hardie and Co., Liverpool, a Singer motor-bicycle, etc.

MOTOR-CAR RACE TRACK CONSTRUCTION.

THE recent motor-track races in the United States have demonstrated in a very conclusive manner that the ordinary race track, especially the short track of an oval form, is ill adapted to automobile racing. In the races at Guttenberg, for instance, the contestants had to slow down the speed of their vehicles when approaching the end of the track, and make the turn at a lessened rate, greatly reducing their average speed. The end curves of these tracks are of such a short radius, and the momentum of an automobile racer when going at its maximum is so great, that there is imminent danger of overturning, unless the speed be reduced at these places. One of the contestants in the Guttenberg races sought to balance the

racing car the driver may considerably vary the distribution of weight by leaning to one side, but this expedient is practically inapplicable to racing automobiles, as the operator has to keep at his levers, and, besides, a little displacement of the weight of the operator is of less importance here on account of the heavy weight of the motor-car. The tread of the automobile racer is usually the standard 4 ft. 8 ins. of the common vehicle, but in the case of some of the lighter machines it is even less. With the same supporting base as the racing car, less favourable distribution of weight, and a much higher speed, it is evident that the racing automobile requires a specially-constructed track to show to the best advantage. Such tracks must have a contour of at least one mile, be of a circular form, and be banked to counteract the influence of the centrifugal force. In laying out such tracks, with the proper slope of bank, a speed of from 60 to 75 miles an hour may be attained with reasonable safety.



THE NAPIER 9 H.P. DELIVERY VAN.

moment of the centrifugal force, by having his companion stand on the inner step, and holding himself on the seat by the handles of the dash, and leaning far out from the vehicle on the inner side, when the curve was being rounded. This proceeding, although effective, as far as the overturning tendency of the vehicle is concerned, does not prevent the wheels from slipping sideways, and is at best but an imperfect expedient, which will serve in the absence of something better.

It is well known that ordinary racing-cars give considerable trouble from side-skidding when provided with iron tires, but the greater adhesion of rubber overcomes this difficulty. But in automobile racing we have to figure with much higher speeds and greater weights than those encountered in horse racing, and the tendency to side-skidding is thereby so much increased that even the superior adhesion of rubber cannot prevent it.

Concerning the overturning tendency, it may be said, states the *Horseless Age*, that it is equally affected by increased speed. Other factors which influence this tendency are the distribution of the weight of the car, the height from the ground of the centre of gravity, and the tread of the vehicle. In a light horse-

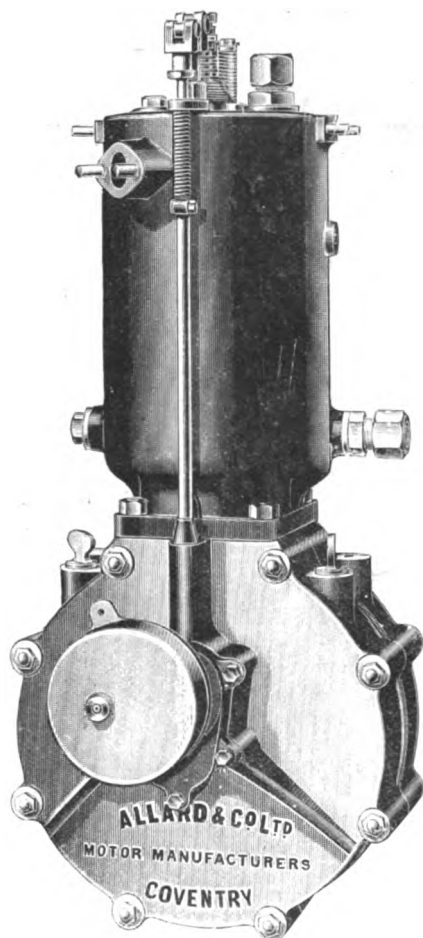
THE NAPIER 9 H.P. DELIVERY VAN.

IN addition to pleasure cars the Motor Power Company, Ltd., are now devoting attention to the construction of delivery vans and public service cars, and the illustration given above depicts the first van they have turned out. The frame of the vehicle is of the standard type; it is fitted with a 9 h.p. Napier engine, and will carry loads up to 30 cwt. In view of the necessity of motor-carriages running thousands of miles without having to renew bearings, etc., special attention has been paid to the gears and bearings, they being of strong construction.

THE last run of the members of the Long Island Automobile Club, of Brooklyn, U.S.A., was seriously interfered with by the weather. Only five cars materialised, and the drivers of these did not care to proceed further than Jamaica, although the original terminus was Bayshore, over forty miles from Brooklyn.

THE ALLARD PETROLEUM-SPIRIT MOTOR.

OUR Midland representative had a short run on an Allard car last week, and was agreeably surprised at the advance in motor construction that this firm has made during the past eighteen months. The car in question is a light voiturette to seat two passengers and a driver. It is belt-driven, $4\frac{1}{2}$ h.p., has two speeds, electric ignition, improved spray carburettor, and a special form of water circulation, doing away with the pump. The car itself is of a very neat design, and has a long wheel base. Messrs. Allard and Co. have been experimenting with motors for a considerable time, and have overcome most of the difficulties that beset them, such as excessive noise,



THE ALLARD $4\frac{1}{2}$ H.P. WATER-COOLED MOTOR.

vibration, and smoke. These were quite unnoticeable in our representative's short spin, and to give some idea of the power of the motor, it may be mentioned that the car was able to get up a gradient of about one in eighteen on the top speed, with two passengers aboard.

THE first annual dinner of the Yorkshire Automobile Club, which was recently postponed, will be held on Thursday next at the Hotel Metropole, King Street, Leeds.

AT the New York motor-car show, one of the exhibitors sprung the word "automotourette" upon the public. The wonder is that the public did not spring upon him in return. That would have been a mild punishment indeed.

IN answer to an inquiry from the French Government, the Secretary of the United States Treasury has announced that horseless carriages, or automobiles, or parts thereof, imported into the United States, will be subject to duty at the rate of 45 per cent. *ad valorem*, "as articles or wares composed wholly or in part of metal, under paragraph one hundred and ninety-three of the Act of July 24, 1897."

CORRESPONDENCE.

MOTOR-CARS FOR MEDICAL MEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have noticed for some time past in your columns letters under the above title.

I am a medical man practising in Norfolk and Suffolk. Up to three years ago I kept in the summer two horses and often during the winter three. Every year I had to part with one of them and buy another, losing a good deal of money over the transaction; in fact, I found the hay-motor a great worry and a very great expense. Not being a judge of horseflesh I was duped by dealers and grooms. I then resolved to go in for a motor. I was unlucky in my first choice, for, believing implicitly in advertisements and agents' statements, I invested in a car which in a few months cost me £40 in remedying defects, faulty workmanship, and adding necessary improvements. Then, for spring, summer, and autumn, I found that I had a very nice little carriage on which I could depend. At the same time, for winter use over stony, muddy country roads, it was absolutely useless; so after two seasons I sold it. In the meantime, I had purchased a Beeston trike $2\frac{1}{2}$ h.p.

Now I have been using a trike for the last two years, and can only come to the conclusion that, for a medical man, there is not a more expensive, more unreliable, more worrying means of locomotion than a motor-tricycle. I first of all did away with that constant source of annoyance or bad language the De Dion contact breaker; when the roads have been covered with mud I have dismounted times without number to clean the platinum points or readjust the trembler. I now use the Beeston contact breaker and never look at it from one year's end to another, it is perfect and never gives any trouble. Then I discarded dry cells—they are too short-lived, too unreliable and expensive. I now use what I consider the best accumulators in the market—I have tried several—Van Raden's glass woven. Finally I dispensed with the compression tap. I do not use any lever to raise the exhaust, for I cannot see why I should flood my combustion chamber with the heated products of combustion. In its place I have devised a valve very similar to the additional valve fitted at the back of the Benz Ideal cylinder. I have placed this where the ignition plug was fitted—to my mind a very unsuitable place, by far too hot for the plug—and have fitted mine at the head of cylinder, where the porcelain is more efficiently cooled and therefore less liable to crack. By means of a lever I depress the valve and so release the compression, then allow valve to work, and in my opinion I have increased the h.p. of my motor, in the same way that the h.p. of the Benz was improved. Besides that, by continually sucking in cold air it helps to keep the engine cool.

I am now the proud owner of a Wolseley voiturette. It is the ideal medical man's carriage, every detail having been well thought out. The engine is very powerful, easily get-at-able, and simple in construction.—Yours truly,

EBER CAUDWELL, M.R.C.S., L.R.C.P.

THE GENESIS OF THE MOTOR-CAR

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—May I venture one or two corrections respecting the interesting article in last week's issue? I will not attempt to dispute the honour of the unknown Augsburg genius, although, I believe, it has generally been understood that Cugnot was the first builder of a steam-propelled vehicle of any description, but according to Mr. Fletcher's exhaustive history, "Steam Locomotion on Common Roads," these facts appear conclusive. (1) Sir Isaac Newton does not seem to have actually built a carriage, it was only a suggestion. (2) Murdock was not only discouraged by Watt (who was much annoyed by his experiments), but was induced by him to abandon them. There is no positive evidence to prove that Watt knew anything of the carriage constructed by Murdock until after its completion, which was only a model, and is now in the Birmingham Art Gallery. (See page 32, etc., of the above work, also Smiles' "Men

of Invention and Industry," also Muirhead's "Life of Watt." Murdock had no doubt heard of his employers' proposed steam carriage scheme (which, by the way, seems never to have got outside the works), and doubtless thought he would do a little experimenting on his own account. (3) With all due respect, I absolutely deny that Sir Goldsworthy Gurney's efforts deserve the remark—"to whom more than any other the automobile is due." He was successful, I grant, but far less so than Hancock, who did wonders without the advantages of Sir Goldsworthy Gurney's position, influence, and capital (see Young and Holley's "Economy of Steam on Common Roads," published 1860, pages 190 and 193. Also Fletcher, page 97, etc.). (4) The accident to which reference is made did not occur to one of Gurney's carriages, but to one of Mr. Scott Russell's (see Young and Holley as before; also Mr. Fletcher, page 136; and likewise the *Mechanic's Magazine* of 1834). (5) It is a little severe on our English engineers to state "it was not until the early seventies that the automobile began to assume the form to which we are gradually becoming accustomed. What are we to say about Mr. Ricketts' clever little carriages built for the Marquis of Stafford and the Earl of Caithness, 1858, weight 30 cwt., with ability to carry four persons besides the driver at ten miles an hour? This compares fairly well, I think, with our present Panhard carriages. Again, what about Lough and Messenger's steam carriage, 1858, weight 8 cwt. only, and speed fifteen miles an hour, with six miles an hour up grades of one in twenty? I think our Continental friends cannot beat this at the above date.

I might multiply instances, but I forbear, and I must hope your generosity will pardon this rather lengthy letter, for which I trust you will forgive me for troubling you.

Yours faithfully,
PRECURSOR.

THE DE DION VOITURETTE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to the query of Mr. Augustus Kent, in your issue of last week, if your correspondent would care to send me his address, I should be only too pleased to give him all the help I can in connection with his voiturette. I have had a few through my hands, and I have never encountered any serious defects. I have found that the pumps give little trouble, and as regards the clutches not gripping properly this is probably only a matter of adjustment.

I am, however, prepared to admit that this adjustment would give an unmechanical man considerable trouble.

Yours truly,
TUBULOUS.

A SUBSTITUTE FOR PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am sorry not sooner to have seen the inquiry of your correspondent "W. W. H." in the issue of the 12th ult. There is no car except the Gobron-Brillié which will run indiscriminately on alcohol (pure or mixed with benzole) or petrol; all other cars require an alteration of the carburettor. The Gobron-Brillié engine works with a positive feed which replaces this litigious accessory.

Were it not for the heavy duty on alcohol there is no doubt this would soon prove a strong competitor to petrol, with the additional advantage of being a home product competing with a foreign import.—Yours truly,
W. T. PRETTY.

BURSTING OF IGNITION TUBES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with interest the letter from Mr. W. R. Youngs in your last issue, in which he mentions having driven a car 37,000 miles inside two years. I am afraid he is too modest in saying he is not a motor expert, as anyone who can use a car for this distance and never require a new platinum tube must have some very particular knowledge.

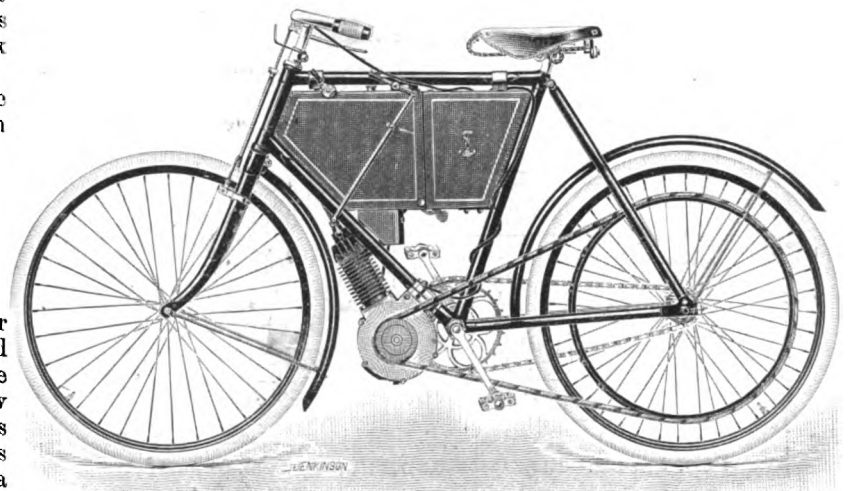
I would like to know how often he has had to replace the brasses in his bearings, the chains and the tires, as I have never

heard of anyone who has had such a tremendous road experience in such a short time. An answer on this point I am sure would be most interesting to many of your readers as it will to myself.

Yours faithfully,
J. HOWARD MACDONALD.

THE EXCELSIOR MOTOR-BICYCLE.

STILL another motor-bicycle to make its appearance on the market is the Excelsior, built by Messrs. Bayliss, Thomas, and Co., Ltd., of Coventry, and of which an illustration is given herewith. The machine is an ordinary standard pattern bicycle, but built of stronger gauge tubing. The weight, complete with motor, tank, battery, carburettor, etc., is under 70lbs. The power is furnished by a 1½ h.p. petrol motor, with electric ignition. Petrol sufficient for a 90-mile run can be carried, while the highest speed obtainable is 30 miles per hour. The motor, being fixed at a low point of the frame, and in a central position, is claimed to run very steadily. There is a minimum of vibration, as the motor runs in the same direction as that in which the bicycle is travelling. By simply detaching the driving belt, the



bicycle can be ridden independently of the motor. Further, it is only necessary to detach three clips to strip the cycle entirely and re-convert it into an ordinary safety.

THE death is announced of Baron Rogniat, a gentleman well known in French motoring circles.

A PHOTOGRAPHIC competition is being organised by the Automobile Club de Nice for the 10th April next.

To prevent racing the Long Island Automobile Club has announced that any competitor in its endurance run in March next who exceeds fifteen miles an hour will be disqualified.

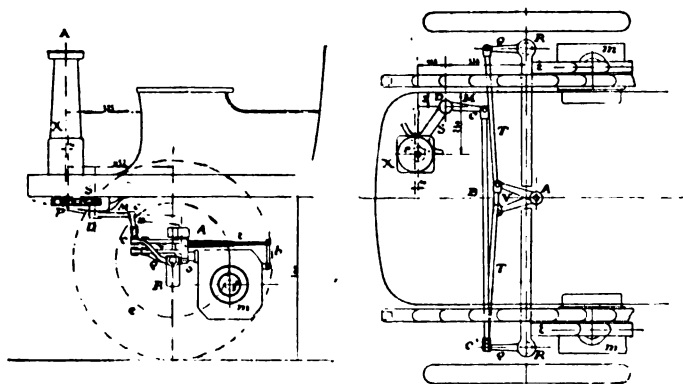
THE postmaster of Worcester, Mass., U.S.A., is anxious to inaugurate a service of motor vehicles for mail collecting purposes. They would, he considers, permit of quicker delivery of all city mail matter.

ONE of the wreaths sent to Windsor on the occasion of the Queen's funeral was from the A. C. G. B. I. This took the form of a wheel with outstretched wings attached to the axle, and bore the inscription "A token of the profound grief of the members of the Automobile Club of Great Britain and Ireland."

ON the occasion of a fancy dress ball given at Delmonico's, in New York, the prize for the most original costume was given to a "flame-coloured automobile costume, lighted from head to foot with electric lights, a brilliant searchlight crowning the head of the fair wearer." Just how this description covers an "automobile costume" we have been unable to discover.

THE KRIEGER ELECTRICAL VEHICLES.

WE are this week able to illustrate two of the many types of electrical vehicles built by the Compagnie Parisienne des Voitures Electriques, of 45, Boulevard Hausmann, Paris, who control the rights in the Krieger system. The illustrations (Figs. 3 and 4), show respectively a four-seated brougham and a four-seated victoria. As is already fairly well known, the principal feature of the Krieger cars is the employment of two electric motors connected by spur gearing one to each of the front road wheels, which are thus used both for driving and steering. The motors are suspended by springs from the fore-carriage in such a way that no jerking is felt on starting. The motors, which are interchangeable and readily detachable, are entirely enclosed, so that no dust or dirt can get into the working parts. The battery of accumulators is divided into two groups. Its weight is about 11½ cwt. and its capacity, on one charge, fifty-six miles at an average speed of 11½ miles per hour. The controller, which is mounted on the steering standard, is adapted to take eleven different positions, viz.: stop, start, five speeds forward, reverse motion, electrical brake, and battery recuperation (two). All parts of the controller switch can be readily inspected and cleaned, it being enclosed in a detachable cylindrical envelope. In addition to the electrical brake, band brakes on the rear wheel hubs are provided. The frame of the vehicles is built



FIGS. 1 AND 2.—ELEVATION AND PLAN OF FORE-CARRIAGE.

up of wood and steel and is spring suspended on the axles. The wooden road wheels are fitted with pneumatic or solid rubber tires as desired. The two cars illustrated weigh complete between 28 and 29 cwt., and can attain a maximum speed of 15½ miles per hour.

AN automobile school for ladies is to be opened at Chicago, Ill.

THE Berkshire County Council has given its support to the movement for numbering motor-cars.

MR. ALFRED HARMSWORTH, who, as already chronicled in these columns, is in the United States, has added a Locomobile to his automobile stud. It is one of the No. 05 style.

THE English Motor Club's run to Farnham takes place to-day (Saturday, the 9th inst.). The start will take place at 1.30 p.m. from the Westminster Bridge end of the Embankment.

IN the coming races at Nice one of the 40 h.p. Daimler cars will be fitted with special anti-skidding tires known as the Chameroir, of which we shall have more to say in a later issue.

A COMPANY has been formed in Italy to organise motor-omnibus services between Pavie-Albaredo-Broni-Stradella-Sainte-Marie-della-Verna, fifty-five miles; between Rivanaz-zano-Godiasco-Bagnaria-Varzi, twenty miles; and between Pavie-Motta-Belgioioso-Torre-de-Negri-S. Zenone-Pieve-Porto-Morone, twenty-five miles. The cars for the service are said to have been ordered in France.

FALLING in line with the picture postcard craze on the Continent, *Le Vélo* has lately issued a collection of postcards illustrating notable cyclists and *chauffeurs*. The automobile series, a set of which has been sent us, including such well-known motorists as Baras, Béconnais, Charron, Girardot, Gilles Hourgières, René de Knyff, Marcellin, Osmont, Teste, and Velghe.

MOTOR-CAR CONSTRUCTION AND CONSTRUCTORS.

AUTOMOBILE construction is the latest development in mechanical engineering. It is also the most important development that has taken place for many years, for it demands great skill on the part of the constructor, and its consequences are obviously of the most far-reaching character. When the great revival in the subject of transportation upon common roads commenced a few years ago many people held the view that the construction of a motor-car was a simple matter, and that to make a steam wagon all that was necessary was to take a boiler and engine, put them on road wheels, transmit the power, and there you are. Some that held this view attempted to put it into practice, with the result, after spending their thought, and their money—or some one else's—that their views had to undergo a violent change, and they were forced to admit to themselves that there was “a good deal more in it” than they had imagined.

Some were, by force of circumstances, unable to proceed further, but others were able to utilise their experiences for fresh trials, and the acquisition of further knowledge, that will advance step by step—slowly, yet surely—to ultimate practical and commercial success. There are many courses open to the engineer who starts with an accurate and extensive knowledge, not only of pure physical science, but also with an up-to-date familiarity with methods of mechanical construction; and to one who is not so equipped at the start, the way is likely to be rough indeed, and many expensive and bitter lessons will have to be learned, which might have been either avoided or assimilated in a nicer way by a more liberal preliminary training and mental equipment.

“I say there are many courses open,” remarks Mr. Thomas Clarkson, M.E., in the *Horseless Age*. “First, he may decide whether to go in for steam, petrol, or electricity, and it is to be hoped that he is not tempted to try other possible fields, unless his financial resources are practically unlimited. Each of the three general classes of motor-cars may be subdivided further. Thus the steam class may be turned into burner, boiler, and engine construction, as well as transmission gears; the burner being put first, as it has proved to be the most difficult and refractory to deal with satisfactorily. In petrol vehicles the engineering is mainly confined to the internal combustion engine, the carburettor, and the transmission gear. In electric vehicles there are but two features, namely, the motor and the battery, that specially call for engineering skill upon this class of carriage. Besides the above specific divisions, there are the general features of wheel and tire construction; framing, steering, braking, suspension, distribution of load, and the object, or purpose, for which a particular vehicle is intended to be used. All of the above considerations are practically independent of the work of the coach builder—whose art is properly to be expended in suitably encasing, or clothing, the vital organs of propulsion with a pleasant exterior that, other things being equal, will considerably assist to sell the vehicles.

It will be wise for the automobile engineer who is limited in his financial or technical resources to take some type of motor that is made, as a standard, expend himself in applying it to a vehicle in the best way, without concerning himself or assuming direct responsibility for the working of the motor, but giving his special attention to the style of vehicle, in relation to its intended use, and in arranging the position of the vitals in the most suitable and convenient manner. There are many small details about a car in which considerable improvement can be made, and it is generally better to concentrate upon these than to deal with the more serious and important matters of vital construction, which had better be left to those best qualified by experience and cash to deal with.

Before the new industry can settle down to regular successful work, it is necessary to arrive at something like a fixity of type of each important part of construction. At the present time there is no fixed type of steam boiler for heavy motor-wagons. It is yet too soon. Some makers use the ordinary vertical fire-

tube construction. Others are trying boilers of the water-tube type in several varieties, and others, again, have adopted, or are experimenting with, the flash type of generator. It is reasonable to suppose that there must be some best type of boiler for this special purpose, but the experience gained so far is insufficient to determine which, if any, of those at present in use is to be the fittest survival. It is remarkable how generally similar in type are railway locomotive boilers all over the world. It is scarcely to be expected that the same degree of uniformity will ever be obtained in the case of road locomotives, for the reason that there will be such varieties in the classes and types of vehicles. Still some degree of uniformity will doubtless be obtained in each of the several classes.

There is but one rule as to the quality of everything pertaining to the generation, the transmission, and the utilisation of power upon a motor-car, namely, that only the best is good enough. There is nothing that can be devised by the mechanician, or supplied by the metallurgist, that is too good for the purpose. As greater knowledge and experience is obtained in the proper-

tensile strain of the toughest steel wire. This is clearly pre-eminently suitable for the construction of the flying machine in which it is used, and one of the constant endeavours of the automobile constructor must be to improve the suitability of the materials used for each part, by a careful testing of every new material that is produced.

The constructor has many difficulties to overcome before one ideal carriage can be supplied to the public at an accessible price, and in addition to the technical difficulties, which are in themselves quite sufficient, it is to be feared that he is not infrequently loaded with other difficulties that tend considerably to reduce his efficiency as a developing and inventing machine. One of the chief non-technical difficulties relates to the question of finance. When the worker is fortunate in having ample financial support from others, he must continually bear in mind that he is not on a philanthropic expedition into the domains of pure science, but that he is expected to lead them to the wealthy spots and to peg out—by patents—as much of it as possible. He will so often find that others have been over the same territory

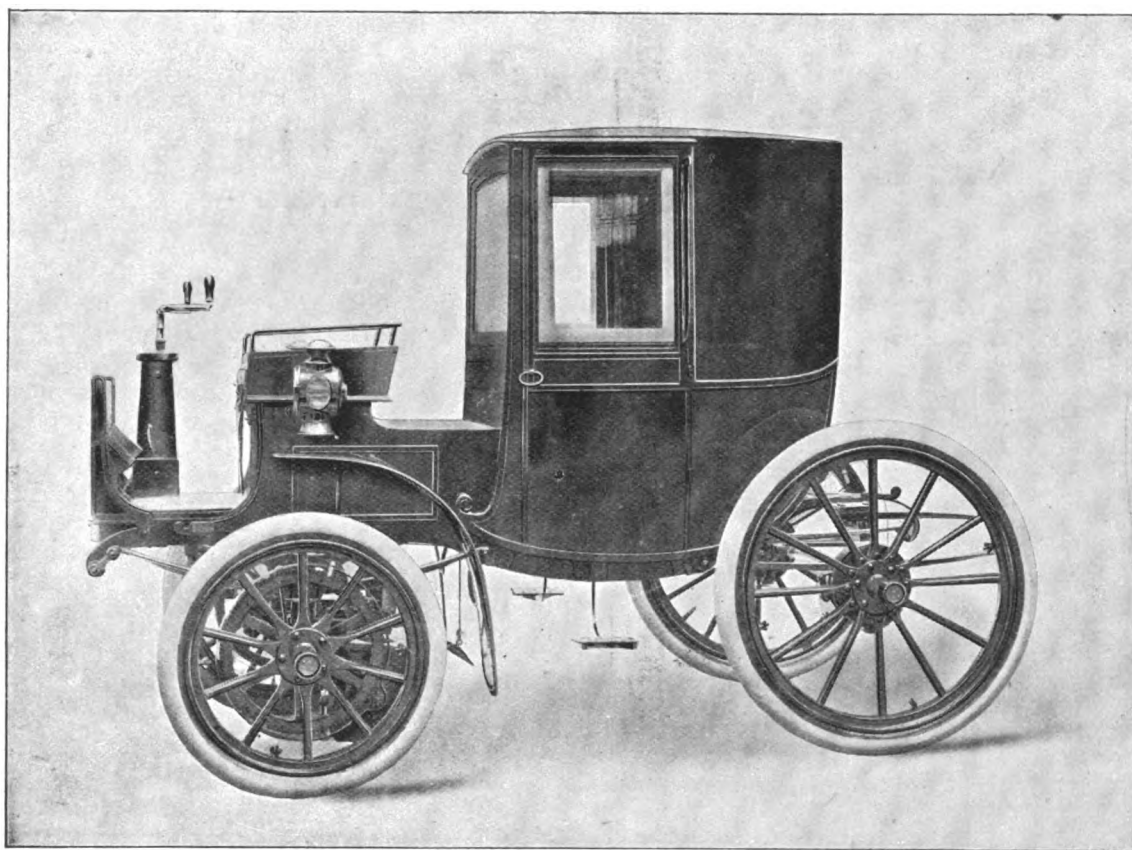


FIG. 3.—THE KRIEGER ELECTRICAL BROUGHAM. (See opposite page.)

ties and treatment of the various alloys of steel, the automobile constructor may expect to be supplied with a more suitable material for many important parts, giving greater tenacity and hardness where needed, with reduced weight and reduced liability to fracture. We may not hope that these materials of construction will ever bear even a slight comparison to the pre-eminent suitability of the materials designed and used in the construction of organic mechanisms, but these teach us that there is for each case and condition some specially suitable material, and it is an interesting fact that most, if not all, of the natural organic materials have been demonstrated to be much superior in strength and lightness to anything produced by the metallurgist, who supplies all (except the wood, leather, and rubber) that enters into automobile construction. A careful investigation of this point was made nearly twenty years ago by Prof. Osborne Reynolds. His results were startling, for it was conclusively demonstrated that a piece of quill taken from a feather will bear, in proportion to its weight, seven times the

before, and have staked out good areas, and all this penetration and judgment is needed to perceive a good thing that may have been overlooked by many others. Exploring a new country must always be expensive, and much time and labour are necessary to find out its best parts, so that patience and plenty of it is a great help in the backers. Unfortunately one of the common failings of the capitalist is impatience, and if the results he wants are not realised in what he considers a reasonable time, he is likely to prove disagreeable. Great tact and judgment are, therefore, necessary in dealing with this difficulty, and the pioneer will be careful not to put an undue strain upon a weak member.

If a man is concentrating all his faculties upon a diligent search for profitable improvements, it is manifestly to the advantage of all concerned that his backers see to it that he is protected against the attacks of hostile parties, whose ignorance, jealousy, and unprogressiveness would otherwise impede or even stop his work altogether. It would seem to be an elementary proposition

that the employer of an expert should seek to get the most out of him, and that one of the best ways to this end is to see to it that the conditions under which his work has to be done are made and kept as comfortable as circumstances will permit—for otherwise his efficiency as an inventive machine is liable to be greatly impaired. That this elementary principle is not universally recognised is only too true, and employers become angry and impatient at what seems to them unaccountable and unreasonable delay.

In every case the experimental and new work should be kept separate and distinct from the commercial. This is an old truth, yet it seems to need continual repetition, for the mistake is still often made, and always with the same results of lost money, time, and temper. As already pointed out, there is plenty of work for the improve, and will continue to be for years. It must not be expected that a car built to fully comply with any specification will leave nothing more to be desired, for as soon as a vehicle is finished and tested, its designer can at once see possible improvements, and it will often be the wisest

HERE AND THERE.

—88—
ACCORDING to the *New Liberal Review*, "the automobile is the vehicle of the future; it will rival the railway locomotive in usefulness."

MR. ROGER FULLER has, we hear, just received delivery of his 16 h.p. Napier car, which is now in the carriage builder's hands.

WE believe that the executive council of the County Councils' Association will consider the recent letter of the Automobile Club at their next meeting.

AT the Manchester Assizes this week it was intimated that in the case of Foster and another v. The Daimler Motor Company, Limited, the record had been withdrawn upon terms.

THE more the motor vehicle industry is examined in its various aspects, the more its future impresses observers as certain to grow to good proportions.

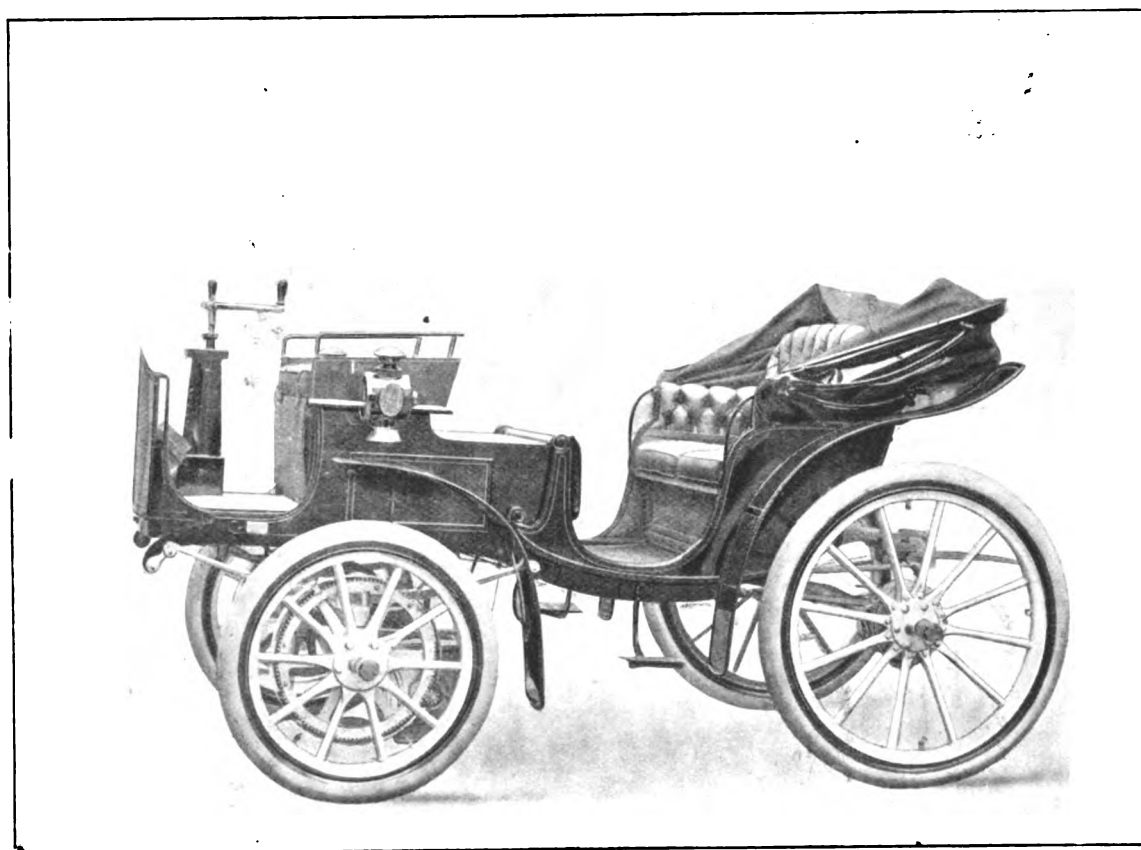


FIG. 4.—THE KRIEGER ELECTRICAL VICTORIA. (See page 830.)

policy to make another entire and even a third, before placing it on the market. This needs grit on the part of the backer, and if he has not got it, he is not fit for the business.

THE seeker after the perfect vehicle may not succeed, but his failure is never due to lack of application

MR. W. R. McTAGGART, 102, Grafton Street, Dublin, has been appointed agent in Ireland for the sale of the "Argyll" voiturette.

MR. W. O. SPILLER, of Bassett, near Southampton, has a repair shop practically on the London road, and gives personal attention to automobile repairs.

THE Long Island farmers are so terrorised by the flying visits of the "White Ghost" car of Mr. W. K. Vanderbilt, jun., that they are reported to be petitioning the Legislature to pass a bill giving the county supervisors power to limit the speed of motor-cars on all roads within their jurisdiction.

AT the forthcoming motor-car show in Chicago, it is intended, if sufficient space can be found available, to inaugurate a series of lectures on motor-car topics, and to secure the best talent available for the purpose.

AT a meeting of the Sanitary Institute at the Parkes Museum, Margaret Street, W., on Wednesday next, Mr. Thomas Blashill, F.R.I.B.A., will open a discussion on the state of our streets. Sir Alexander R. Binnie, M.I.C.E., will take the chair, and tickets for the admission of visitors may be had on application.

IN connection with the Liverpool Cycle and Motor Exhibition a motor-car trial took place on Wednesday, eight or ten motor-cars leaving St. George's Hall during the afternoon for a trial spin as far as Ormskirk and back. Under the conditions this is a fairly thorough trial, for the roads, once the granite setts of Liverpool were left behind, were very heavy with snow and slush. Each car was accompanied by an observer.

THE CORRE VOITURETTE.

ALTHOUGH in this country the term *voiturette* is held to mean a light car capable of seating two, or at most three, persons, the popularity of the "tonneau" type of carriage body in motoring circles in France at the present time is leading motor builders in that country to fit "tonneau" bodies to *voiturette* frames. The accompanying illustration (Fig. 1) shows a vehicle of this kind lately put on the market by L'Agence Industrielle d'Automobiles of Levallois-Perret, near Paris. In general arrangement the car is practically identical with the well-known Renault vehicles. It is propelled by a De Dion water-cooled single vertical cylinder engine of 3 h.p. The engine is suspended under a bonnet in the fore part of a tubular frame. The circulation of the cooling water is maintained without the use of a pump, the water tank being located directly above the motor, a radiating coil being contrived around the outside of the bonnet.

Three speeds ranging up to 34 kilometres per hour are provided, the motor driving through a friction clutch, a short shaft carrying the change speed pinions, any one of which can be made to mesh with corresponding spur wheels on a long parallel shaft. The latter, which is provided with universal joints, transmits the power direct to the rear live axle, through bevel gearing. Steering is controlled by a hand wheel or bar as desired, while the cycle-type wheels are shod with Michelin pneumatic tires. Ample brake power is provided; the pedal controlling the friction clutch is also connected up to a band brake on the transmission shaft, while a hand lever at the side actuates band brakes working on drums attached to the hubs of each of the rear wheels. As will be seen, the little car has an attractive appearance, and should meet with a large demand. M. Corre, the director of the company, informs us that they are also making a similar vehicle, the body of which is made in the form of a small delivery van for light parcels, the chest taking the place of the rear seats. A vehicle of the latter type took part in the recent *poids légers* competition in Paris.

A COMPANY has just been registered in Jersey City, U.S.A., with a capital of £50,000, to be known as the Forest Automobile Company.

A SEVERE test of petrol cars was made by the Electric Vehicle Company of Hartford, Conn., U.S.A., last month under the direction of Mr. Hiram Maxim, the company's chief engineer. The plan for testing the capabilities of the vehicles, which took place between Hartford and Springfield, was managed in a novel manner. Ten trips to Springfield and back were made without stopping the motor once. There was about three inches of snow on the ground, and the temperature varied from twelve degrees above to two degrees below zero. The start was made at half-past six o'clock in the morning, and the finish was at eleven o'clock at night. The fastest time was made by Mr. Maxim on his second trip, when he covered the distance from the company's works to Springfield in one hour and ten minutes, a distance of twenty-one miles. The last three trips, a total of one hundred and sixty-two miles, were made at the rate of twenty miles an hour. The only serious accident was the cutting of a tire by the sharp ice, but the engine was kept running while the tire was being replaced.

LESSONS OF THE RACING CAR.

WITH the growing frequency of automobile speed contests the question arises whether their sole object is to afford excitement to the public, or whether they may not also further the cause of practical automobile manufacture, by uncovering deficiencies in existing types and bringing to the fore those types which have attained nearest to perfection. The latter has always been claimed to be the object of the road races in France, and when several months ago a number of the departmental authorities enacted rules forbidding road racing in the territory under their jurisdiction, the alarm was at once sounded in the Parisian technical press that this legislation would be the death-knell of French supremacy in the manufacture of motor-cars. It was contended that road races had been the means of bringing the motor-car to the point of perfection it has now reached, and that to further improve such vehicles road races are absolutely necessary.

If speed is the only object aimed at regardless of safety, and if superiority in speed necessarily signifies superiority in a general sense, then we must admit, remarks the *Horseless Age*, that the contentions of the French *chasseurs* are well founded; for without the many and well-patronised road races held in France during recent years, it would hardly have been possible to develop machines capable of making a mean of 50 miles an hour in a continuous run of several hundred miles. It must be admitted,

therefore, that the present advanced state of the French racing automobile is the result of these contests. But the racing machine itself can hardly be expected to give rise to an extensive industry, and the value of racers in furthering the construction of motor-vehicles can only be proved if it is shown that conclusions may be drawn from these races which may be applied in the design of vehicles for every-day use. The great differences in the requirements of racing vehicles and vehicles for ordinary use make it extremely difficult, if



THE CORRE VOITURETTE WITH TONNEAU BODY.

not impossible, to apply the results obtained in the operation of the one to the perfecting of the other. The only requirement demanded of racing machines is speed, and some degree of safety for the operator. Cost and maintenance appear to be of no weight, if one can judge by the fabulous prices that have been paid for some of the winning machines of French contests. Comfort is a consideration that can be dispensed with for a few hours—especially if it is a barrier in the road to glory.

While there are thus fundamental differences between racing and ordinary vehicles, it cannot be denied that in some respects the problems encountered in the construction of these two types are similar, being simply more difficult in the one case than in the other. As an example, we mention stability. Motor-cars, on account of their reduced length, as compared with a horse and horse vehicle, are capable of being turned at a high rate of speed. Now, unless the car has a low centre of gravity, and a liberal tread and wheel base, accidents are liable to result if the operator inadvertently tries to make a sharp turn when going at a high speed. Such false manoeuvres are sometimes made with a view of avoiding obstacles in the road, while in other instances they are entirely due to absent-mindedness. The centrifugal force acting on a vehicle in turning a curve tends to slide the rear wheels, and to overturn it. This force increases with the square of the speed, and its action is, therefore, of very

much greater consequence in racing machines, particularly track racers, than in vehicles which only run at moderate speeds. It is for this reason that all the most successful types of racing machines have a low centre of gravity, although equipped with immense motors, transmission gears, and storage tanks. The means employed by the designers in order to bring down the centre of gravity might, therefore, be studied with advantage by builders of ordinary automobiles, who desire to make their vehicles low and stable.

MOTOR-BICYCLES.

At the Society of Arts, on Wednesday, Mr. Joseph Pennell read a paper on "Some Experiences of Motor-Bicycles." Naturally much of the paper was familiar to those who recently heard Mr. Pennell on the same subject at the Automobile Club. The following summary, however, will be of general interest.

The motor industry is in exactly the same condition that the cycle trade was thirty years ago—it is all experimental—all in the future; and though the manufacturer of cycles was hampered by the expert, the journalist, and the racing man, the maker of motors is hampered by these and a legion more—the electrician, the county councillor, the engineer, the company promoter, the carriage builder—the question of cash, the question of caste, and the question of speed. The beauty of the cycle is its simplicity, compactness, lightness, cheapness. The terror of the motor is its complication, bulk, weight, expense. After the worst smash we can put the bicycle on our shoulder and trudge off with the remains—we must take a skilled engineer along on a motor-car to repair the slightest damage, or guard the wreck while we hunt up a team to drag it away, if anything serious happens. To fall off a bicycle is a fine art, to fall out of a motor-car is ignominious unless fatal. But if one could have a motor-bicycle that would be another thing—a machine, light as an ordinary safety, yet swift as the fastest train, a machine to take one up hills without work, and against the wind with delight, and bring one to the end of a long day's ride refreshed, that would be the ideal motor, the one I am looking for, and sometimes think I have nearly found, but between perfection and the present state there is a great gulf fixed. Once you have learned the cycle—though few do really learn to ride it—all is easy, but the most expert are never sure of the simplest motor, and until the motor-bicycle is far more simple than at present, the safety will still drag on. I have no intention of giving a history of the invention of motor-bicycles. I will only say that of Daimler, 1885, according to Mr. Beaumont, is generally called the first, though numerous steam bicycles and other self-propelled machines were spasmodically made at various times before. Probably there will be the same confusion as in the case of the safety, and certainly the Starley of motor-cycles has not yet "set the fashion to the world." The Daimler was in theory rather like some modern machines, but whether this or any of the others he refers to will run, Mr. Beaumont in his monumental treatise on Motor-Vehicles and Motors never explains. Pages are given to theory and construction, but only one line to results. The next is Wolfmüller's, 1895, then De Dion put his motor on a bicycle frame without pedals, and seemed overcome at what he had done, and ceased to do so. Messrs. Shaw and Son, and Baines have taken up this idea, and I learn from one expert that he has actually ridden the former a few miles. The Werner is built like the common safety, though somewhat longer in the wheel base, with a greatly strengthened frame. But it has an iron bracket over the front wheel, to which is bolted firmly a little engine of the well-known De Dion type, nominally $1\frac{1}{2}$ horse-power, but I wish it and all others could be tested. On almost all forms of motor-cycles, except the Werner and the Century Tandem, the engine is either underneath or behind the driver. Save the Werner and Lemaudiere, I have never seen any motor-cycles on the road, and save the Werner, I have never heard of one that has been ridden 100 miles straight away, and until I have done at least that distance, or heard of some one else who has, I prefer to say nothing about any machine from the practical standpoint.

After describing his first trip on a motor-bicycle Mr. Pennell went on:—I live in a flat. Although a motor-bicycle and three ordinary machines of my own, and frequently as many more belonging to people living in the same house, are stored in a single room, it would be impossible to get the most compact form of motor-tricycle into that room. Therefore a stable must be hired, or stabling, somewhere outside. This alone, with its attendant expense, will prevent vast numbers of people from taking up any form of motor except the bicycle. Then I found that, if I did not wish to ride the bicycle to my own door, I might either put it on a cab, wheel it by hand, or pedal it like an ordinary machine, while I could take it in the train at the same rate as the safety. And scarcely any of these things could I do with any other form of motor. This machine has broken down. Instead of hiring a horse, as I had been obliged to with my quadricycle, to get it to the nearest station, I threw the motor completely out of gear, and on one occasion pedalled the bicycle without hard work for twenty-five miles. To the critic these may seem merely the advantages of disadvantages and no proof that the motor-bicycle is worth anything. But they had considerable weight with me, for I am not a practical engineer. I see no fun in sitting by the roadside tinkering at a repair for hours. I should never think of mending even a puncture if I could get somebody

else to do it for me, and a puncture is almost the smallest evil that can happen to a motor. And I did want a motor that I could keep at home in the busiest part of London. So I went over to Paris and bought a Werner bicycle, and I made up my mind to give two weeks at least of my time to it, and if possible to make a long tour on it.

On the machine Mr. Pennell made his venturesome ride over the Alps, and his suggestions or reflections after that event were perhaps one of the most useful sections of the paper:—A large number of minor improvements should, and probably will, be made in the very near future. The tires should be thicker to prevent punctures, and should have some sort of non-slipping bands or corrugations on them. The bottom bracket is neither high enough from the ground to keep the pedals from hitting stones, nor are the bearings strong enough to stand the enormous strain of starting. The mudguards are not large enough. Otherwise the bicycle part of the machine seems good and reliable, mine having stood the severe test of miles of bad stone paving, rough roads, loose surface, and deep mud, and only requiring adjustment in the head and bearings. There should be a larger reservoir for petrol, and a better means of lubricating the motor. There should also be some sort of a chimney and float in the carburettor, as in the De Dion, or else an automatic or float-feed carburettor. The present one is ingenious, but you cannot tell whether it is full or empty, especially on a bad road, except by the running of the machine. Another matter requires instant attention: the driver should be able to set the motor in motion before starting the machine. With such a device one could start up on any hill. The machine will not be entirely satisfactory until this is done. The machine is a good luggage carriage, as I took on both tours two tool bags, a spare battery, at times half a gallon of petrol and a quart of lubricating oil, a leather suit, a large bag containing a complete change, and sketching traps—weighing in all about 30 lb. I do not think the machine runs much faster without the luggage than with it.

BRITISH MOTOR TRACTION COMPANY v. THE LONDON AUTOCAR COMPANY.

IN the Chancery Division of the High Court of Justice on Friday last week, Mr. Justice Farwell made an order, the defendants not opposing, restraining the defendants from infringing the patent of the plaintiff company during the continuance of the patent. His Lordship also ordered an enquiry as to the damage sustained by the plaintiffs, and for the delivery up of all the infringing articles.

MR. E. W. MARRIOTT, of Hereford and Leominster, stocks petrol at both his depôts.

THE annual general meeting of the Automobile Club will be held on the 28th inst. The total membership is now 710.

AT a meeting of the Mid-European Motor-Car Club, to be held in Berlin on the 11th inst., Herr R. Conrad will read a paper on "Electrical Motor-Cars."

WE hear that Mr. T. Guy Lewin is contemplating a record run from Land's End to John o' Groat's on a Motor Manufacturing Company's Miniature Panhard car.

AT a meeting of German motor-vehicle manufacturers held at Eisenach, the formation of an association to defend their interests was decided upon. The Society will be known as the Verband Deutscher Motorfahrzeug Industrieller. Herr Fischer, of the German Daimler Company, was elected first president.

THANKS to the efforts of the Municipal Art Association to stop the clanging of gongs on public vehicles in the streets of Chicago, the first move in that direction has been made by the owner of a number of motor cabs, on which the clanging gong hitherto used will be supplanted by a set of musical chimes.

SHOULD sufficient motor-vehicles be promised, a demonstration for the benefit of Essex County Councillors will be held on the 19th at Chelmsford. Should this take place, the High Sheriff of the county and General Sir William Gatacre, K.C.B., who are patrons of Mr. Shrapnell Smith's lecture, will probably be among the observers.

IN view of the many motor-bicycles lately put on the market, an American writer remarks that it is plain that the disposal of the motor is the chief problem awaiting a solution at the hands of motor bicycle designers and makers. While motor-tricycles and quads present a nearly uniform appearance, owing, of course, to the greater facilities offered for the disposal of the engine, carburettor, etc., as well as to these machines having passed the experimental stage, the bicycles differ widely. The frame is, of course, utilised by nearly every maker for the purpose of disposing of as much of the motor as possible, but the arrangement is rarely the same in any two machines.

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COMMENTS.



THE usual monthly dinner of the Automobile Club was held on Wednesday evening last, and there was a large attendance of members and the trade. The great dining hall proving too small, an overflow party, under the chairmanship of Mr. Staplee Firth, being formed in another room. Mr. Roger Wallace, K.C., presided, and was supported by Lord Kingsburgh, Mr. Mark Mayhew, L.C.C., and others. After dinner an adjournment was made to the club room, which was crowded to its utmost capacity. The reason for such an abnormal attendance was the knowledge that Mr. Mayhew would read a paper on the "Difficulties in connection with the proposed 1,200 miles." For some time rumours had been rife in the automobile world that there was a probability of the trials falling through, the reasons adduced being the County Councils' agitation, and the determination of the Club to in no way countenance illegal speeds on the road. Hence the interest shown.

Five Minute Speeches.

THE chairman at the outset stated that, as the time at their disposal was short, the speeches would be limited to a duration of five minutes each. The first speaker was the Lord Justice Clerk, and the keynote of the evening was struck, amidst applause, by the statement that the 1,000-Miles Trial had been so successful that there was no need for a second, and he thought that by a hearty support of the "Glasgow week" manufacturers would obtain all the publicity and demonstrations desired. He suggested that the meeting-place for the cars should be Glasgow, the various visitors reaching that city from whichever direction they liked. Other speakers followed, more or less in the same strain, Mr. Gretton suggesting both the Irish tour and the week in Glasgow, the cars being driven to Bristol, then conveyed by sea to Waterford, a short tour—say 600 miles—in Ireland, then re-crossing to Stanraer. Mr. Meeredy made a most eloquent appeal in favour of the sister isle, instancing as an example of its bewitching beauty the fact of an English visitor to a seaside resort, intending to stay for a few days, remaining there for many years.

The Consensus of Opinion.

THE discussion was of a high order and the "five minute rule" induced speakers to condense their remarks. No voting was taken as the subject is one for the Club Committee, and the object of the meeting was for the purpose of gauging the opinion of the trade generally. We should imagine ourselves there is no doubt that there will be unanimous support in favour of the Glasgow week, and we shall look forward to very important results following the trials in the Scottish City. Regarding Ireland, we imagine, from the feelings expressed, that a tour will be arranged in that country, possibly, but informally, in connection with the Northern trials. The 600 miles route mapped out by Mr. Meeredy is through the

prettiest scenery in Ireland, and such a tour, we are convinced, would be one of the most popular ever arranged by the Automobile Club.

Petroleum Spirit Wagons for Heavy Haulage.

DURING the past few days a heavy petroleum-spirit van has been seen wending its way in the traffic of London. Inquiries have elicited the fact that it is one of the latest productions of the Daimler Motor Car Company, Limited. It is driven by a 22 h.p. four-cylinder motor, and is capable of carrying two tons and a-half. The weight of the van with heavy wooden hood complete is two tons. No chains are used, the transmission being by toothed gearing throughout, giving four speeds of two, six, eight, and ten miles per hour. The other day the vehicle was experimentally tried for the transport of a load, weighing 2½ tons, of barrels of beer from a brewery in East Smithfield, E.C., to Bromley in Kent. With horse-traction this work forms employment for four horses and three men for a day of nine hours. It was not till late in the afternoon that the motor-vehicle turned up to carry through the experiment, and notwithstanding the great load the journey to Bromley was made in 1 hour 7 min., and this despite the heavy traffic met with until the suburbs were reached. The car was immediately unloaded and re-loaded with empties, the return journey being made in 1 hour 15 min. We are not surprised to hear that all interested in the experiment were more than satisfied with the result.

A Big Loss.

It was only the other week that M. Meyer, of Enghien, a well-known French *chauffeur*, gave a dinner to a small circle of friends as a kind of christening ceremony to the new 50 h.p. car which he has had built in order to take part in the race meeting at Pau, and which he named the "Capricieuse." On Tuesday of last week M. Meyer left Paris with his car for Pau. Near Poitiers the unpleasant discovery was made that the back part of the car was on fire. Naturally steps were immediately taken to put out the conflagration, but the fire had got too strong a hold, and the vehicle was entirely destroyed. M. Meyer's loss is not confined to the car, which cost, it is said, £2,800, but in one of the receptacles in the vehicle were £80 in banknotes, which were also destroyed, as was also a large quantity of clothing and personal effects. The remains of the car have since been despatched to Paris by rail. Unfortunately, we have not yet been able to glean any reliable information as to the cause of the fire.

To Manufacturers.

THE Committee of the Automobile Club request us to state for the information of manufacturers and sellers of motor vehicles that, if they have not already signed the memorial which is to be forwarded to the Local Government Board and the County Councils throughout England and Wales, they should do so at once, as it is proposed to deal with this memorial with-

out delay. Copies of the memorial can be obtained on application to the Secretary, 4, Whitehall Court, London, S.W. It is very desirable that this memorial should be presented at an early date; hence the urgency of the matter.

Motor Watering Cart for Kensington.

A FORTNIGHT ago we reported upon the offer of the Thornycroft Steam Carriage Company to supply a steam-propelled street cleaning and watering machine to the Kensington Borough Council for £725. The matter has now been considered by the Council, who have decided by a large majority to order the machine specified on the condition that the company work the machine in the borough for a month, free of cost to the Council, and to their satisfaction before purchase; and that the company enter into a contract to keep the machine in repair for a period of ten years for the sum of £72 per annum, that sum being 10 per cent. of the initial cost of the machine. In the course of the discussion, the Surveyor said that in the Strand district, where a similar machine was at work, a saving of £174 was anticipated on the year's working. Alderman Frye and Major Isaacs told of the excellent work being done in the Strand and Chelsea districts, and Alderman Robinson said that the Holborn Council were also purchasing one. Alderman Campbell, L.C.C., was the only member of the Council who spoke against the purchase of the vehicle.

The Ignition Trouble.

MR. CHARLES E. DURYEA, of Reading, Pa., writing on the subject of the ignition of the explosive charge in petroleum-spirit motors, remarks that faulty connections were formerly a large part of our trouble, but this "we have largely wiped out by dropping batteries entirely, which does away with the need of switches and binding screws. We now use a mechanical generator with one brush grounded, a flexible terminal spark coil with one terminal attached to the other generator brush and the other terminal to the sparking plug. The sparking plugs are all connected by single bare wire. Connections are made with the plugs by spring fastenings, which never rattle loose, but rattle enough to keep themselves polished and bright. This arrangement secures a certainty of ignition such as we never attained with batteries or with the combination system. It has absolutely nothing to worry about, for it stops when the motor stops and starts likewise. The flexible terminals are much safer than binding screws, although they do occasionally vibrate and break, while the bare connecting wire can be readily seen, and if it breaks is not held in place in a most disagreeable and deceptive manner by the insulation. Any sparking plug can be instantly detached from the spring connection and tested for leakage. This arrangement makes by far the most satisfactory sparking device we have yet tried."

Demonstrations for County Councillors.

THE Automobile Club's educational campaign in the Eastern Counties is now in progress. On Friday, the 15th inst., demonstrations were to be held at the Royal Hotel, Lowestoft, from 9 a.m. to 1 p.m., and at the Market Square, Beccles, from 2.30 p.m. to 4 p.m.; to-day (Saturday), the 16th, at the Great White Horse Hotel, Ipswich, from 2 p.m. to 4 p.m.; and on Monday next at the same place from 9 a.m. to 1 p.m., and from 2 p.m. to 4 p.m. The Roads Committee of the Essex County Council are similarly invited to attend a demonstration of motor-vehicles, which is to be given for their benefit, and for the education of other members of the Essex County Council, at Chelmsford, on Tuesday, the 19th inst., at the Saracen's Head Hotel, from 3 p.m. The committee of the Automobile Club are of opinion that it is impossible that any unprejudiced person who has been driven on a motor-vehicle can recommend the reduction of the limit of speed on the open road to ten miles per hour. It is hoped that county councillors will do their duty towards a movement—which has been highly encouraged on the Continent—by taking full advantage of the opportunities referred to.

Missions by Motor.

DURING the recent Simultaneous Mission, organised by the Free Church Council in London, a quartette of motor-cars was employed to advertise the meetings in different localities. A Chicago evangelist, Mr. J. D. Taylor, is going still further and is organising a missionary band to go through the United States on "miniature battleships constructed on the automobile plan." Seeing the popularity of open air missions in many places and also the extent to which wayside propaganda of every kind has developed, there is no reason why automobiles could not be usefully introduced into the work; although we are afraid the plan of the Chicago evangelist is much too ambitious for the twentieth century, which is still very young.

Technical Training.

THE growing popularity of the automobile, and the avenue it opens up for employment, should lead to the institution of courses of instruction in its management at some of our technical institutes in the near future; and not only in its management, but also in its general construction and arrangement. Every owner of a motor-car must take some interest in its parts, and hence the opening there soon will be for such classes as we have indicated.

Motor-Cars for Commercial Men.

A FEW days since we were pleased to meet in a provincial town, a commercial traveller who uses a very smart looking motor-vehicle. The body, which is similar to a brougham, carries all his samples, and the seat in front is protected by a hood. We understand the car was built by the Daimler Company. To commercial gentlemen who have to visit small towns where the train service is bad, such a vehicle must be an inestimable boon, and we imagine the time is not far distant when they will be quite common objects on our roads.

Voiturettes.

As might naturally be expected, the boom in voiturettes in France has considerably affected the sale of other types of automobiles, the greatest sufferers in this respect being the motor-cycle and what one may term the low-powered big carriage. The motor-tricycle is an excellent machine for the man who is not afraid of being bumped about a little, and it undoubtedly affords the most economical means of motoring, but it is absolutely devoid of comfort, and, moreover, it permits of no companionship. The motor-quadracycle overcomes the latter disadvantage, but driver and passenger are too awkwardly placed to permit of their conversing with any degree of comfort. To-day, therefore, the inclination of the less-wealthy class of automobilists is to wait until they can afford to purchase a voiturette, and the sale of motor-cycles has consequently dropped enormously. I do not suppose, says our Paris correspondent, that one-half the number of machines are now being put into circulation as compared with the sales of a year and a-half ago. With the decrease in demand there comes naturally the diminution in price, and the motor-cycle quotation has decreased fully 15 per cent. during the last eighteen months. The figures obtained for second-hand machines have also shrunk to an astonishing extent, and it is by no means uncommon to find examples of the earlier types in very fair condition priced at £12 to £15. A week ago, at the *Hôtel des Ventes*, or public sale rooms, a capital motor-tricycle was disposed of for 340 francs, and among the dealers similar prices are current. As for the other type of automobile which has been hard hit by the popularity of the voiturette, that is the large comfortable vehicle fitted with an engine developing only some 6 h.p., one finds that its hold upon the public has been diminished to an astonishing extent. And obviously the public is quite right, for the voiturette is infinitely cheaper all round than the larger type, and if less imposing in appearance is, at least, equally as serviceable. So then, the buyer who cannot afford a really powerful vehicle

prefers to buy a voiturette where formerly he would have purchased a low-powered carriage. As in the case of the motor-cycle the price of the low-powered car has suffered considerably, indeed, the drop in the market value of one of the best known types is so serious, and it arrived with such suddenness, that many speculative buyers find themselves to-day in a tight corner. And all this is due to the coming of the voiturette.

Prejudice in Cambridge.

THERE is need for further education in the Eastern Counties, judging by the attitude of the Cambridge County Council. The resolution of the Berkshire Council with regard to the numbering of cars came before it the other day, when Councillor Howard proposed and Councillor Williams seconded that no action be taken in the matter—a very modest and sensible suggestion in view of the fact that a conference is in course of arrangement on the subject and that practical object lessons are now being offered in order to educate councillors with regard to automobiles generally. But an amendment was submitted supporting the Berkshire proposal and this was carried by ten votes to three, so that Cambridge can now be added to the list of prejudiced county authorities.

A Coming Revolution.

GIVEN a city with only motor-vehicles on its streets, suggests an American contemporary, and at once the street cleaning department could almost go out of business. Under such conditions enough could be saved in the street cleaning and street repairing departments of a city like Liverpool to endow several institutions for public learning. Of course, such an ideal city must be only for the distant future, but when it does come the present wear and tear on city pavements and the accumulation of dirt and filth in the thoroughfares will all naturally be eliminated from the question or reduced to such a small factor that will hardly deserve more than ordinary mention. Certainly the adoption of mechanical traffic on our streets and the development of motive power for collecting street garbage and also for the distribution of water will revolutionise many departments of municipal life.

Watering Motor-Cars.

LAST week we referred to the interest which the Works Committee of the Islington Borough Council was taking in a man who took water from a horse-trough to replenish the supply in the boiler of his steam-trolley. It appears that they decided to recommend the council to prosecute the offender and thus give a little irritation to those who are concerned in the development of steam propelled carriages, whether for heavy or passenger traffic. Fortunately the council did not take the same view of the matter as the wisacres on the Works Committee, and an amendment to refer the subject back far further and more reasonable consideration was carried almost unanimously.

Motor-Vehicle Competition.

THE motor-vehicle competition held in connection with the Liverpool Cycle and Motor Show successfully demonstrated the reliability of motor-cars. Professor Hele-Shaw was the judge, and there were nine petrol and two steam cars in the test run to Ormskirk and back, while the half-frozen snow covering the roads made the going about as bad as it could be. In arriving at the awards, marks were given for the following nine points: Prime cost, construction, handiness in preparation for start, starting and stopping (efficiency of brake), ease with which gear can be changed, amount of attention to motor required on the part of the driver, noise of motor running light, consumption of fuel and water, and accessibility for repairs in case of breakdowns. The awards were as follows:—Class 1, motor-tricycles and quads: Gold medal, De Dion and Bouton motor-tricycle, exhibited by Messrs. Robinson and Price, ridden by Mr. C.

Edge; silver medal, motor-quad, entered by Mr. Neason, and ridden by Mr. Beardwood; bronze medal, motor tricycle, entered and driven by Mr. Neason. Class 2: Gold medal, De Dion and Bouton voiturette, entered by Messrs. Robinson and Price, driven by Mr. C. Jarrott; silver medals to the Locomobile exhibited by the Locomobile Company, driven by Mr. Ginder, the Benz motor-car, exhibited by Mr. Wm. Lea, driven by Mr. E. J. Coles, and the Decauville voiturette, exhibited by Mr. Wm. Lea, and driven by Mr. Archibald Ford; bronze medals: Ariel voiturette, exhibited by Mr. Neason, driven by Mr. J. W. Stocks; Deschamps victoria, exhibited and driven by Mr. Wm. Johnson; and Liver voiturette, exhibited by Mr. Wm. Lea, driven by Mr. Riding.



A REMINISCENCE OF THE SOUTHEAST RUN.

Photo by

(Mr. R. E. Buttemer.)

A Chief Constable goes Motoring.

THE correspondence started by the Marquis of Granby should prove a useful factor in acquainting the public with some of the points which can be urged in favour of automobiles and motorists alike. One of the latest contributors is Mr. R. H. Wyeth, an American gentleman residing in England, whose love of horses commenced when at seven years of age he was riding and driving them in the eastern part of the United States and on the plains of Montana. Mr. Wyeth relates an interesting incident showing that all motorists are not to be regarded as the Marquis would describe them—inconsiderate, unreasonable persons. "Returning from Birmingham to Leamington on my car last summer," says Mr. Wyeth, "I heard the noise of a fast-trotting horse that kept behind for some time. Then I heard a voice asking me if I would slow up and allow the horse to keep pace beside my car. I complied instantly, and saw a stylish dog-cart driven by a gentleman in uniform accompanied by a policeman. He continued thus for a mile or so, then requested to be allowed to drive in front to accustom his horse to a car overtaking him. After about a mile more he reined in his horse, and, after thanking me, fell behind, and I continued my journey at the original pace. This action was so unusual that I inquired afterwards as to such a person's identity, and was told it was Captain Brinkley, chief constable of Warwickshire, who will, no doubt, recollect the incident."

Variety in Gongs.

ALREADY a new difficulty has arisen in cities where automobiles are employed for various public purposes, as well as being used in large numbers by the ordinary business public. The motor-ambulance is a desirable institution, and the motor-fire-engine will, in time, be regarded as a necessity. But how will these secure the preference in the ordinary traffic which their work demands, unless some distinctive form of gong or bell is adopted? The matter is one that should not be overlooked by makers of motor-horns, etc.

THE ENGLISH MOTOR CLUB RUN TO FARNHAM.

THE start was arranged to take place at 1.30 p.m. on Saturday last from the Thames Embankment. At 1.25 p.m. there were only four motor-vehicles to be seen. A Petit Duc Mors, a Mayfair voiturette, Mr. Cappelen driving, young Mr. Cusins on a motor-tricycle, and the writer on a Renault voiturette, his eldest son being the only passenger, the luggage occupying the spider seats. As the clock struck the half hour the start was made, the Mayfair leading. The traffic was thick, the roads filthy, and the weather dull and cheerless. The few vehicles in the run kept together and made the most direct route for Putney Bridge. After passing the Bridge, the one and only tricycle took the lead, the Renault next, and after that the Mayfair, the Petit Duc not being in sight. After taking the up grade of the hill and running into Kingston, the tricycle turned round, as its rider decided to return. The Renault car wended its way towards Thames Ditton, and just before the Angel was reached, a 6 h.p. Panhard, owned by Mr. I. Von Laer, was passed.

After stopping ten minutes, we left at 2.45, the Panhard leaving a few minutes later. At Ripley we stopped at the Talbot to order dinner for mid-day, on Sunday, but were off again

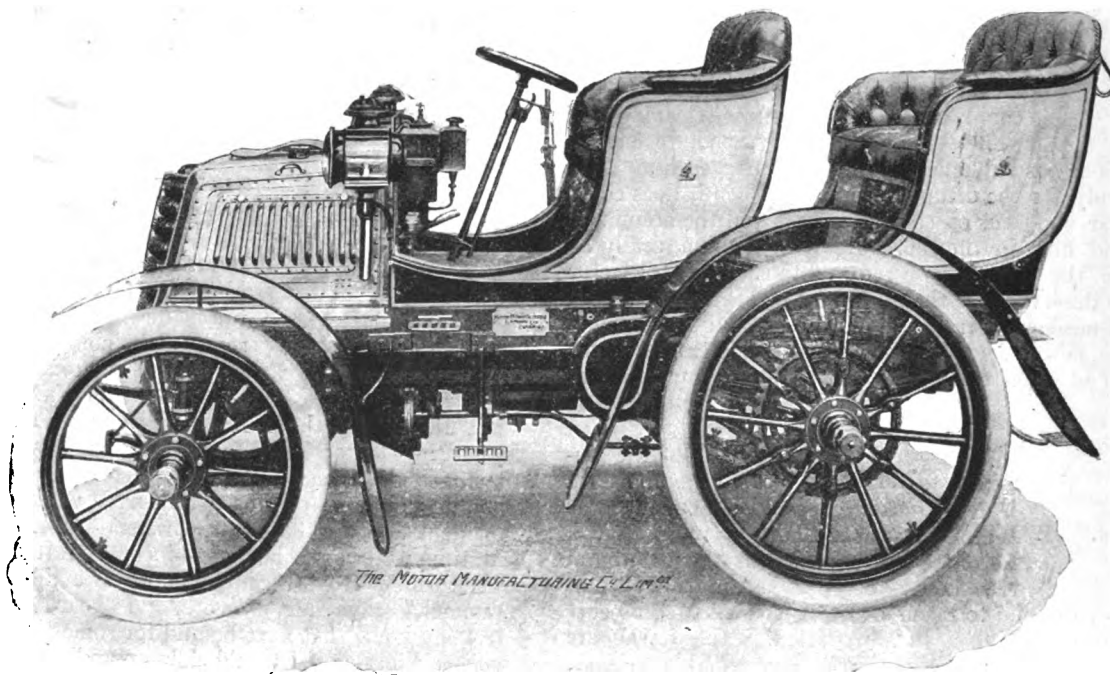
wishing to keep close to the other car. On the top photos were taken, and on running down the hill into Guildford snow drifts were charged. Unfortunately, close to the hospital, the solid driving tires of the Panhard car both came off, so the Renault went on in solitary and muddy state through Guildford to Ripley, arriving at the Talbot at 12.5. Half way through dinner the hum of a motor was heard, and a moment later Mr. and Mrs. Edge and Mr. Jarrott came in on the Napier; and a quarter of an hour later Mr. Napier appeared on a bicycle.

After dinner we returned to town, the Renault leaving first at 2.30 and arriving at Cricklewood after an uneventful run at 4.55 p.m. The trip was most enjoyable notwithstanding the weather.

G. D. BARNES.

THE M.M.C. 12 H.P. CABRIOLET.

WE are this week able to give an illustration of the handsome 12 h.p. car exhibited by the Motor Manufacturing Company, Limited, at the Crystal Palace in December last. It is known as a double cabriolet, and is driven by a 12 h.p. four-cylinder engine fitted with both tube and electric ignition. Lubrication to all engine parts is effected by a force pump carried on the inside of the dashboard; all other frictional parts except the sprocket shaft are lubricated by



THE M.M.C. 12 H.P. CABRIOLET.

in five minutes, and were soon passing through Guildford. The run up to the top of the Hog's Back was taken at good speed, the middle speed, 6½ miles an hour, being only used on the top of the Back; the view was, as usual, grand, but rather varied, as snow increased the grandeur of the landscape. The road surface was, however, soft with sand and snow, the drifts being very deep in places. Notwithstanding this the little car pulled well and did eleven miles an hour average through it all, and ran into the Bush Hotel yard, at Farnham, as the clock struck five. A few minutes before six the Panhard arrived (by the way, the Mayfair did not intend going beyond Ditton), punctually. At seven dinner was served to the party of five. After the repast Mr. Von Laer invited the writer to take a seat on his Panhard for a run to Aldershot, of which advantage was taken, and a most enjoyable ride it was. The return journey was somewhat uncanny, it being very dark and the car only having candle lamps and a colza oil one at the head.

The return journey was commenced at 10.30 a.m. on Sunday, the Panhard leading, but being a low-powered car and carrying the driver and three passengers and luggage, it could only travel slowly up the long rise; the little Renault therefore did the same as regards pace, and crawled up the rise on lowest speed,

grease cups, also carried on the dashboard. Gravity feed is adopted for both lamps and carburettor, the lamp tank with the battery box being also set in the rear of the dashboard. Four sparking coils and the petrol tank are placed under the front seat. The water tank, of a capacity of twelve gallons, is carried at the rear of the frame, the circulating pump being driven by a friction wheel off the fly wheel. The front panel of the motor bonnet is made to take a duplex pyramidal set of radiators: the gear is constructed to give four speeds up to 35 miles per hour and reverse.

With regard to the outward appearance of the car, the whole of the side panels and top of the motor bonnet, together with all visible metal parts, are electro-plated, setting off the body in a striking manner. The panels of the body are of aluminium, finished in pale heliotrope and gold lined. There has hitherto been some difficulty in obtaining access to the rear seats of cars of this type, but in this vehicle the difficulty has been overcome in a very ingenious manner. The left half of the back of the seat is made to open as a door, and by a simple arrangement of levers the corresponding half of the back seat is caused to rise vertically, giving a fair way to the back seats of the vehicle, and locking the door irrespective of the handle latch.

The French Motor-Car Exhibition.

(From our Own Correspondent. Continued from page 825.)



FIG. 1.—THE 12 H.P. SERPOLLET STEAM CAR.

Cliché de

[Le Chauffeur.]

ENGLISH visitors at once noticed upon the stand of the Gardner-Serpollet Company, Rue de Stendhal, Paris, a framed illustration of the 9 h.p. car now in course of construction for King Edward VII. It is a beautifully designed carriage, and when finished will assuredly do credit to the constructors. A very original vehicle was an 8 h.p. with body by Jeantaud. Between the driver's seat and the splashboard, upon a slightly higher level than the bottom boards of the car, are placed a couple of seats back to back—as those upon an Irish jaunting car. The occupants of these seats place their feet upon an extension of the ordinary step. Rising from the splashboard is a glass screen, and covering all is a hood which can be closed when desired. A couple of small 5 h.p. cars call for no special notice, but the beautiful 9 h.p. landaulet, the carriage work of which has been done by Kellner, must not be overlooked. This car is painted in dark blue, with yellow wheels, and is fitted with a closing hood. The remaining vehicle exhibited was built upon one of the new 6 h.p. frames, Renault being responsible for the rather original carriage work. No important changes have been effected in the mechanism of these cars.

Both L'Electromotion, 50, Avenue Montaigne, and the Cleveland Company, 61, Boulevard Haussman, Paris, made extensive shows of electric vehicles, and upon their stands one found mail phaetons, coupés, broughams, and victorias, all specially designed and constructed for town work. In every instance the carriage work was irreproachable.

English visitors quickly found their way to the stand of MM. A. Darracq et Cie., Quai de Suresnes, Suresnes (Seine), for the fame of this firm's new light carriage has gone out through the land. Right in the centre of the exhibit, and holding the place of honour, was Marcellin's car, just as it came off the road on the opening day of the Salon after accomplishing a tour of some four thousand kilometres. Muddy and woebegone it undoubtedly was in appearance, but otherwise the twelve days' rough work had left no trace upon the car. No fewer than six *tonneau*-shaped wagonettes found place upon M. Darracq's stand, and undoubtedly the public regard this as the most practical type of body for a carriage. There was also a three-seated "spider" and a dainty coupé, with folding hood by Belvalette. This latter carriage was particularly smart. A chassis permitted intending purchasers to

study the internal mechanism of the car, and judging by the crowds regularly surrounding this frame the opportunity was gladly taken advantage of. The exhibition was completed by a number of tricycles and quadricycles, among the former a machine fitted with a De Dion provided with a water-jacketed cylinder head and a cleverly-disposed radiator, calling for attention. One should also remark the quadricycle driven by a water-cooled Aster engine, and carrying a speed change gear.

Messrs. H. Brulé and Co., of Rue Boinod, Paris, exhibited the cars illustrated in Figs. 2 and 3. As will be seen they have seating

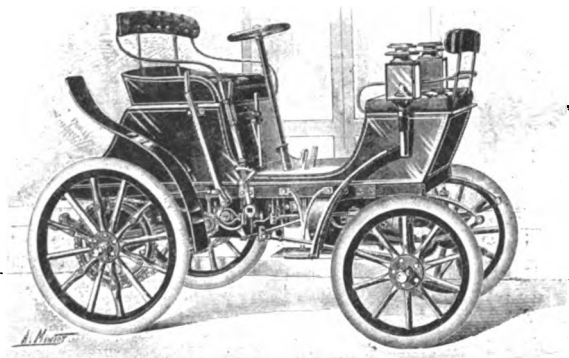


FIG. 2.—THE BRULÉ 6 H.P. VIS-À-VIS.

accommodation for four persons. Any type of carriage body can, however, be fitted, as the motor and transmission gear are mounted on an independent frame of channel steel, suspended by springs both at the front and rear, on the axles. To deal first with the engine, which is stated to develop 6 h.p., this is located at the rear end of the frame; it comprises two cylinders, the cranks, which are enclosed

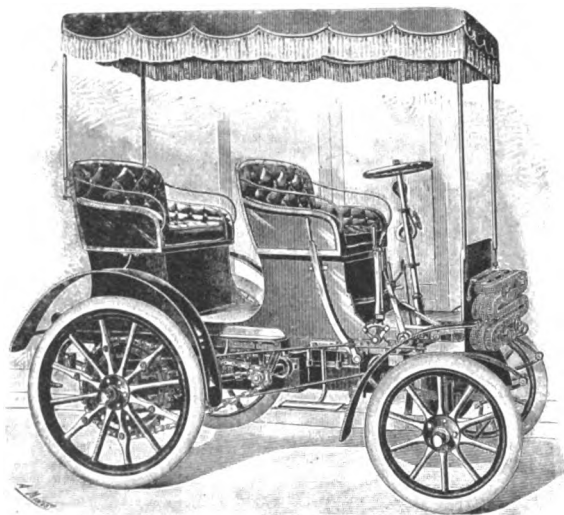
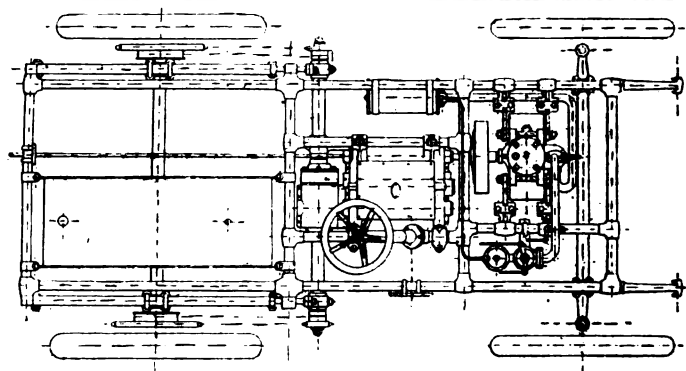
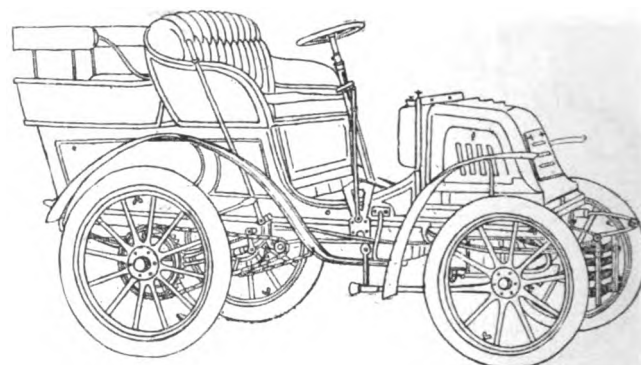


FIG. 3.—THE BRULÉ 6 H.P. PHAETON.

in an oil-containing case, being set at an angle of 180 degs. to each other. The cylinders are water-jacketed and the ignition is electrical, the sparking plugs being fitted in such a way that they can be readily removed. The carburettor is of the constant-level type and is so arranged that the driver can see at a glance how much petrol it contains. Suitable handles are fitted within convenient reach of the driver, by means of which the quantity of both air and spirit allowed to pass into the carburettor can be regulated. Like all modern motors, the Brulé engine is also fitted with an automatic governor, which, when the speed of the engine becomes too great, so acts on the admission valve as to diminish or cut off the supply of carburetted air to the explosion chamber. Coming now to the transmission mechanism, the change-speed gear, which consists of a train of spur wheels, is adapted to give three

forward speeds, ranging up to 35 kilometres per hour, and a reverse motion. The motor drives, through a progressive friction clutch, a short shaft fitted with the variable speed gear above referred to. Any one of the spur wheels of this gear can be made to mesh with corresponding pinions of the differential shaft from which, to the rear axle, the power is transmitted by the usual sprocket wheels and chains. Steering is controlled by an inclined hand wheel, the front wheels being mounted on the customary short vertical pivots. Ample brake power is provided, there being cord brakes acting on drums attached to the hubs of each of the rear wheels and operated conjointly with the friction clutch, by means of which the engine can be thrown out instantly from the transmission gear. Pneumatic tires are usually fitted, while a choice of wood or cycle-type wheels is left to the purchaser.

The exhibits of M.M. Boyer et Cie., Avenue de la Grande Armée, Paris, consisted of a couple of small *tonneau* cars (Figs. 4 and 5), and a couple of cabs, the power in two instances being furnished by 6 h.p. water-cooled Aster engines, and on the remaining vehicles by Buchet motors. Ordinary cog-wheel gearing is utilised for the transmission of power. The cab, which is a particularly smart and serviceable carriage, is driven from the



FIGS. 4 & 5.—ELEVATION AND PLAN OF BOYER TONNEAU VOITURETTE.

inside, and a small "spider" seat at the back gives accommodation to the engineer. It weighs about five hundred kilogrammes. Upon this stand were also to be found a number of motor-cycles, but, apart from a large racing machine, none present any particular interest. This cycle carries a two-cylinder 12 h.p. Buchet engine, but, air-cooled as it is, one would have misgivings as to its ability to run for any considerable length of time without overheating.

A neat little vehicle was that exhibited by La Société Anonyme des Automobiles Louis Ravel, Neuilly sur Seine, its special features being the method of direct transmission adopted by the constructors. The 5 h.p. engine is of the two-cylinder V type and it is water-cooled. Two forward and one reverse speeds are provided, and the gear, etc., being cased in are effectively protected from dust and dirt. In appearance it was one of the smartest cars in the show.

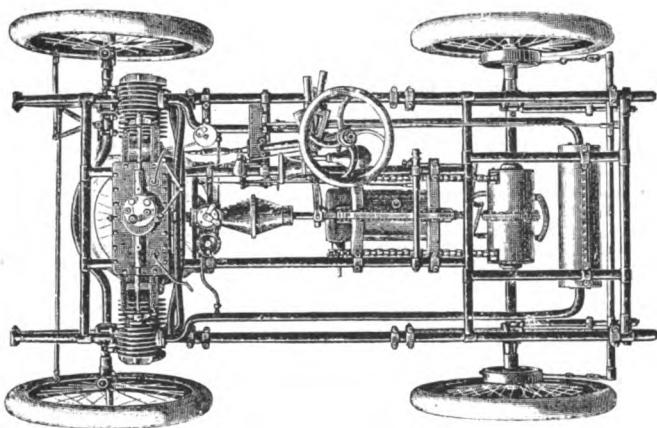
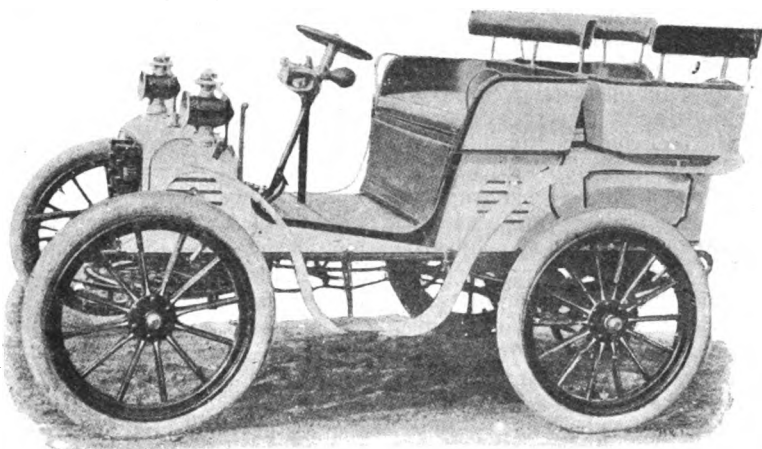
Three examples of the Krebs voiturette were to be found upon the stand of Messrs. Clément, Quai Michelet, Levallois-Perret (Seine), but they presented no new features excepting that one of them was fitted with a phaeton instead of the ordinary two-seated body. One of the new type De Dion tricycles also found place

upon this stand, and the rest of the firm's exhibition was made up of a couple of De Dion voituresses and a number of cycles.

A very ingeniously-designed voituress was that constructed and exhibited by M. Charles Latil, Marseilles (Bouches du Rhône). A $3\frac{1}{2}$ h.p. Aster engine, placed very similarly to the usual arrangement of the back axle of a motor-cycle, and provided with a speed change gear and a friction clutch, is attached to the front of a small carriage, and there is the voituress—simplicity itself! And ever since the long journey from Marseilles to Paris and back (1,063 miles) made by M. Latil in the depth of winter on his little car, the effectiveness of the system cannot be questioned.

M.M. Bertrand et Cie., 148, Avenue Malakoff, Paris, showed two exceptionally attractive small cars, the one fitted with a $6\frac{1}{2}$ h.p. water-cooled Aster, and the other with a $4\frac{1}{2}$ h.p. de Dion. The former carriage is designed to accommodate four persons all facing forward, and the latter is of the *tonneau* type. Built low with long wheel base, the Bertrand car looks as stable as it is stylish. The transmission is effected by means of a long belt from the motor in front to the differential shaft, upon which are found three pulleys. One of these is loose and the other two

of the new Blériot lamps, said to throw a light of over 300 yards. Then came a 16 h.p. fitted with a *tonneau* body built by Rothschild, and designed to carry four or six persons as may be desired, there being a couple of additional seats ready for fixing in the well of the car at a moment's notice. A similar system is employed in the case of a 10 h.p. car, and two other vehicles of this power are a four-seated *tonneau* and a two-seated racer. This brings us to the new 10 h.p. *chassis*, and it was upon this that the real interest was centred, for seldom has a more beautiful piece of work, or one containing more novel features, been shown. Carried in front is the motor of the four-cylinder vertical type. It is air cooled, excepting the cylinder heads, which are water-jacketed. The ignition is effected by the same *tampers* in the explosion chambers as formerly used, but instead of the electric current being produced by a dynamo or taken from accumulators, as of old, it is generated by a magneto machine patented and constructed by the Mors Company. This machine is rotary in action, and resembles the Simms-Bosch magneto in appearance. No arrangement for changing the point of firing is provided, but the speed of the motor car be increased or decreased by an accelerator or moderator, both of which act upon the admission of gas. The accelerator is in the form of a foot-pedal, and by its use the speed of the motor can be increased from the normal 900 to 1,100 revolutions. The moderator is found upon the steering wheel, which is carried upon a sloping pillar. The action of the governor upon the admission of gas has the effect of marvellously reducing the cost of running, which, in



FIGS. 6 AND 7.—ELEVATION AND PLAN OF TURGAN-FOY TONNEAU VOITURESS (See issue Feb. 2, page 808).

give the fast and slow speed respectively. A reverse gear is also provided. A lever placed upon the sloping pillar of the wheel steering actuates the speeds, while one hand brake and a couple of pedal brakes render the vehicle under perfect control. The weight is 380 kilogrammes, and the price £200. M.M. Bertrand et Cie. would appear to have got hold of a capital little car singularly devoid of anything approaching complication in its mechanism.

From the opening day of the Salon no exhibits secured more attention from the public than those of La Société Anonyme d'Electricité et d'Automobiles Mors, Grenelle, Paris, and judging by the continually crowded condition of the stand the company should be well satisfied with the result of the exhibition. The most powerful car shown was the so-called 24 h.p. upon which M. Levegh last year won the mile race at Nice, Bordeaux-Périgueux, and Paris-Toulouse. It carries in front one

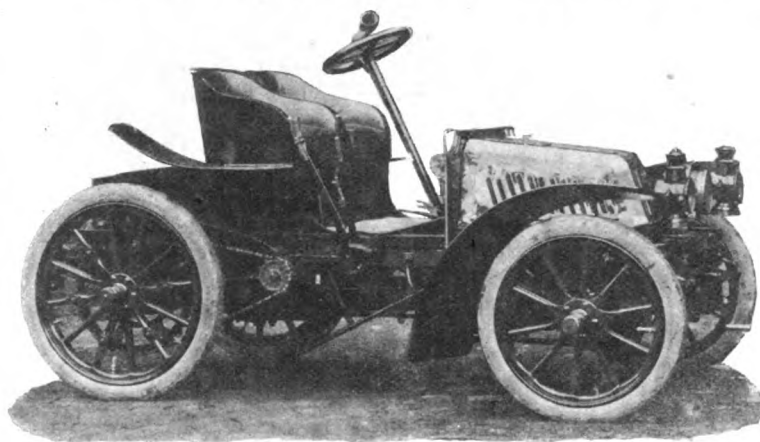


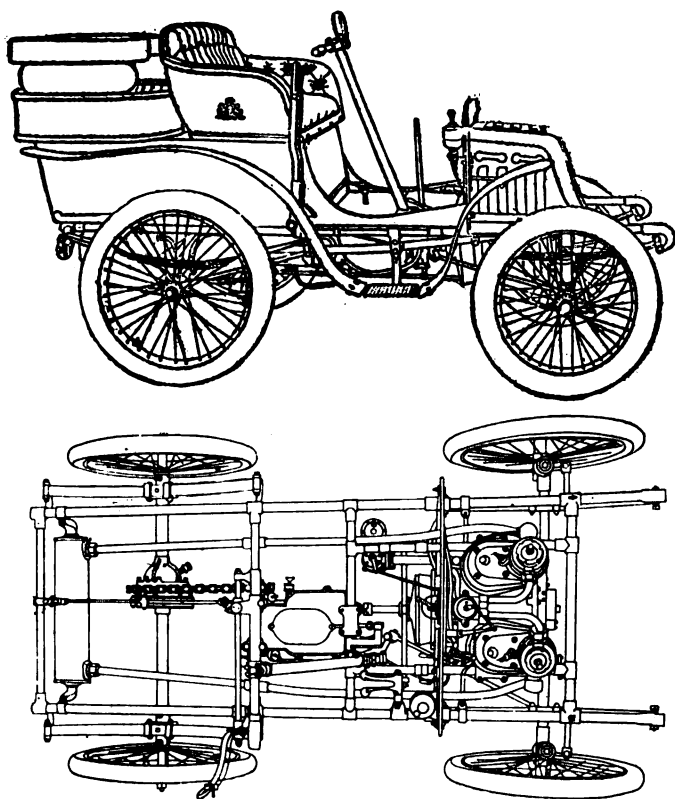
FIG. 8.—THE MORS 10.-H.P. CAR.

the case of the Mors vehicle, was formerly somewhat high. Above each induction valve is placed a small valve, maintained in place by a spring carried in the centre of a cup on the top of each cylinder. In the event of an induction valve hanging up, a drop of petrol in the cup and a pressure of the small spring will promptly overcome the difficulty. Another feature is the simplicity with which the nipple of the carburettor can be removed and cleaned if necessary, although by reason of the preliminary cleansing of the petrol in a metal screen this is an operation seldom, if ever, necessary. An additional point to be noted is the system of dividing the exhaust so that it enters into the silencer from opposite sides, thus killing itself, so to speak. The axles are very low and the mechanism is so placed as to give the greatest stability to the car. The controlling levers are placed to the driver's right hand, in a similar position to those of the larger types of Mors vehicles. The price of the motor and frame is £520, while for an extra £60 a complete *tonneau* can be purchased. An 8 h.p. delivery van and three 6 h.p. *tonneaux* completed the list of the Société Mors' exhibits.

La Société des Voitures Automobiles "La Petite Livraison," Rue Laferrière, Paris, showed a couple of four-seated cars of the *tonneau* type. The first of these was provided with two forward and one reverse speeds, the transmission being effected by belts. Placed well up from the frame, the carriage body can be easily and speedily removed and replaced by another when occasion demands. The second vehicle was of similar construction, but is

fitted with spur wheel transmission. In both instances the power is supplied by a single cylinder vertical motor fitted with two fly-wheels and developing 6 h.p. A Longuemare carburettor is used.

A stand which attracted much attention was that of Messrs. Cottureau and Co., of Dijon, which comprised both gear and belt driven cars. First we inspected an example of the 5 h.p. voiturette, but as this car has already been described in these columns (see *Motor Car Journal*, September 22nd, 1900), no lengthy description at this time is necessary. It was with pride that Messrs. Cottureau pointed out to us the features of the 7 h.p. *tonneau* they are now building, and of which illustrations are given in Figs. 9, 10. As will be seen, the vehicle has an attractive appearance; it has a frame constructed of tubular steel, spring suspended at both front and rear on the axles. A leading feature in the car under notice is the engine. This is of the two-cylinder type, the two cylinders being set V-fashion under a perforated bonnet in the fore part of the frame. The valve chambers are located on the top end of the cylinder. The latter is provided with radiating ribs, while the valves and explosion chamber are surrounded by a water-jacket, circulation being maintained



FIGS. 9 AND 10.—ELEVATION AND PLAN OF COTTEURAU TONNEAU VOITURETTE.

by a small pump. A radiating coil is also fitted. The cylinders are 85mm. in diameter, and the stroke is 105mm. Running at a speed of 1,000 revolutions per minute, the engine develops 7 h.p. The ignition is electrical, while a carburettor of the Longuemare type is fitted. As far as the differential shaft the transmission mechanism is very much on the lines of that adopted in the Panhard cars. Three speeds forward and a reverse motion are available. The motor shaft carries at its outward end one-half of a friction clutch, the other portion of which is mounted on the end of the variable gear shaft, in line with the engine shaft. The variable gear consists of a train of spur wheels, any one of which can be made to mesh with corresponding pinions on a short parallel shaft which conveys the power by bevel gear to an intermediary shaft at right angles. The variable speed gear is enclosed in an aluminium oil-containing case fitted with a detachable cover to give ready access to the gear. From the intermediary shaft the power is conveyed to the rear axle, which is provided with a differential gear, by a single chain; this axle is also so mounted that it can be moved backwards or forwards within certain limits to allow of the regulation of the tension of

the driving chain. A foot pedal actuates a band brake on the transverse intermediary shaft, while a hand lever at the side actuates a similar brake on the differential axle. The exhaust silencer is of large dimensions and is located right in the rear of the frame. Steering is controlled by an inclined bar on which the electric current interrupter is mounted. Wheels of the cycle type are generally fitted, but wooden ones can be substituted if desired, and these are shod with pneumatics. The little car weighs, with petrol, etc., ready to start, about 9½ cwt. With its 7 h.p. engine it is claimed that the vehicle will mount any hill, and on the level attain a speed of 25 miles per hour. The firm also showed a Benz-like vehicle carrying a 3½ h.p. motor. It is interesting to note that Messrs. Cottureau make a special four-cylinder 10 h.p. racing car which comes within the 400 kilogramme limit imposed by the "A.C.F.," and which can average a kilomètre per minute under anything like favourable conditions.

L'Automobile Industrielle, Rue Chauveau-Lagarde, Paris, are constructors of automobiles built on the David-Bourgeois system. Only a couple of petrol carriages were shown at the Salon, and both of these were fitted with a 16 h.p. motor. This engine is of the four-cylinder vertical type and differs from the majority of light oil motors by the mechanical command of all the valves, notably those of admission, and by the automatic regulation, which proportions the force developed to the effort required in allowing two, three, or four cylinders to operate. By this system the fuel consumed is only half a litre per horse-power per hour. The motor is provided with a water-jacket, and the water circulation is assured by the employment of a rotary pump. Tube or electric ignition can be fitted as desired, and the firm have also constructed a rotary-magneto machine, which will be placed upon the new type of cars. A 8 h.p. two-cylinder vertical motor fitted with the mechanism necessary to drive this new magneto was exhibited, but the machine itself was not shown. The transmission of power is effected by cog wheels which are always in gear, thus avoiding any noise or shock when speeds are changed. The steering is of the inclined wheel pattern, and the brakes act both forward and backward. Engines developing 12 and 20 h.p. with four cylinders, and 8 h.p. with two cylinders, are also made by the company, and the smaller type motor including flywheel weighs but 170 pounds. An electric brougham with folding hood was also to be seen upon the stand, and the last of the company's exhibits was a wooden four-seated *tonneau* body for an 8 h.p. frame, which, without upholstery, weighs seventy pounds.

The centre of attraction upon the stand of La Société des Anciens Etablissements Audibert et Lavirotte, Monplaisir-Lyons (Rhône), was the big racing car which, with two sister vehicles, will probably be seen competing at Nice this spring. Weighing 1,470 kilogrammes, this car is propelled by a four-cylinder motor developing 32 h.p., and it is said to have attained a speed of 107 kilomètres, or 67 miles, per hour on the level. The transmission is effected by the medium of a friction cone, the peculiarity of which is its metal to metal contact. This cone is placed in the middle of the tubular frame, and two of the forward speeds are contained in one box, while the gear wheels giving the two other speeds are placed in another case. The centre of gravity would appear to be very low and, with its long wheel base and pointed motor casing, the vehicle has a distinctly racy appearance. Unlike the arrangement of the company's ordinary cars, the speeds are controlled by a lever placed at the driver's right hand. The next carriage noticed was a white four-seated *tonneau* carrying a 7½-h.p. motor. Here the change of speeds is effected by means of a second wheel placed just below that commanding the steering. Then one found a 12-h.p. four-seated double phaeton upholstered in red leather. A 16-h.p. phaeton, fitted with a hood over the front seat, completed the list of cars shown, but an open gear case, exposing the system of cog wheels in use by the company, was of interest to visitors with a taste for mechanics. MM. Audibert et Lavirotte propose to supersede the leather belt now used upon their vehicles for the transmission of power by a metal band, and this innovation will be placed upon all the cars now coming through the works.

La Société Lyonnaise de Construction d'Automobiles Rochet-Schneider, Lyons (Rhône), showed a number of their well-known vehicles. The car is propelled by a four-cylinder vertical engine

placed in the fore part of the frame. Four speeds and a reverse are secured by means of the usual cog-wheel gearing, an exceptionally large friction cone being used to transmit the propulsive power. A conveniently placed indicator permits the driver to see at a glance whether or not the water circulation is working satisfactorily. Inclined wheel steering is the system adopted upon this car. It is interesting to learn that the company are experimenting with a system of magneto-electric ignition, although none of the cars exhibited are provided with the apparatus. The new system will be one of the features of this season's cars should the experiments prove as successful as it is anticipated they will do.

(To be continued.)

ROAD WHEELS FOR MOTOR-CARS.

MUCH has been said and written concerning the relative advantages of wood and wire wheels for motor cars, and the question seems to be as far from solution now as ever, if uniformity of practice is an indication of the established superiority of one of several alternative methods of construction. Considerable experience has been gained in the matter of wheels since the beginning of the automobile movement, and if the teachings of this experience are brought to bear upon the question of wood or wire wheels it is reduced to rather narrow limits. Nobody probably would suggest wood wheels for motor-cycles, while for road vehicles and, above all, heavy delivery waggons and trucks, the wood wheel has proved superior to any form of wire wheel. Many builders of heavier vehicles started out by using wood wheels, but of those who originally used wire wheels exclusively a number have since changed over to wood wheels, for all but the lightest types, among others the firm of Peugeot, in France, and Riker, in America. The only class of vehicles in which there can be a question as to the better adaptation of wood or wire wheels is the light voiturette class, and for the comparatively light work for which these vehicles are intended there is probably not much choice between the two.

THE Automobile Club of America has followed the example of the A.C.G.B.I. by issuing *Automobile Club Notes* to its members.

A RACE for motor-cars, the motors of which are operated by alcohol, is to be run off between Paris and Roubaix on the 8th April under the auspices of the Automobile Club de France.

MESSRS. WALKER AND HUTTON, electrical engineers, Huntriss Row, Scarborough, have obtained a licence from the Hackney Carriage Committee of the Scarborough Town Council to run a service of motor-omnibuses in the borough.

A COMPANY has just been formed to organise a service of motor omnibuses in the province of Cremona, Italy, between Cremona-Casalbuttano-Casalmovano-Soncino, twenty-three miles, and Cremona-Gadesco-Cicognolo-Pialena, nineteen miles.

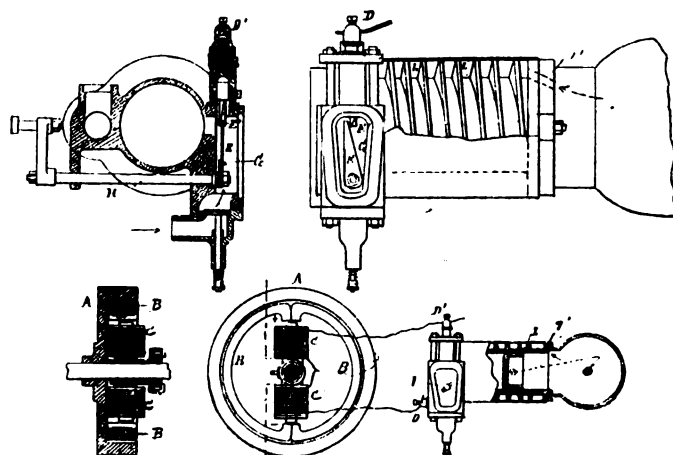
SIR J. H. A. MACDONALD, Lord Justice Clerk of Scotland, and a well-known motorist, who commands the Forth Volunteer Infantry Brigade, read a paper last week before the Royal United Service Institution on "Infantry in a new century." He urged the need of drastic army reform, and of reorganising our whole system of training, casting out of it what was inapplicable to the conditions of warfare which now existed.

THE motor-car occupies at the beginning of the twentieth century about the same position in the engineering world that the steam engine did at the commencement of the nineteenth century; the problem of mechanical road locomotion is to-day the one of most far reaching importance in the entire domain of mechanical engineering. Yet advances in the perfecting of the motor-car will be more rapid in the coming years than progress in steam engineering was in the early years of the last century, as progression in engineering matters has always been geometrical. With the extension of automobilism, too, every little town will soon possess a store where everything required by the motor-car will be kept in stock, and near at hand there will nearly always be a specialist in motor-cars who can be secured to replace a broken part.

THE BOUDEVILLE ELECTRIC IGNITION AND CYLINDER-COOLING SYSTEM.

M. BOUDEVILLE, of Anet (Eure-et-Loire), France, has lately devised a new arrangement for igniting the explosive charge in petrol motors. In the new system (Figs. 1, 2, 3 and 4) the current is generated by a magneto machine, the armature of which is stationary, and the field or permanent magnet is attached to the fly-wheel of the motor. The magnet is in two halves *B*, and is placed inside the rim of the fly-wheel *A*. The armature consists of the two coils *C*, wound on an iron core. The terminals of the coils are connected to the electrodes *E* and *E'* in the valve chamber, and the contact points are constantly fanned by the incoming charge, which takes the direction pointed out by the arrows in the figure. The movable electrode *E* is operated mechanically from the crank-shaft. The cover plate *I* gives easy access to the contacts.

The cooling arrangement adopted by M. Boudeville is also shown. The cylinder is provided with spiral flanges *L L*, and



FIGS. 1 TO 4.

over these flanges there is a tubular casing. The spiral groove between the flanges is in communication with the crank casing through the passage *I*, and the pumping action of the piston is claimed to force the air from the crank casing through this groove, thereby keeping the cylinder walls cool.

THE Cycle and Motor Company, Ltd., of Dublin, are sole agents in their district for the Gladiator voiturettes.

THE Universal Motor Conveyances and Motor Appliances Co., Ltd., has been registered by Mr. F. W. Mackie, 15, Balham Grove, S.W., with a capital of £100, to carry on the business of motor-vehicle manufacturers, etc.

MESSRS. JAMES AND BROWNE have removed from Buckingham Palace Road to more extensive premises at 78a, Queen Street, Hammersmith, where they have every convenience for repairs to, and storage of motor-vehicles.

SIR FREDERICK BRAMWELL, Mr. Thornycroft, and Mr. Worby Beaumont were among the speakers in the discussion that followed the reading of Mr. Pennell's paper at the Society of Arts last week. Major H. C. L. Holden was in the chair.

A FEW days ago a motor-car belonging to Earl Russell, and driven by Mr. Moyse, engineer, ran into a miller's cart at Maidenhead, forcing both horse and cart into the ditch. The motor was damaged, but the cart, horse and drivers escaped injury.

THE Haynes-Apperson Company, Kokomo, Ind., have sent us a copy of the fourth annual catalogue, describing the two-seated, four-seated and six-seated vehicles of their manufacture. This company claims to be the oldest manufacturer of motor vehicles in the United States, having been established in 1894. The catalogue calls attention to the excellent balance, flexibility and ample power of their two-cylinder engines, the durability of their cars under the severest road service, and the ease of repair. Among the testimonials printed is one from Earl Russell.

CORRESPONDENCE.



WATER-COOLED HEADS FOR MOTORS OF MOTOR-TRICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—You were recently good enough to allow me to make some suggestions with regard to motor-tricycles in your columns, and I therefore venture to ask for a little space to give the results of my recent experience with a water-cooled head, which has been so satisfactory that it may perhaps be of interest to some of your tricycling readers. I have always been rather dubious of the advantages of water-cooled heads as applied to tricycles, partly because I have never been much troubled by overheated motors, but chiefly on account of the trouble and expense of fitting them, and because I understood that a large and heavy water tank was a necessity. I find, however, after a practical trial, that the drawbacks are inconsiderable, while the advantages are much greater than I had supposed. The head I tried was obtained from the London Autocar Company, and I am able to recommend it as possessing many advantages. In the first place, it can be fitted to a De Dion motor without any alteration whatever, using the same valves, compression tap, etc.; secondly, it has plenty of water space and the water enters just where the heat is greatest, viz., over the exhaust valve seat, and, lastly, the outer walls of the water jacket have radiating plates, which carry off a good deal of heat. One small defect may be noted, viz., that the nipple of the uptake water pipe does not quite clear the compression tap rod.

The amount of water necessary appears to me to have been much over-estimated. The tank I am now using is only 12 in. by 4 in., and the whole amount of water in circulation is only three pints (the motor being $2\frac{1}{4}$ h.p.). It will be found to be impossible to make the water boil, at all events in cold weather. The tank is fixed 1 ft. above the head by two stays secured to the latter by the nuts on the pillars, and is also clipped to the petrol tank; but I am now fitting a small cooling coil under the left-hand axle sleeve, reducing the tank, so that it will only hold two pints, and clipping it to the saddle pillar. The tank and coil can be easily cut out of sheet zinc and soldered. For the connecting pipes I have used rubber ($\frac{3}{4}$ in. for the uptake and $\frac{1}{2}$ in. bore for the down-take), and these seem to stand the action of boiling water very well. The circulation, which can be easily tested by connecting the pipes to an open tank, is remarkably quick. The additional weight is really inconsiderable; the extra weight of the head is about 2 lb.; tank (zinc) and pipes (rubber) 2 lb., coil 3 lb. and water 3 lb.

The effect on my tricycle has been to increase its hill-climbing power quite one-third, and its average speed about two miles an hour. With this head a $2\frac{1}{4}$ h.p. tricycle, of medium gear, will average eighteen miles over almost any roads and take any hill; and this being so, I really cannot see the necessity for machines of 3 h.p. and over. Yet the $2\frac{1}{4}$ h.p. model is generally thought to be quite out of date. In my humble opinion, it is the highly-powered tricycle and the leviathan car which cause the public to be apprehensive as to the future of automobilism. Another advantage of the water-cooled head is that a tricycle thus equipped could easily be used as a stationary engine for driving a lathe or a small circular saw, by fixing the axle firmly on a frame and driving by the pedal chain on to a countershaft. I ran my machine experimentally in this position for half an hour, with the result that the water in the tank boiled very fast and the cylinder walls became very hot, but as long as the gear case was well supplied with oil the compression was good and the power quite satisfactory. My tricycle has done all my work this winter, and done it well; whilst its colleague—a voiturette—has never been out, owing to the bad roads and worse weather. On the coldest days I have been able to keep my feet warm by wearing long rubber boots, reaching to the knee, with two pairs of socks. Before adopting this kind of footgear I always found tricycling in winter rather chilly.

Yours truly, W. E. TESCHEMAKER.

MOTORISTS AND SPEED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Motorists are, I suppose, always endeavouring to win over "outsiders" to their ranks, and many of them (I for one), when hearing a remark made as to the rude and dangerous manner in which motor-cars are driven along the roads, reply that it is only a few selfish motorists who, by driving in a dangerous and discourteous manner, are raising enmity against automobilists in general. I have myself seen and heard of several instances, one of which I will quote. On Friday last, in the snow, the driver of a motor-car, when ascending a slight gradient, held straight on in the centre of the road, forcing a small pony-cart into the footpath in order to avoid leaving the middle of the road himself. Had the driver of the pony-cart been driving a larger vehicle he would have held on in the middle of the road too, and given the motorist a lesson in civility. I should have done exactly the same. But I told him that this was an exception to the general rule. The other day, however, I left the current issue of *The Motor-Car Journal* lying on a chair, and a person to whom I have frequently used this argument picked it up. On page 821 there is a paragraph entitled "The Virtue of Modesty." Having read this he remarked that he noticed that, in spite of what I had said, motorists appear to be proud of travelling at a speed which, even if very much exaggerated, must have been dangerous, and of having the wit (?) to deny the fact in court, immediately afterwards boasting of both achievements, other motorists looking on and not objecting to it. Even Mr. Vanderbilt's system is better; he at least is straightforward, and my friend made no comment about him. Another question often asked is, "Why does not the Automobile Club adhere to its rules, and expel members who break the laws as to speed?" I believe no member of the Club has ever been expelled yet, and if they were to do so I am afraid the Automobile Club would soon become a very small body which, would again mean ruin to the cause of automobilism in this country, seeing how hard the Automobile Club work. But why don't they, seeing how absolutely useless the clause referred to is, cut it out altogether, and then questions which cannot now be answered could not be asked, and so, much harm to automobilism avoided. Anyway, why cannot motorists control their craving for speed for a little while they would then be much more likely to gain what they want, and make automobilism popular; at present there is very little chance of it.—Yours truly, A. W. P.

BURSTING OF IGNITION TUBES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Replying to Mr. J. H. Macdonald's letter in your last issue I may say that as the correspondence had been concerned with ignition tubes, I did not introduce other troubles with regard to tires, chains, brasses, sprockets, gears, etc., subjects so familiar to all motorists. Although it may be that I have been favoured in this direction, I am still driving with the same sprockets as were originally fitted to the car. I have used Brampton's block chains, and have now the fourth set in use. The original gear is still in fair condition. The countershaft and clutch shaft has had to be renewed, and once I had to renew the main bearings. With regard to tires I have had more difficulty; the first set was not at all satisfactory, and the second set, another make, was even worse. I am now using the tires supplied by the Sirdar Rubber Company, which are wearing well. It should perhaps, be added that I have personally done all the cleaning, lubricating, and other work required in the management of the car.

Yours truly,

W. R. YOUNGS.

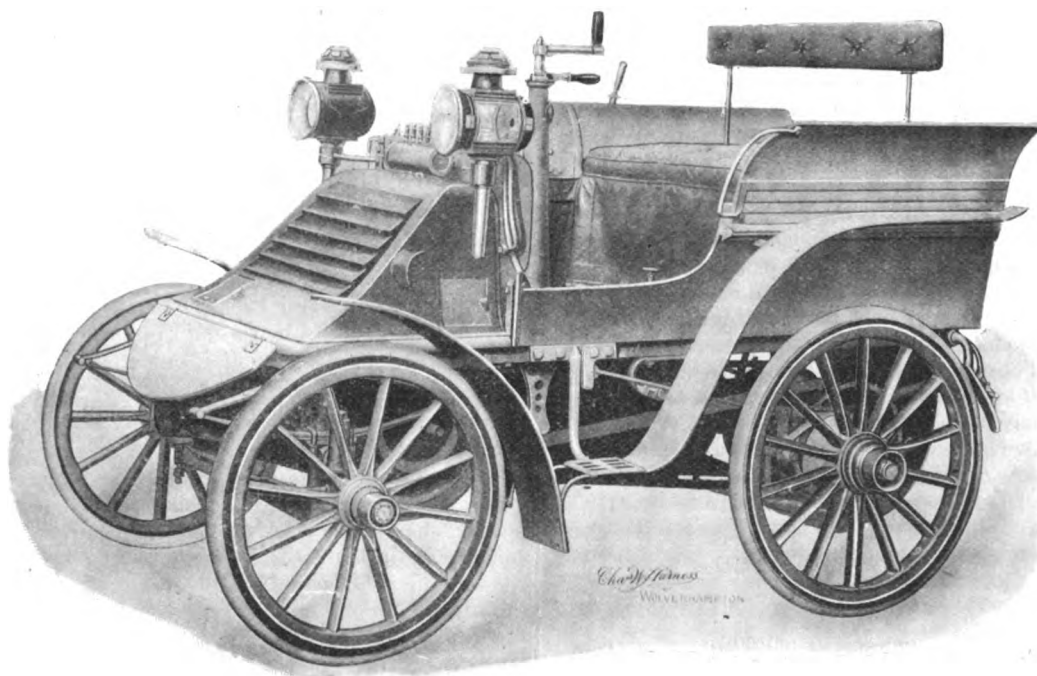
MOTOR-BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—If any motor-bicycle fancier has tested the Excelsior and the Minerva, and has decided which he deems the preferable, or what other motor-bicycle he considers more eligible than them, I think his views thereon, if printed in *The Motor-Car Journal* at the present time, would command great attention from many cyclists anxious to try the motor-cycle.—Yours truly, J.

THE "SUNBEAM" MOTOR-CAR.

IT has been known for some time that Messrs. John Marston, Ltd., of the Sunbeam Cycle Works, Wolverhampton, have been at work on the construction of a motor-car, and this week we are able to publish an illustration of the "Sunbeam" two-seated vehicle. The frame of the car is built of channel steel. The motive power is supplied by a 4-h.p. horizontal petroleum engine. The ignition is electrical, a small lever placed conveniently to the driver retarding or advancing the sparking. The contact maker is so located as to be out of the reach of oil and dirt. The water circulation is by gravity, no pump being employed. Power is transmitted from the motor to the driving wheels by belts. Two forward speeds and one reverse are fitted, the necessary changes being effected by pulleys acting on a second shaft and connected with the live axle of the rear road wheels by two gear wheels enclosed in a differential gear box. The cylinder and main bearings are lubricated from a sight feed box fixed on the dash board in view of the driver. Ample brake power is provided, there being a band brake operated by a foot lever for ordinary use, and an emergency brake having powerful hand lever and acting direct on the driving wheel tires. Either side of the band brake can be adjusted so that an even pressure is always obtained. The road wheels are of wood, 28 in. in diameter at the front and 30 in. at the rear, all being shod with solid rubber tires. Steering is controlled by a tiller or hand wheel, as desired. The body is adapted to seat two persons and to give plenty of luggage room. The car measures 7 ft. by 4 ft. 9 in., and weighs complete about 10 cwt.



THE "SUNBEAM" MOTOR-CAR.

A TOUR of France for electric vehicles is, it is reported, being organised by *L'Auto-Velo*.

MR. CHARLES FRISWELL will sell by auction on Tuesday next the second portion of the stock of the Automobile Association. Catalogues can now be obtained.

MR. ARCHIBALD FORD, the secretary of the Motor-Car Company, Limited, has been appointed manager to Mr. William Lea at his recently opened dépôt in Berry Street, Bold Street, Liverpool.

THE Milwaukee Automobile Company, of Milwaukee, Wis., which for six months has been experimenting to ascertain the value of steam automobiles for carrying much heavier loads than have formerly been attempted in America, has finally completed a large steam lorry. The load which the truck is capable of carrying is from 2,000 to 3,000 pounds. A noticeable feature is that which permits several types of body on one frame, so that it can readily be adjusted to various kinds of loads; while the adoption of rubber tires is another innovation in heavy truck work. The new truck, in the course of the experiments made with it, was run through the snow, and the result was more than satisfactory.

THE RESTRICTIONS OF SPEED LIMITS.

WE believe that in the majority of those cases, now so frequent where demand is made, that the speed of motor-cars be restricted by legal enactment, the main purpose of our opponents is to prevent those vehicles from frightening horses. This, of course, is not the case in large cities, where automobiles are by this time so common that the horses, seasoned already beyond the point of being startled by merely novel sights and sounds, rarely take notice of the new vehicles. But there are not as yet many cities of which this is true, and except in isolated cases we have not reached the point where our urban *chauffeurs* are willing to charge through the streets at more than tram-car speed, scattering pedestrians and endangering other vehicles for the sake of the agreeable diversion thus afforded.

It therefore happens that, while instances are reported every now and then in which the disregard of the public's rights, shown by some few individuals, has brought forward proposals of speed limits covering all, yet these cases are comparatively few in comparison with the number of pedestrians and motor vehicles involved;

while, on that basis of reckoning, much the more numerous protest comes from the small towns where motor-cars are rarely seen, and in which they are still more rarely owned. In these latter cases the disturber of rural tranquillity is usually the property of one of "them city fellers"; and the man with the hoe, whose placid nag never saw either a purple cow or a tram-car not unnaturally views the advent of the "devil wagon," leaving a column of dust in its wake and

impairing the "permanent psychic equipment" of his beast, as a noxious invasion to be resisted by all available means.

Now, it is to be granted at once that it is quite possible to run a motor-car too fast, even on an open road, for the safety of the occasional other vehicles to be met with. Moreover, the temptation to run too fast, given a fairly good road, is much greater in this case than in the city, because of the greater distances, the absence of cross streets and the fewer teams. But although the temptation is greater, it is a distinct misfortune that it should be yielded to. Driving at a speed which is made reckless or inconsiderate by the attendant conditions is not less reprehensible in the country than in the city, and it can do quite as much to damage the prestige and check the progress of the motor vehicle.

Again, it may very likely be true that a horse is frightened more by the rush of a vehicle past him at high speed than when a policy of delay is adopted. This does not appear to be proved, however; and some motorists claim that their experience has been directly the contrary, arguing that they get well past the horse before his terror has time to develop. Whichever course a rider has found to frighten the animal less he should feel morally

bound to pursue in all cases where the horse shows alarm. It is well enough in towns to say that the timidity of the horse is notorious, and that he who drives one takes his own chances. Town horses are not so easily frightened. But the fact remains that the horse is our almost universal beast of burden. Many people could not discard him if they would, and if they did they would not be able to manage a motor-vehicle. The horse is with us of necessity more than of choice, and while the motor-vehicle owner may pity the horse owner, he is yet bound to treat him with reasonable consideration.

The point we wish to make, however, is, states the *Horseless Age*, the futility of a legal speed limit on motor-carriages as a preventive of horse runaways. Who, to begin with, is prepared to say that the equine species will usually take fright at a motor-car driven, let us say, at 15 miles per hour, but will not take fright at one driven at a 10-mile gait? And if this, or something equivalent, were asserted, what would be done with the intermediate speeds? It is a fact that in a large number of the runaways that occur, especially in the country, the blame lies with the driver of the animal, who is giving more attention to the motor-carriage than to his horse. Certainly a reduction in the former's speed would not diminish the number of "accidents" such as these.

In very many cases the horse will take fright even at a standing automobile with quiescent machinery. In a case reported not long ago, the motorist stopped on approaching a horse vehicle, and the driver of the latter got out and held the animal's head, telling the motorist to go ahead. This was cautiously done, but the horse escaped control, turned half around, and overturned the trap with fatal results to one of the occupants. And yet this same town, as the direct result of that occurrence, is agitating the subject of a speed limit!

Considered simply as a preventive of runaways, a speed limit is certainly as crude a device as could well be imagined. In its least unreasonable form it should be drawn so to regulate speed only when passing a horse vehicle, and we think it should be considered rather as a standard by which to fix responsibility than as a preventive. Thus, if a horse runs away when an automobile is passing at a rate of no more than ten miles an hour, the inference is reasonable that the blame rests on the horse or on its driver, whereas a runaway due to a higher speed might be charged against the motor-car. Under such a law prosecutions would hardly be made where no accident resulted from a speed above the legal limit, and in that way the law would automatically become a dead letter when no longer required.

AN enterprising Philadelphia newspaper offers to give to the reader who comes nearest to guessing the attendance at an automobile show a 750 dol. vehicle.

ST. VALENTINE has, according to pictured representation, resigned wings for motors; but somehow Cupid and a carburettor do not seem to have an affinity.

MR. JOSEPH PENNELL, who seems to have made the subject of motor-cycling his own, starts off, within the next fortnight, on a long continental trip. He has had a new Werner bicycle built and hopes to average from 150 to 200 miles a day on it. Particulars of the trip are promised for our columns.

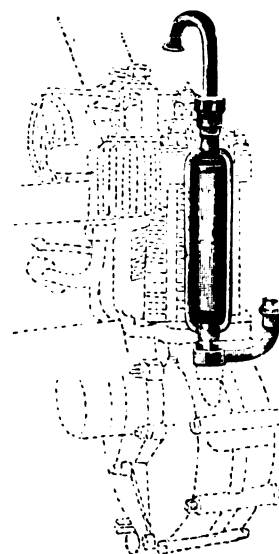
SOME excitement was caused in Colchester, on Tuesday, by the vagaries of the motor-van belonging to Messrs. Hyam. Whilst descending the hill opposite the Board School, the vehicle went on a "circular tour," and after describing a figure of eight, finished up by violently colliding with a lamp-post, and smashing the glass in the lantern. Skidding troubles again!

MR. P. L. RENOUF delivered a lecture on Friday last week to the members of the Coventry Technical Institute Engineering Society on "Ball Bearings." The various points and problems in connection with the use of ball bearings were ably treated, and the lecture was illustrated by a series of diagrams and drawings thrown upon a screen of the various kinds of ball bearings which have been introduced.

THE TERROT COMBUSTION-CHAMBER COOLING DEVICE.



REFERENCE has already been made in these columns to the simple yet ingenious device introduced by M. C. Terrot, of Rue André Colomban, Dijon, France. We are this week able to give an illustration of the arrangement, which is one of those very simple things which make one wonder why it was not thought of before. The leading idea is to provide some escape for the air in the crank case, as with each movement of the piston the air undergoes an alternate expansion and contraction which not only heats the motor, but also offers a certain resistance to the piston. This would, of course, be easily overcome by making a hole in the case, at the risk of losing some of the lubricating oil. M. Terrot screws a large section



tube on the top of the case, the tube terminating in a smaller one which is bent so that the open end is directly over the combustion chamber. With each upward movement of the piston cold air is drawn into the case, taking some of the heat from the cylinder. Upon the piston descending the air is forced up into the large section tube, where it expands and cools, and finally issues in a sort of cold blast over the top of the motor. As to the lubricator itself, it is attached to another tube forming part of the apparatus, and a special arrangement prevents the oil contained in the chamber from being drawn out with the current of air. If the apparatus be as efficient in practice as it is ingenious in theory it should prove a very useful accessory.

THE King of the Belgians paid a surprise visit to the Automobile Exhibition at the Grand Palais, Paris, one day last week.

THE Social Democrats of Chicago are considering a proposition to send their leaders through the country on automobiles, from which they will teach the doctrines of Socialism.

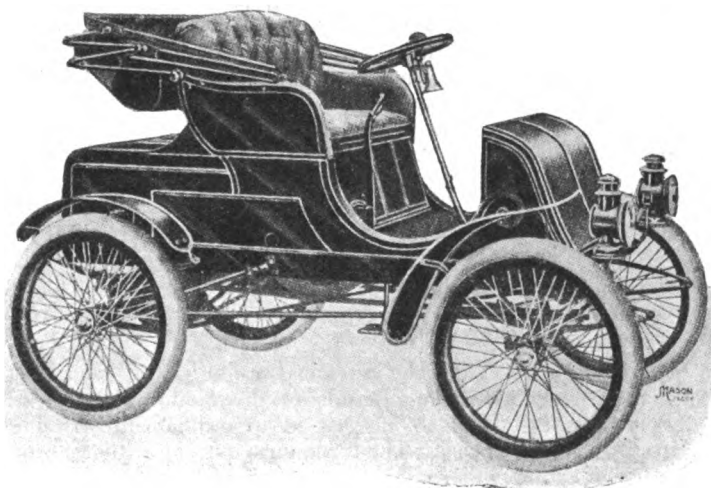
NEXT season at Newport, Lenox, and other fashionable resorts, there is every indication that the motor-car will, remarks an American contemporary, play a prominent part, and will be a more important factor in summer life than it was last year. The reason for this is that more society people are using motor-cars than ever before, and many who at first did not see fit to go in for motoring have seen the great sport there is in it, and have ordered vehicles. People who have given up their private stables in town for automobiles are also to give them up for country work, and those who attend many of the entertainments at Newport next summer will use the automobile exclusively as a means of transportation.

THE 1901 WINTON CAR.

THE Winton Motor Carriage Company of Cleveland, Ohio, have sent us the accompanying illustration of the car they have got out for the 1901 season, and in which several changes have been made, resulting, they state, in greater power, increased fuel supply, reduction in noise, and certainty and ease of control. In the new model the wheels and tires are of uniform size, thus necessitating the use of only one size of tire, viz., 32 x 4 inches. The mud guards are of aluminium, finished to match the body, and the body has been shortened about three inches at the rear. The motor is stated to be of 9 horse power. The method of control and operation of both motor and carriage is the same as hitherto employed, except the inclined steering wheel, which has been substituted for the former steering lever, in order to insure safety and ease in steering. The countershaft, formerly used on the car to drive the rear axle, has been abolished, and the chain now drives direct to the sprocket on the differential on the rear axle. This reduces greatly the friction and number of gears, the remaining gears running in a dust-tight oil-containing case. It is stated that these changes, combined with the action of an entirely new silencer, greatly reduce the noise of operation. The chain is now tightened by moving the rear axle backward by loosening a lock nut on the front end of the reach and lengthening the two distance rods, which now run from each end of the rear axle to the side of the body. The water for cooling the motor is kept in circulation by means of a small rotary pump.

The carburettor is of new design, and is said to be simpler and more efficient in action than the former one. The petrol tank has been increased in size, and now holds eight gallons, this being sufficient for 150 miles on average roads. An additional tank of petrol can be carried in the "touring box" at the front of the car, one part of the box being partitioned off for that purpose. Two sets of primary dry batteries are now supplied, placed in another compartment of the "touring box," and so arranged that, at any time it is desired to place the reserve set of batteries in service, it can be done by simply turning an electric switch.

The brake, operated by a hand lever and acting on the motor countershaft, is said to have been considerably increased in

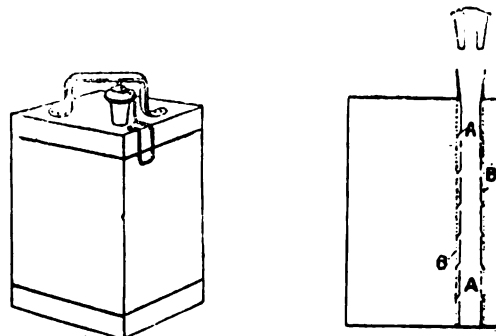


effectiveness, and there is also provided an emergency brake, operated by a foot lever and acting on the differential on the rear axle. In addition to the car illustrated, the Winton Company are also building a two-seated car equipped with a 15 horse-power motor, and capable of a speed of 40 miles an hour, and also a special racing car of even greater power and speed.

THE Dutch Automobile Club held its annual meeting in Amsterdam a few days ago, when a committee was appointed to organise an automobile tour in Holland during the coming summer.

SAFETY WITH PETROL.

ON Wednesday afternoon an interesting demonstration of a new safety petrol can, which Messrs. Henze and Company are introducing, was given at the Stamford Hill Cycle Track. The main principle of the invention is applicable to lamps, barrels, and everything in which spirit of an inflammable character is stored. A pipe A, pierced with holes, extends from the mouth to the bottom of the can or barrel. Round the pipe A is a tube B of fine wire gauze. The idea adopted is that of the Davy miner's lamp, no flame being able to penetrate through the gauze to the petrol in the can and cause an explosion. Another feature of the patent is to be found in the cork or plug. The latter is hollow, and is closed by a brass cap, held in place by a solder which melts at a temperature of less than 70 degs. Celcius.



Thus, should the building in which petrol in these cans was stored catch fire, the heat would melt the solder and loosen the cap, and so allow any gas generated from the petrol to pass away before it could ignite or cause the can to explode.

There is no doubt as to the effective nature of the protection thus afforded. A petrol can fitted with the invention was dipped in benzine, which was ignited, the flame reaching the top of the can and extending to the contents. Similar experiments with a petrol tank half filled with petroleum spirit confirmed the value of the idea, and then a display was given with a large cask which seemed to conclusively prove that Messrs. Henze and Co. have a patent which is calculated to give safety to all vessels in which inflammable spirit is kept or stored. The cask was reared on a light wooden structure, and filled with petrol, a quantity being also poured over the exterior. The plug having been applied, the wood was ignited. As the heat became more intense the spectators would not have been surprised to have heard an explosion; instead of that, however, the plug was merely blown into the air, falling within a few feet of the cask. The contents then flared up, the flame ascending in a candle light form. By the application of a cloth the fire was easily put out. There is no doubt that the application of the idea to petrol cans and tanks will materially add to the safety of the automobile without increasing the cost to any great extent. We are informed that the fitting of a tube—which can be applied to old casks and cans as well as new ones—adds 10 per cent. to the cost of a large cask.

THE motor industry in Belgium is growing apace. During the past year, 155 motor-cars and 11 motor-cycles, were exported from the country, the value of the same amounting to £27,100. The imports during the same period comprised 69 motor-cars and 43 motor-cycles valued at £10,450.

THE Lincolnshire Automobile Club will hold a dinner at Lincoln on the 16th inst. The Mayor of Lincoln (Councillor C. W. Pennell) is chairman of the council for the year, and Mr. W. S. White, chairman of the Lincoln Motor 'Bus Company, Ltd., is the vice-chairman.

It is understood that the Paris-Berlin Race will probably take place on Thursday, Friday and Saturday, 4th, 5th and 6th July. There will be a tourist class in connection with the race. It is hoped that vehicles will be entered in the tourist class of this race by some of the principal manufacturing firms of this country.

THE NESSELSDORF PETROLEUM-SPIRIT CAR.

HEREWITH we are able to illustrate the 1901 model of the motor-cars turned out by the Nesselldorf Wagenbau-Fabriks Gesellschaft, of Nesselldorf, Austria, and of which an example was on view at the recent exhibition in Paris. The company have been building motor-cars for about three years, and their latest type comprises several improvements. To deal first with the motor this is of the horizontal two-cylinder type, the cylinders being so arranged that the piston rods work on to a central crank shaft. The engine is normally rated at 9 h.p., but at 1,000 revolutions per minute develops fully 10 h.p. The

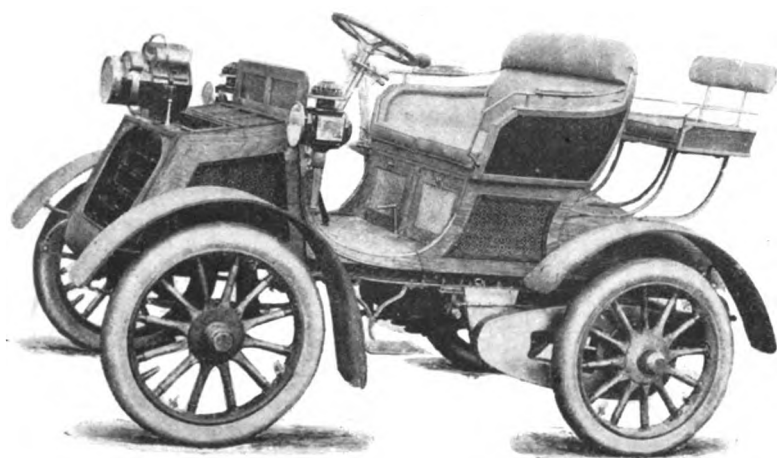


FIG. 1. —GENERAL VIEW OF CAR.

ignition is effected by a Simms-Bosch magneto-electric device, while the water circulation for the cooling of the cylinders is effected by a pump, a radiating coil being also provided in the fore part of the frame.

As regards the transmission, we may here mention that four speeds forward and a reverse motion are provided. The engine is located in the rear part of the frame, the crank shaft carrying at one end a friction clutch operated by a foot pedal. The train of movable gear wheels is carried on a shaft forming, when the clutch is in, an extension of the crank shaft, and any one of the gear wheels can be brought into mesh with corresponding pinions on a differential countershaft, the clutch being, of course, first disengaged. From the countershaft the usual pair of sprockets and roller chains convey the power to the rear road wheels, and

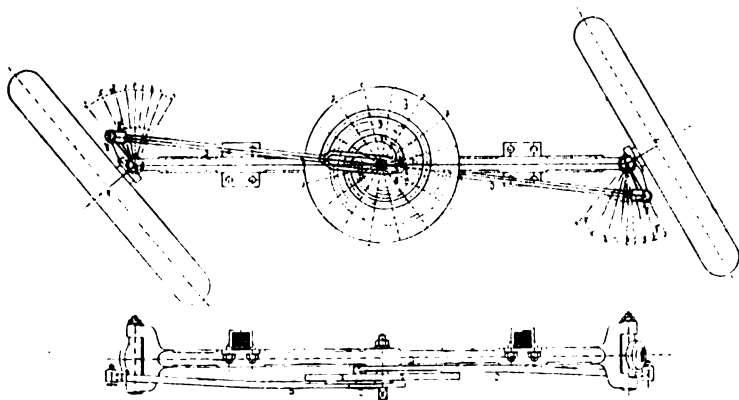


FIG. 2. THE STEERING CONNECTIONS.

from Fig. 1 it will be noticed that the chains are entirely enclosed in a gear case, as is also the change speed gear.

Steering is controlled by an inclined hand-wheel which is connected with the front road wheels in a special way (see Fig. 2). The arrangement, which the company has patented, is claimed to secure the following advantages: (1) The deflection from the normal position of the steering wheels in turning a curve is always theoretically correct; (2) the shocks of the road are not transmitted to the hand of the conductor. The design

and mode of operation of the gear will be easily understood from Fig. 2. The vertical spindles A and B are connected, through the intermediary of the arms AA and BB, to the rods C. The other extremities of these rods carry rollers sliding in two slots in the disc E, one of which is located on the upper and one on the under side of the disc. The slots have the form of spirals, and are laid out in such a manner that the deflection of the wheels always corresponds to the theoretical requirements. A foot-pedal actuates a band brake on the differential shaft, while there are also band brakes operated by a hand-lever on drums attached to the hubs of each of the rear wheels. The frame is built up of channel steel, and is entirely independent of the body, which can be of any desired form. Another feature to which attention may be drawn is that the body is hinged at the rear, so that by unfastening two bolts it can be tilted up, giving access to the motor and all the working parts. The water and petrol tanks are located in the bonnet in the fore part of the frame. Wooden wheels are fitted, and these are shod with 90 mm. pneumatic tires. The road wheels, as well as all the bearings, run on double ball bearings; the car complete weighs about 14 cwt., and can attain a speed, on good roads, of forty miles per hour.

HERE AND THERE.

THE voluntary winding up of the London Electric Omnibus Company is announced.

THE New Montreal Automobile Company has been formed at Montreal, Canada. The capital is £50,000.

THE use of motor-driven cars for the collection of the mails in certain portions of Boston (U.S.A.) postal district is to be inaugurated about March 1st.

WE hear that the Bowden wire is being adopted on a car in course of construction in London for advancing the sparking, regulating the carburation, changing the speed gear, etc.

THE Police Commissioners of Hartford, Conn., have placed a contract with the Electric Vehicle Company, of that town, for an electric patrol wagon. A charging station will be placed in the police headquarters, and one set of batteries will be charged while the other is in use, and the change from one set to the other can be made in a few minutes. Thus the wagon will constantly be supplied with power. The wagon is modelled after the standard horse patrol wagons in use in New York. The vehicle will be completely equipped with such medical and surgical appliances as are needed in emergencies, and it has several novel features. Two seats, each accommodating five persons and running the entire length on the inside, are supported in a manner that permits them to be dropped at will against the sides, leaving the inside space entirely free. Wire screens will be provided for the sides and across the front of the body, and across them will be stretched curtains which can be raised or lowered at will. The vehicle will have a mileage capacity on one charge of the batteries of twenty-five, and will have a speed of eleven miles per hour.

EVEN worse than the wretched prejudice of some English county councils is the attitude of the Madison (New Jersey) Borough Council, which has passed an ordinance restricting the use of motor-vehicles. The ordinance provides that no person using an automobile shall cause the same to be driven or propelled through the streets of Madison at a rate of speed greater than eight miles an hour. It is also provided that every such vehicle shall be provided with a lamp of sufficient illuminating power as to be plainly seen 100 yards, which lamp shall be lighted between one hour after sunset and sunrise. A suitable alarm bell or gong must also be carried, which shall be rung fifty feet from every street crossing or corner, and the bell must be of such volume that it may be heard for a distance of 100 feet. A maximum fine of 25dols. or imprisonment of thirty days in gaol is provided for a violation of any provision of the ordinance, the minimum penalty being 10dols. or five days in gaol. Why trouble about the fine? Surely the motorist should be put in "durance vile" at once.

AUCTION SALE.

AS briefly announced in our columns last week, Mr. Charles Friswell held an auction sale of the stock of the Automobile Association on the premises in Prince's Road, Holland Park, W., on the 7th inst. The following prices were realised:—

Lot.		£	s.	d.
4.	Basket trailer	3	0	0
5.	Front attachment for tricycle	4	0	0
6.	Basket trailer	3	0	0
6.*	De Dion tricycle	22	0	0
10.	5-h.p. Lynx Duc, incomplete and unfinished	50	0	0
14.	Mors dog-cart, second-hand	95	0	0
15.	3½-h.p. Star phaeton	90	0	0
16.	Mors dog-cart	95	0	0
17.	Mors petit duc	110	0	0
18.	6-h.p. Cambier duc, second hand, in good condition	65	0	0
22.*	Orient express	95	0	0
24.	De Dion (Cudell) quad	35	0	0
25.	3½-h.p. De Dion voiturette	125	0	0
28.	6-h.p. Vallee car, second hand, no seat, and in dirty condition	32	0	0
30.	Van body	3	0	0
32.	4 h.p. Tourist car, frame and wheels only	10	0	0
33.	Single cylinder air-cooled motor Auto-motette, in pieces	14	10	0
35.	4 h.p. Tourist car, dirty and incomplete	15	0	0
36*.	Orient express	85	0	0
38.	8 h.p. Mors Dog-cart	85	0	0
38.*	Mors dog-cart	138	0	0
39.	4 h.p. Tourist car	50	0	0
43.	Lynx carriage with motor pulleys, wheels with pneumatic tires, incomplete and dirty	12	0	0
44.	Small delivery car to attach to back of trike	3	5	0
45.	Hillé tricycle	18	0	0
49.	Barriere tricycle, soiled	30	0	0
50.	Hillé tricycle, soiled	15	0	0
Total		£1,305	15	0

MOTOR-CARS AT THE EDINBURGH CYCLE SHOW.

THE fifth annual show promoted by the Edinburgh Cycle Trade Association was opened in the Waverley Market on Friday last week. A fair number of motor-cars and cycles are on exhibition. The Scottish Motor Company, Limited, Edinburgh, show three Daimler vehicles and a Benz car. The Hozier Engineering Company, of Glasgow, stage two of their Argyll voiturettes. One is of the ordinary type with De Dion water-cooled engine developing 3½ h.p., with electric ignition. The other car is a new departure for this firm, being fitted with a Simms 3½ h.p. engine, with the Simms-Bosch electro-magnetic ignition. A third vehicle was expected at the time of our call—a voiturette built to carry four, and fitted with a 5 h.p. De Dion engine and Daimler pattern silencer. The Caledonian Motor-car and Cycle Company, Limited, of Aberdeen, display a handsome car in grey and blue—a Parisian Daimler phaeton to carry four persons, having four speeds. Beside it stands a 6 h.p. Canstatt-Daimler wagonette built to carry ten and driver. Another Canstatt-Daimler is specially fitted for country residence use. It is designated the Caledonian sporting car, and has accommodation for two persons in front and four behind. A Pieper voiturette of most recent design completes this exhibit. A new departure is the Sunbeam voiturette exhibited by John Marston, Ltd., Wolverhampton, a description of which we publish on another page of the present issue. Mr. Wm. McLean, Glasgow, shows one of the well-known Darracq voiturettes to seat four. A neat specimen of the Progress voiturette is exhibited by Mr. R. Kilgour, who is Edinburgh agent for the firm. It is an attractive little vehicle, and carries four persons with ease and comfort. Stirling's Motor-Carriages, Ltd., Glasgow, show their new 5 h.p. water-cooled voiturette, to seat four. There is also a magnificent New Stirling Victoria de Luxe with 7 h.p. four-cylinder motor, to seat four; a No. 2 of similar design, 5 h.p.; a new Stirling tonneau, 5 h.p., for four persons; and a delivery van, 5 h.p., to carry 5 cwt. and driver. Mr. T. Roland Outhwaite exhibits a number of up-to-date Daimler cars, also several Ariel motor-tricycles and quads. The Motor Manufacturing Company, through their representative, Mr. Love, intended to have a big display of vehicles, but at the time of our call a well-used car was the only one visible. Motor-tricycles and bicycles are also shown by a number of other firms.

THE PROPOSED 1,200 MILES TRIAL.

I HAVE been asked by the committee of this Club to read a paper here to-night in connection with the proposed 1,200 Miles Trial. The difficulty which is troubling us is, that the Club has taken a public stand as a body of men who desire and intend to uphold the law: that owing to its recent circular to members of the County Councils the Club is undoubtedly becoming recognised by the public as a law-abiding and serious authority; and that it is therefore impossible that any Trial should be held under the auspices of the Club in which speed in excess of the legal limit is permitted.

We are therefore brought face to face with two questions:—

1. Can the proposed 1,200 Miles Trial be so organised that the speed of vehicles taking part in it shall not exceed twelve miles an hour.
2. Shall the 1,200 Miles Trial or its equivalent be held outside Great Britain?

It has been suggested that an observer should be carried on each car whose duty it should be to prevent the driver from covering a mile in less than five minutes. This plan was adopted on the occasion of the fifty miles Trial in 1899, with the result that vehicles were driven at an ordinary speed until they arrived at a milestone, and then were kept standing there until the expiration of five minutes. It would be necessary that the vehicles should be started at intervals of at least one minute as otherwise they would be running in close order in a cloud of dust.

The second proposal is, that there should be a leading carriage, and that vehicles should be required to keep behind this leading carriage, by which the speed would be regulated. This again would entail a long procession of carriages driven in a dust-storm, and although such a cavalcade might be imagined to be impressive I believe it would do more harm to automobilism than anything else, as the vehicles and their occupants would have so disreputable an appearance owing to the dust.

I am inclined to believe that it is impossible to organise an effective or satisfactory Trial in this country so long as the experimental limit of twelve miles an hour exists as law.

I now pass on to the second question—Shall the 1,200 Miles Trial or its equivalent be held outside Great Britain? I am inclined to think that nothing would go further towards obtaining the alteration of the law than that this Club should arrange that the 1,200 Miles Trial should be held outside this Kingdom, and that it should be made known to the public, and especially to hotel keepers and others who would be losers financially, that the reason for this decision is that automobilism is not allowed in this country the freedom and encouragement which it obtains abroad, and therefore it has been decided that until the law is altered in this respect the road trials which are indispensable for the advancement of the movement, and which are impossible so long as the present absurd legal limit of twelve miles an hour obtains in this country, shall be held abroad. Two objections, however, present themselves to the suggestion that the trial should be held abroad. The first is the expense of the transport of vehicles across the Channel, and the second that a Trial held in a foreign country cannot influence the people of this country so much as a Trial held at home. As regards the first objection, I believe it will be found that the vehicles may be transported across the Channel very reasonably when a large number of vehicles are to be carried at one and the same time. The cost of transport would not probably exceed £2 per vehicle for the return journey. I am inclined to the opinion that if the Trial were held abroad and the motor-vehicles taking part in it were afterwards exhibited in London, intending purchasers of motor-vehicles would obtain a copy of the records of the vehicles made during the Trial, and would visit the exhibition to see the vehicles.

Now to turn to the advantages of a Trial being held abroad—I have already dealt with one, viz.: that I believe when the public, and especially hotel keepers and others financially interested, realise that the legal limit of twelve miles an hour, and the obstinate attitude of some county councillors and others towards automobilism, are driving automobilists out of the country, and some two or three thousand pounds are being spent abroad which otherwise would have been spent in this country, there will be a strong feeling that a law which has so disastrous an effect should be altered. I believe, too, that if the decision of the Club on this matter were made public at once, that considerable agitation might be excited against the re-election of county councillors who have endeavoured to bring in further restrictive measures in respect of the use of motor-vehicles.

I believe that if the Trial were held in, let us say France, and were open to French automobilists, it would have a very marked effect on the manufacture of English motor-vehicles. What is more, it would have the effect of thoroughly acquainting our English manufacturers with the construction and capabilities of the latest foreign motor-vehicles, and I think that the result would be that we should see shortly on the English market vehicles of British manufacture of up-to-date pattern, which otherwise we might not have seen for another eighteen months or two years. Some of the vehicles made in this country would greatly surprise the French *chauffeurs* by the excellence of their manufacture and the reliability of their running. English-made carriages have been bought by foreigners in small numbers,

* Extracts from a paper read before the Automobile Club of Great Britain and Ireland and invited representatives of manufacturers and sellers of Motor-Vehicles, by Mr. Mark Mayhew, L.C.C., on February 13th.

but there is no reason why carriages of English manufacture should not find a ready market abroad, and the result of the Trial being held abroad would tend to the result which we are all so anxious to see, viz.: instead of good British gold going into foreign countries for the purchase of automobiles and parts to the tune of some quarter of a million a year, we should see carriages of British manufacture sold abroad and foreign money coming into this country for the purpose of their purchase.

When the Club secretary was in Dublin in connection with the formation of the Irish Automobile Club, he inquired what would be the attitude of the Irish authorities if the 1,200 Miles Trial were to be held in Ireland. He was advised that if the county councillors throughout Ireland were properly approached and if it were pointed out to them that the holding of the Trial in Ireland would mean the bringing into Ireland of a considerable sum of money, it was probable that the trial would meet with the hearty approval of the Irish county councillors, and that they would assist it in every way.

There might be difficulty in obtaining hotel accommodation during August and September, but probably this could be overcome if orders were given in advance, and the only other difficulty would be the storage of vehicles, and that could be overcome by each vehicle having on board a waterproof cover under which it might stand during the night.

The promoters of the Irish Automobile Club were of the opinion that if the Trial were held in Ireland it would be found that the number of buyers of motor-vehicles in that country would increase, and that a good trade would be established there, and several letters have been received by the Club in connection with this proposal from, among others, Captain Langrishe, Dr. Colohan, Mr. R. J. Mccredy, Dr. Pryce Peacock, the Clerk to the Glenties Rural District Offices, and the Clerk to the Ballyvaughan District Council.

I now turn to another suggestion for a Trial abroad. You are doubtless all aware that the Gordon-Bennett race is to be run from Paris to Bordeaux on Wednesday, 29th May, which is the Wednesday after Whit Monday. On the same day there is to be another race, that is to say, a race open to all motor-vehicles from Paris to Bordeaux, starting about half an hour or three-quarters of an hour after the start for the Gordon-Bennett race. It is thought probable that a great many motorists in this country would like to see the finish of the Gordon-Bennett race, as this country is to be represented by three out of the five vehicles which have been entered. There cannot be the slightest doubt that those who are at Bordeaux on the morning of Wednesday, 29th May, will have a very exciting time in watching the arrival of the racing carriages. As the race is to take place at Whitsuntide, it is also probable that many automobilists in this country could spare the time to go to Bordeaux. The proposal which I now submit is that there should be a 1,000 Miles Trial from London to Bordeaux and back. I reckon that this could well be done in thirteen days, which would include two Sundays and a Bank Holiday; therefore only ten working days would be absorbed. Starting on Thursday, 23rd May, the trial carriages might run to Southampton (say eighty miles) and be shipped by special boat to Havre.

Friday, May 24th, Havre to Paris, 130 miles.

Saturday, May 25th, Paris to Tours, 145 miles.

Sunday, May 26th, rest at Tours.

Monday, May 27th, Tours to Angoulême, 135 miles.

Tuesday, May 28th, Angoulême to Bordeaux, 87 miles.

Wednesday, May 29th, Bordeaux, procession to line the route near the finish of the Gordon-Bennett race. An exhibition of the carriages in the evening, *files*, etc.

Thursday, May 30th, Bordeaux to Angoulême, 87 miles.

Friday, May 31st, Angoulême to Tours, 135 miles.

Saturday, June 1st, Tours to Paris, 145 miles.

Sunday, June 2nd, rest at Paris.

Monday, June 3rd, Paris to Havre, 130 miles.

Tuesday, June 4th, Southampton to London, 80 miles.

The objection to this arrangement which has not already been dealt with is the shortness of the notice, as the Trial would be taking place within a little more than three months of this date, but it appears to be probable that the majority of manufacturers will have their new types of carriages ready by that date. There can be no doubt that a great many French carriages would be entered, and that many amateur French *chauffeurs* would run from Paris on the Sunday and join the trial at Tours and run on to Bordeaux, and probably back to Paris with the trial carriages. There is one considerable advantage in connection with this proposal, and that is that although the distance covered would be about 1,100 miles, the time occupied would only represent ten business days.

The entrance fee for this trial might well, I think, be a low one, as it is probable that no very extensive arrangements would be necessary. It is thought that the authorities in Havre, Paris, Bordeaux, Tours, Angoulême would gladly give storage place free of cost for the trial vehicles, in view of the money which would be brought into their towns by those taking part in the trials. This, however, at present is only a surmise.

Another proposal is that instead of the 1,200-Miles Trial this Club should organise a trial in connection with the tourist section of the Paris-Berlin race. This proposal has many advantages, as it would be the means of bringing British vehicles before the inhabitants of not only the French, but the Belgian and German towns. The Paris-Berlin race is to take place on the 4th, 5th, and 6th of July. It must not be forgotten that in connection with either of these events—the Paris-Bordeaux or

the Paris-Berlin—a considerable amount of attention will be drawn to the events by the Press, and that the English Press would be probably only too glad to publish the results of the trials of carriages entered by British manufacturers and agents.

If it be decided that instead of the proposed 1,200 Miles Trial a trial should be held from London to Bordeaux or from Paris to Berlin, I think the value of a display at the Glasgow Exhibition must not be forgotten, and would suggest that in such case there should still be the proposed automobile week at the Glasgow Exhibition in September during the Engineering Congress which is to be held in Glasgow. I would suggest, to avoid the possibility of the Club being accused of permitting high speeds, there should be no organised tour from Glasgow to London or from London to Glasgow, but that automobilists should be invited to meet at Glasgow and that during the week there should be daily trials, starting and finishing at the Glasgow Exhibition, of say 100 miles. The gentlemen attending the Engineering Congress would probably consent to act as observers on the cars during these trials. If a hundred miles per day were run we should have a total of 600 miles for the week, and it is thought that the Glasgow Exhibition authorities would offer medals for the vehicles making the best performances in their respective classes. The results of each day's run might be displayed by means of a lantern on a screen, in the grounds of the Glasgow Exhibition every night, and every possible means should be used to attract the attention of the public to these trials and the vehicles taking part in them.

I would suggest that speakers in the discussion should summarise their opinions on the following questions with which I have dealt in this paper.

1. Whether it is desirable that a 1,200 Miles Trial should be held in England taking into consideration that the speed must at no point exceed twelve miles per hour.
2. If it be desirable, what steps should be taken to prevent the legal speed limit being exceeded.
3. If it be not desirable, which of the three following proposals should be adopted:—
(a) A Trial in Ireland.
(b) A Trial from London to Bordeaux and back.
(c) The London-Paris-Berlin Trial.
4. Whether they are in favour of the automobile week in Glasgow.

In conclusion I should like to state that the matters put forward in this paper have not been discussed by the Club Committee. The proposals are therefore not made by the Club Committee, but I hope I have carried out the wish of the Club Committee in reading a Paper which will arouse discussion, the fruits of which may be useful to the Club Committee in arriving at a decision in the matter.

PENNINGTON AND BAINES—MEETING OF CREDITORS.

A receiving order was made on the 16th ult., on the petition of creditors, against Edward Joel Pennington and William Baines the elder, described as engineers, trading as Pennington and Baines, late of 40, Holborn-viaduct and 5 and 6, Great Winchester Street, E.C., also lately carrying on business at the Hotel Great Central, Marylebone Road. At the first meeting of creditors, held on Wednesday before Mr. A. H. Wildy, official receiver, it was reported that no statement of affairs had been filed and the debtors had not surrendered for preliminary examination. Proofs for £725 having been dealt with, the meeting was adjourned for a fortnight in consequence of the absence of a quorum of creditors.

ALLEGED THEFT OF A MOTOR-CAR HORN.

ARTHUR PARITT was charged at the Surrey County Bench with stealing from a yard at the Railway Tavern, Barnes, from off a motor-car, a nickel-plated alarm horn.—John Lawn, a fly and cab proprietor, of 21, Elm Grove Road, Barnes, stated that the previous day a gentleman left a motor-car at his yard, as it was broken down. The horn produced was attached to it.—The police asked for a remand, and after a private consultation the Bench remanded prisoner.

THE advantages of speed, sustained and absolutely controllable, without fatigue, or liability to trouble by an adverse will-power, and of low costs of maintenance and operation, conspire with the pleasure of skilled management in promoting the introduction of the motor-car. With double the speed available that can be obtained, even for a short run, with the hay motor, with power of maintaining a speed only limited by the condition of the road and the will of the driver, and with costs of "upkeep" a fraction of those for equal horse-power, and comfort and convenience, we may reasonably expect that only a short time will elapse before the use of the motor-car in all commerce and all pleasure travel on the highways will become general, perhaps universal. Now that a fair beginning has been made, it may be expected that it will become an effective agent in the promotion of the construction of good roads, while the improvement of the road will react in promotion of the better and more sanitary system of locomotion and transportation.

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COMMENTS.



IN a recent issue we were able to announce that as a result of his experience with the car at Homburg last summer, His Majesty King Edward VII. had placed an order with the Gardner-Serpollet Company, Paris, for a 9-h.p. steam-vehicle. We are this week able to give an illustration of the car which is at present in course of construction for our Royal automobilist; it will be of the company's latest design, and, as will be seen from page 855, takes the form of the phaeton. Several of the dailies have this week given publicity to a report that the King intends to drive about London a good deal in an automobile during the present season. If this proves true, the example thus set will undoubtedly give a big fillip to the motor movement in Great Britain.

Automobilists and the County Council.

THE coming County Council elections do not seem to be causing the same concern to the public as in previous years, and for this lack of interest there are no doubt varied reasons. To automobilists the results of the many contests would be of sufficient importance for all to use whatever influence they may have in support of those candidates who are not hostile to the industry. A leading member of the Automobile Club and one of the most popular owners is Mr. Mark Mayhew, Progressive candidate for Wandsworth. This gentleman has no doubt been to an extent responsible for the fact that the London County Council has stood almost alone amongst the county councils in refraining from passing hostile resolutions. Mr. Mayhew does not appeal to fellow automobilists for support on party lines, but as a representative automobilist and to ascertain as delegate to the Automobile Club, of which he is a member of the committee. Those who can spare the time and will loan their cars will oblige by communicating to Scio, Putney Heath, S.W. Mr. Mayhew anticipates a stiff fight, and all help will be welcomed.

The Demonstration in East Suffolk.

AT the invitation of the committee of the Automobile Club the members of the East Suffolk County Council were accorded a practical illustration of the speed and capabilities of motor-cars on Friday last week. The first trial of the series took place from Lowestoft, and, notwithstanding that the rutty roads of East Suffolk were covered with snow, was eminently successful. The vehicles used were Mr. Harmsworth's 12 h.p. Panhard, driven by Mr. Lancaster, the owner's *mécanicien*, with whom was Mr. C. Johnson, the secretary of the Club, and Mr. J. R. Hargraves, J.P., a member who had travelled from Yorkshire with an 18 h.p. Daimler of the latest type. At Lowestoft several members of the East Suffolk County Council, who are also Lowestoft Borough Councillors, and County Justices were taken on board, and a run was made out to the Yarmouth road. Here a mile was knocked off in six minutes or at the rate of ten miles an

hour, and this was voted slow by the guests. When the car was going at a good speed a sharp pull up was necessitated by a cart getting in the way, and the perfect control of the vehicle proved very impressive to the Councillors. In the afternoon the Panhard car ran to Beccles and Halesworth, where other East Suffolk County Councillors were picked up, and they, too, were evidently satisfied.

At Ipswich.

THE next centre of instruction was Ipswich, and on Saturday, about one o'clock, there arrived at the Great White Horse Hotel a motor-car—the 12 h.p. Panhard—covered with mud and “slush.” More cars would have been seen if members of the Roads and Bridges Committee had accepted the invitation to take trial trips. Mr. George Fiske, of Bramford, was the only member of the County Road Authority who took a trip on Saturday, but on Monday a number of members were taken aboard, the gentlemen in question afterwards acknowledging the satisfactory results attained by the trials.

In London.

IN consequence of the meeting of the Executive Council of the County Councils Association having been altered from Wednesday, the 27th inst., to Thursday, 21st inst., arrangements were made by which a conference with the Club Committee and demonstrations took place at the Automobile Club on Wednesday last, for the convenience of those members of the Executive Committee of the County Councils Association and chairmen and clerks of County Councils who may not be unable to attend on the 26th inst. At eleven o'clock on Wednesday morning the following cars were driven up to the front of the Club's premises in Whitehall Court:—Mr. H. Edmund's Daimler “Antona”; the same gentleman's Daimler, “Rhoda”; Mr. E. Manville's Daimler; Mr. Frank Butler's Panhard; the Hon. C. S. Rolls' Locomobile; Mr. W. J. Peall's Daimler; Mr. A. Harmsworth's Panhard; Mr. E. Estcourt's Daimler; Mr. E. Owers' Daimler; Mr. Richardson's Daimler; Mr. Van Toll's Daimler; Mr. Cordingley's M.M.C. Panhard, and two other steam cars. A little later Mr. Edge's Napier arrived, having driven over from Chelmsford after taking part in a demonstration there the previous day. For some reason or other, however, the county councillors did not turn up at the appointed rendezvous. The alteration of the date involved a double duty on the part of the members of the Automobile Club, who provided cars, as the original date still holds good for the demonstration to Chief Constables and the reading of the Marquis de Chasseloup-Laubat's paper on the 26th inst. In the afternoon Lord Lichfield, a member of the Staffordshire County Council, Mr. E. E. Dymond, a member of the Bedfordshire County Council, and Mr. Matt. F. Blakiston, clerk to the Staffordshire County Council, attended at the Club, and held an informal conference with some members of the committee. The Club committee being anxious that members of the County Council Association who are now in London should have drives on motor-vehicles, letters were sent to the office of the Association, informing them that if they would take drives on Thursday afternoon or Friday, endeavours would be made to have motor vehicles ready for them.

A Solution of the Brake Question.

THE following story has at least the merit of veracity:—A medical man, who recently adopted a motor-car in his practice, began by taking it on tour in the Northern counties. One afternoon found him in the neighbourhood of Scarborough on a by-road that miserably failed to fulfil the promise of the map. After climbing some fearful hills, the road getting worse and worse, a wayside public-house came in sight, and he inquired as to the road beyond. "There's a wuss hill on there," said mine host; "ye'll want t' powny." Inquiry elicited that the hill in question was a steep *down* grade, and that "t' powny" was kept for the purpose of harnessing *behind* any cart that passed, and retarding its descent. Not yet experienced concerning the brake capacity of his new car, the medico cautiously decided to do in Rome as Rome does, the pony was produced and harnessed by a rope to the rear axle, and in this manner the procession descended the hill in safety! It is a pity that no photographic record of the event appears to have been taken.

"Chauffeur" and "Chasseur."

WE are this week able to reproduce a photo, kindly furnished us by Mr. E. Kennard, J.P., of Baron André de Neufleze, son of the well-known Paris banker, who has journeyed to Market Harboro' to finish the hunting season. In addition to his horses he has brought with him two motor



tricycles—one a 3½ h.p. water-cooled De Dion—upon which on "off days" he delights to ride. Besides being at home in both saddles Monsieur le Baron is his own *mécanicien*, having served an apprenticeship of some months in a French works. Mr. de Neufleze, owing to his charming manner, has become most popular in the fashionable hunting centre, which shows that the absurd prejudice against the new locomotion is rapidly dying out.

Prejudice Waning.

WE are pleased to reproduce the photo, for it is an excellent proof as to how horse-men and owners of horseless cars, as the utility of the latter is daily made more apparent, can become the best of friends. A well-known Melton man, recently returned from South Africa, finds his Panhard "the best covert hack in the shires," and Lord Harrington's reputation as a sportsman and Master of the Foxhounds has not suffered from

his becoming an ardent automobilist. "Sir Charles," of 1,000 Miles Trial fame, may also often be seen attending Midland shire meets, being driven from Harboro' by Mrs. Kennard.

American Motor-cars for the Australian Postal Service.

THE Winton Motor Vehicle Company, of Cleveland, U.S.A., has just despatched to Sydney, Australia, three motor-vehicles, which are the first of their kind to be sent to the Antipodes. On the sides of each of the vehicles appears the coat-of-arms of Great Britain, surmounted by the letters "E. R.," and beneath is the legend "General Post-office." When the order was originally received by the Winton Company the specifications set forth that the letters on the sides of the vehicles should be "V.R.," but the passing away of Queen Victoria and the accession of her son necessitated the change. Thus it happens, remarks the *Motor World*, that the Winton carriage is the first one built for King Edward VII. The conveyance weighs 1,700 lbs., has a 9 h.p. engine, and can run sixteen miles an hour. The cost of the cars is £240 each. They will carry from 800 to 1,000 lbs. of mail each. The vans are finished in maroon, olive green and black, with red wheels. The Winton Company is said to be negotiating for the sale of a number of similar motor-vehicles to be used in the London mail delivery system.

Foot-Warmers.

THE question of foot-warmers is a burning one with automobilists at this season of the year, and an efficient arrangement to this end adds much to the comfort of driving. In cars where the cooling water is permitted to boil, a rubber pipe from the steam exit led to a copper vessel fixed on the footboard is a most satisfactory device; but where an ordinary foot-warmer is employed its efficiency may be much increased by using acetate of soda for filling it instead of water. The crystals contain about 40 per cent. of water, and if a sufficient quantity of them to fill the warmer is heated with half a pint or so of additional water, till they melt in their own water of crystallisation, the solution will boil at nearly 250deg. F., and will remain hot much longer than plain water. The solution crystallises on cooling, and the warmer must be reheated by placing it on the kitchen range; hence the pattern with flat base and aperture at the top is most suitable. Though an old method for railway foot-warmers, this may be new to some readers.

Professionals and Motor-cars.

WE have frequently referred to the increasing attention which members of the theatrical profession are devoting to the motor-car. To the list of "professional" motor enthusiasts must be added the names of Miss Maggie May, Miss Maude Durrell, and Miss Snodon, who have lately been disporting themselves on an Orient Express car at Bournemouth. The ladies in question are members of the "San Toy" Touring Company, and, judging from the photo reproduced in a recent issue of the *Sketch*, they appear to be favourably impressed with the modern means of locomotion.

Motor-Car Services and the Housing Problem.

MUCH attention has been devoted during the week to the part the motor-car is to play in the Housing Problem in London. The subject has arisen as a result of a letter written by the Hon. A. J. Balfour to the Rev. F. Herbert Stead, the warden of the Browning Settlement, Walworth, in regard to the paper on "Improved Means of Locomotion as a cure for the Housing Difficulties of London," which Mr. Charles Booth read at conferences recently convened in Walworth and Westminster. Mr. Balfour in his letter stated that "trams, railways, and 'tubes' by no means exhaust the catalogue of possible improvements in transit. What I should like to see carefully thought out by competent authorities would be a system of radiating thoroughfares, confined to rapid (say fifteen miles an hour) or over

traffic, and with a surface designed, not for carts or horses, but for some kind of autocar propulsion. In such a thoroughfare there would be none of the monopoly inseparable from trains, the number of people carried could be much larger, the speed much greater, the power of taking them from door to door unique, while there would be none of the friction now caused when the owners of the tram lines break up the public streets. It is, of course, obvious that the present difficulty of locomotion in our streets is almost entirely due to want of differentiation in the traffic. Neither the traffic of cross-streets, nor foot passengers, nor slow-going carts and vehicles, would be permitted to interfere with the equable running of fast motor-cars. There would be no danger and no block. No doubt the cost would be great, but it would be incomparably less than that of any of the means of locomotion suggested by Mr. Charles Booth. The upkeep would be small; there would be no terminal charges; no great areas would have to be cleared, as in the case of railways, for stations and sidings; the rolling stock would be provided by the public to suit its own needs; and as the causeway would be connected at intervals with the ordinary road and street system of the district, and would melt into that system at either end, every village in which there were enough residents who had to be in London at a fixed hour every day could have a motor of its own."

A sad Fatality.

DURING the severe frost of last week a party of ladies and gentlemen were skating on Loch Airthrey, when suddenly, without a sound of warning, the ice cracked and a large number of skaters were immersed. All managed to escape except a young lady, who was seen in difficulties. Mr. Fred Pullar immediately went to the rescue, with the unfortunate result that both were drowned. Mr. Pullar, who was the only son of his parents, was extremely popular, and was pioneer motorist in his district. He had been visiting the exhibition at Edinburgh only two days before his death, and he mentioned he was expecting the delivery of a new 10 h.p. Mo-car. Great sympathy is felt for Mr. Pullar's parents in their sad bereavement.

Why do we Buy French Cars?

THE remarkable reduction in prices of the best French vehicles has caused some anxiety in English manufacturing circles, which, so far as it is stimulating, can be productive of nothing but good. It is true that the French makers are for the most part ahead of us, but this is due largely to what may be classified as accidental causes, not the least among them being the few years' start they have had, and the repressive insular legislation that has given it them. A valuable privilege that this has entailed has been the power to set the fashion in automobile circles elsewhere, to an extent that has hardly been allowed for by economic theorists on the subject. The forthcoming opportunities for British makers to compete with French on their own ground may, or may not, do something to change all that; but, in any case, it will, in this country, be the utilitarian rather than the sporting or fashionable purchaser to whom our manufacturers must eventually look as the mainstay of their trade.

The Real Danger.

THERE does not seem serious reason—accidental causes apart—why the British engineer should fear his French rival, who has failed to make his competition felt in any other branch of engineering, and even in this has hardly shown the business enterprise which circumstances seemed to justify, and without which scientific advance in construction is worthless. But what of those countries which are dangerous and successful rivals in kindred trades? The German car has established a very firm footing here among purchasers of moderate means, and though the extreme badness of American roads has,

oddly enough, conduced to the evolution not of a strong powerful car, but of cars suited chiefly to town work, there can be little doubt that the popular car of the future will be turned out by American methods as soon as design is sufficiently advanced for standardisation. The German manufacturer knows the value of the scientific expert, and the American knows that of the inventor, and encourages him; while both are far more aware than the British maker that their very existence depends on the customer, and spare no pains to reach and to conciliate him.

French Roads.

MR. REGINALD GRANVILLE writes for the benefit of any motorists who may be going to the south of France, that the piece of road from Avignon in the direction of Marseilles is, for about 20 kilometres, very dangerous. The surface of the road looks well, but is composed of mud on the top of chalk. Recently a 12 h.p. car, belonging to and driven by a member of the Automobile Club and containing two other members of the Club, skidded badly on this road and collided with a tree, with the result that one of the members was rendered insensible for some time.

Motoring in the Snow.

THE power of the automobile over the snow has been frequently demonstrated of late, but the photograph published herewith is about as conclusive an evidence of the reliability of the motor-car as could be wished. It depicts Mr. A. Beatson, of Buxton, travelling in his "Renault" car, while the



combination of an automobile and a toboggan is decidedly novel. With the snow a foot deep in most places, Mr. Beatson has been enjoying some exhilarating trips in the Peak district, going up to the Cat and Fiddle and other noted elevations in the locality.

The Edinburgh Motor-Car Service.

NOT only surprise but inconvenience was caused, we are informed, by the sudden stoppage of the cars of the Edinburgh Autocar Company, Limited, on Friday evening of last week. The reasons for the stoppage, we understand, were that there had been some disagreement among the directors, and that Mr. Outhwaite, the general manager, had resigned. Whether this was so or not we do not know, but there appears also to have been some trouble with the drivers, for we have received communications from the men on the subject.

Motor-Cars for Municipal Purposes.

QUICKLY on the heels of the news of the adoption of a motor dust cart by the Kensington Borough Council comes the information that a similar step is about to be made by the Beckenham Urban District Council. This body has just called for tenders for the supply of a motor-wagon for the collection and removal of house refuse and street sweepings, the capacity of the wagon to be not less than 6 cubic yards. No particular motive power is specified, but it is stated that for electrically-propelled wagons, current for charging the cells would be available at the Council's electric light station. A significant paragraph in the notice is that orders for other wagons will in all probability follow if the vehicle proves satisfactory.

Motoring at Southsea.

THE anniversary run to Southsea has borne fruit in stimulating automobilism at that popular seaside resort, and during a recent visit quite a dozen cars were *en vidence*, for the most part locally owned. Among them were a De Dion, a 6 h.p. New Orleans, a Locomobile, three or four Benz cars, as many tricycles, a Marshall, and last but not least a smart new Hurtu recently acquired by Mr. Ellis, the ex-Mayor. The French *mécanicien* of a De Dion voiturette seemed bent on putting the friendly attitude of the authorities to the test, from which so far as we heard he emerged successfully. We hope, however, that the experience of engineers regarding the effect of excessive testing strains will be laid to heart by such drivers.

Another New Gear.

WE have had the pleasure of inspecting a new speed gear of a genuinely variable type, the product of a Portsmouth inventor. Any speed ratio from about three to one (backward) was obtainable without clutches, change gears, or loose pulleys. We understand that the device has been taken up in influential quarters, and is being applied experimentally to a well-known type of car. Further particulars are unavoidably deferred for the present, but an early opportunity of trying the new invention is promised, the results of which should prove interesting to our readers.

Motor-Cars in Warfare.

AS mentioned in our last issue, Lord Kingsburgh recently read a paper on "Infantry in a New Century" at the Royal United Service Institution. Dealing with equipment and transport, the lecturer pointed out how to increase the mobility of infantry by the advantageous use of railways, motor-vehicles, bicycles and horses. We were well provided, he considered, for home defence, in the matter of railways. But in the near future a new development of mobility by road was certain to take a high place, and, in a country so well intersected by good roads as our own, to prove itself to be of very great tactical value. He referred to road motor traction. Motor-vehicles, travelling at the rate of twenty or more miles an hour, would give great facilities for seizing advanced points, holding them while troops were coming up in support, holding on to cover withdrawals, and transferring troops from one part of the front to another as required.

Licence Plates.

THE question of licences is just now one of the principal topics in motoring circles, and, we fear, is likely to be for some time to come. Mr. C. Friswell, in a playful mood, has been picturing in his mind's eye what the future motor-car would look like with all its licence plates attached. Taking the Darracq car as an example, Mr. Friswell can see it, in his dreaming, bearing the following plates:—

Licence for the carburettor, granted by the British Motor Traction Company.
Licence for the tires, granted by the Dunlop Company.

Licence for using the car, granted by the sole agents for England—the Automobile Manufacturing Company.

Licence for back axle, granted by the proprietors, Brown Brothers.

Licence by the governing authorities, No. 1,210.

And just one or two others that may crop up before the end of the year. Mr. Friswell concludes, sarcastically, "When these patents are out, the space might be taken by advertisers, such as 'Pears Soap,' as it would be a pity to disfigure the carriage after the eye had got accustomed to seeing it with these plates affixed."

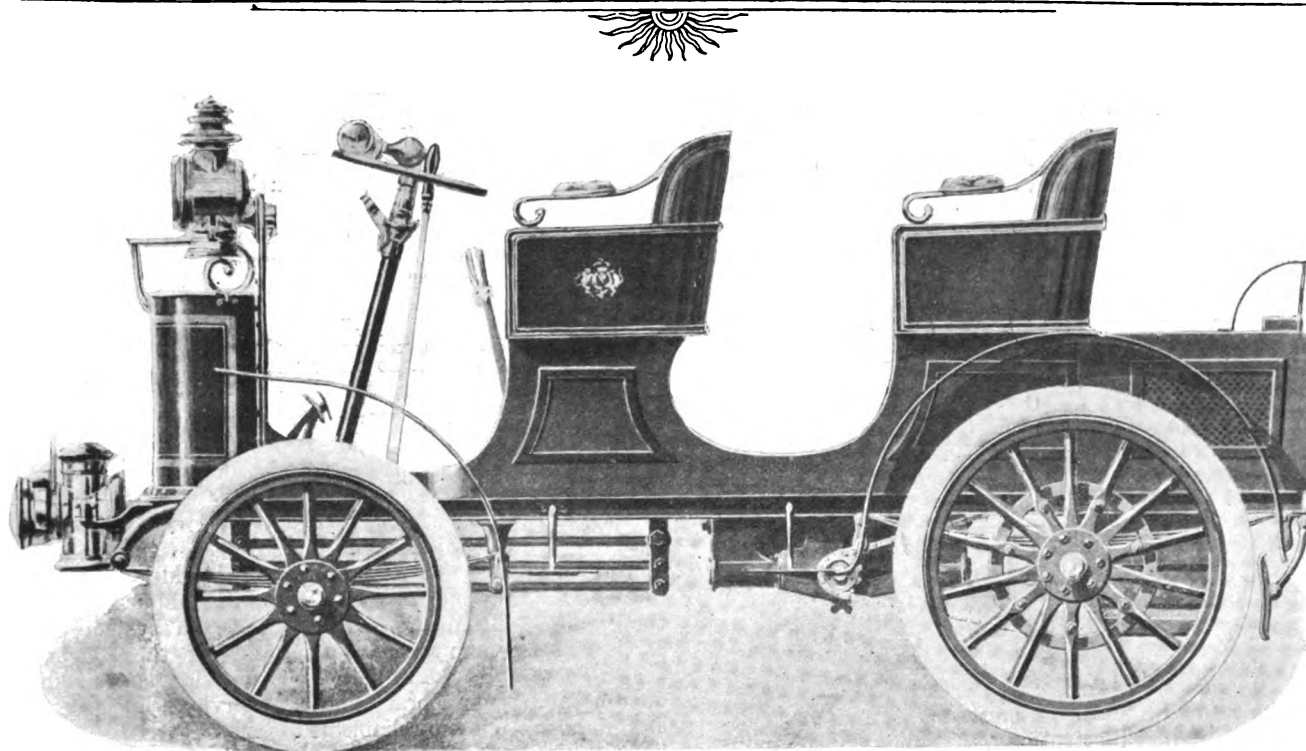
A Motor 'Bus Service at Hemel Hempstead.

SOME weeks ago we were informed that arrangements were in hand for the starting of a motor-'bus service between Hemel Hempstead (Berks) and Boxmoor Railway Station. We are now able to report that the Hemel Hempstead Motor Car Company has got to work, the service being inaugurated on Monday, the 11th inst., the Mayor of Hemel Hempstead making the first journey in the motor-'bus, which has been aptly named the "Pilot." At present only one car—a Daimler with covered 'bus top—is employed on the service, but should it meet with the support it deserves other cars will be put on. The departure is due to the enterprise of Messrs. Pensel and Wilson, who have our best wishes for success.

The Yorkshire Automobile Club.

OVER fifty gentlemen attended the first annual dinner of the Yorkshire Automobile Club, which was held in Leeds on Thursday of last week. In the absence of the president, Dr. F. Farrow, of Cleckheaton, presided, and was supported by Mr. C. Johnson (secretary of the Automobile Club of Great Britain), Mr. Harrison Benn, Mr. A. Farnell, Dr. Thresh, Mr. A. W. Dougill, Dr. H. A. Allbutt, Mr. R. Winn, Mr. G. L. Benbough, Mr. J. E. Tuke, Mr. J. Chippendale, Mr. T. James, D.L., Mr. J. G. Harper, Mr. J. Cooke, Mr. L. Hey (hon. treasurer), and Mr. A. I. Greenwood (hon. secretary). In submitting the toast of "King Edward VII.," the chairman said that although the King had yet to be tried as a monarch, he had passed through an apprenticeship which gave every good promise for the future. He had taken some interest in our movement, and for about twelve months had been an owner of motor-cars. Queen Victoria had her horses broken in to motor-cars, and that was far more sensible than doing as some magistrates and county councillors did when they took out untrained horses, and got into a panic immediately they saw a motor-car. Mr. C. Johnson, secretary of the Automobile Club, gave the health of the chairman, who, he remarked, drove a motor-car before it was legal to do so, and as he drove one for the purposes of his profession they could not have a more valuable pioneer of automobilism. To those who contended that motor-cars were a danger to the public he would point out that even bicycles were so considered when they first appeared, and the fact that horses grew fidgety at the sight of a motor-car was no objection to the motor-car, but was rather an indication that the horse required breaking in to it. The really dangerous element in a vehicle was not in the speed, but in its incapacity to pull up. That was what they wished to impress on county councillors who wanted to reduce the speed limit of motor-cars to ten miles an hour. The Chairman, in responding, said the Club was making satisfactory progress. His first ride on a motor-car was in 1894—two years before the Act was passed in England. His early experiences brought him into collision, first with a brick wall, and afterwards with a steam car: "but these," he added, "are only little incidents such as beset the first steps in any sort of pastime." Mr. A. Dougill proposed "The Yorkshire Automobile Club," remarking that although that was only their first dinner they had already some thirty members, with an immediate promise of more. Dr. Thresh, in replying to the toast of "The Visitors," recalled having ridden between Wakefield and Bradford on a steam car, weighing about six tons, built by Sir Titus Salt. That was about thirty years ago, and the pace was six miles an hour.

King Edward the Seventh's Steam-Car.



THE 9 H.P. SERPOLLET STEAM-CAR IN COURSE OF CONSTRUCTION FOR KING EDWARD VII. (see page 851).

COUNTY COUNCILS AND THE SPEED OF MOTOR-CARS.

EAST SUFFOLK.

AT a meeting of the Roads and Bridges Committee of the East Suffolk County Council, at Ipswich, on Tuesday, Rev. J. F. A. Hervey presiding, the clerk (Mr. A. Townshend Cobbold) submitted a resolution of the Berks County Council, dated October 30th last, asking County Councils to co-operate with that Council in drawing the attention of the Home Secretary to the way in which motor-cars now traverse the roads, and suggesting that every car should be numbered and registered, and should be obliged to stop when signalled to do so. The Clerk further presented circulars from the Automobile Club, enclosing a copy of a letter which they have addressed to every County Councillor in England and Wales, and copy of the warning sent to the members of the Club and other motor drivers. Lord Rendlesham wrote, saying, with respect to the subject on the agenda, as to motor-cars:—"No doubt they will be very largely used in the future as they become less expensive. Carriages are allowed to drive 12 miles an hour without being interfered with; therefore, it seems to me absurd to wish to limit the speed of motors to ten. It might be advisable for the driver to have a certificate of efficiency from the Board of Trade." The Clerk had also received the following telegram from the secretary of the Automobile Club:—"Permit me to thank members of Road Committee who took drives on automobiles, and humbly express hope that Roads Committee will this day recommend that Councils should, in name of progress and fairness, protest against the proposed ten-mile-an-hour limit as absurd, and that the proposed numbering question should be postponed for six months, in order to ascertain from the police what, if any, complaints there now are of motorists failing to stop when signalled by drivers of restive horses."

Rev. C. J. Steward said that in accordance with the terms of the Berks County Council resolution, he should move that every motor-car shall in future carry a number in front and a number behind. Col. Ward observed that he saw no real reason at all why the owners and drivers of motor-cars should be compelled to carry numbers in a conspicuous place upon their vehicles. He was sure everybody would object to carrying a number on their private dog-cart or carriage. Mr. Mobbs considered it would be unwise of the Committee to go out of their way to compel owners to place numbers on their cars. He had himself a little prejudice against motor-cars in the past, but he must confess that that prejudice was disappearing. He had the pleasure of riding in two of these cars on the previous Friday, and had it been a fine day he believed it would have been the most enjoyable ride he had ever experienced. He was greatly struck by the control exercised by the driver over the car, and was pleased to find that the horses took but very little notice of them. Indeed, they must have passed something like a hundred horses, and of that number only one was particularly frightened. He did not think any restrictions of the kind suggested should be imposed. Rev. C. J. Steward explained that in proposing that motor-cars should be numbered, he thought restrictions as to speed should be done away with. He saw no reason why a man should not drive at twenty, thirty, forty, or fifty miles an hour, provided that the road was clear of traffic, and he was not involving danger to the public. He considered it was a motorist's duty when approaching a horse to slacken speed immediately, and go slowly past, in case the animal might be frightened. It was desirable that every motor-car driver should be certificated by the Board of Trade, and in the event of being summoned for furious driving he should be fined and have his certificate endorsed; if the certificate was endorsed three times it should be cancelled. Mr. Rackham agreed that all drivers of motor-cars should be licensed. The motion was carried by eleven votes to two, and it was also decided, without dissent, to recommend that all drivers of motor-cars should be registered, and should be obliged to stop when signalled to do so.

In regard to the question of speed limit, the Chairman said he agreed with Lord Rendlesham that it would be very unwise to attempt to reduce the present limit. Mr. Fiske observed that his experience of motor-cars during the last day or two was very pleasant, and in good weather and on a clear road he should not have the slightest objection to being driven at twenty miles an hour. Colonel Bixton moved that the Committee recommend that No. 2 sub-section of Article 4 of "The Light Locomotives on Highways Order, 1896," which provided, "Every person driving or in charge of a light locomotive, when used on any highway, shall not, under any circumstances, drive the light locomotive at a greater speed than twelve miles an hour. If the weight unladen of the light locomotive is $1\frac{1}{2}$ tons, and does not exceed 2 tons, he shall not drive the same at a greater speed than eight miles an hour, or if such weight exceeds two tons at a greater speed than five miles an hour," be deleted from the present regulations. The motion was seconded, and carried without dissent.

KENT.

The Kent County Council, at their meeting on Wednesday passed a resolution to the effect that they do not consider twelve miles an hour an excessive speed at which to drive a motor-carriage along a public highway.

CORRESPONDENCE.

MOTOR-CARS FOR MEDICAL MEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with much interest the letters on this subject, and would like to call attention to one or two points in the discussion. Firstly, there is a great difference between the concrete and abstract; for instance, there is no doubt but that motor-cars are the ideal means of locomotion for medical men in the abstract, but when one comes to the concrete, and asks which motor-car is a perfect one for medical work, it is quite another story. I bought an International Benz in November, 1898, and have been driving it ever since. On the whole it has done very well; it has travelled over 13,000 miles on vile roads and in all weathers; I constantly go 25 miles a day, and sometimes over 30 miles, with comparative ease; that is, the car is quicker than a horse, more convenient, and probably causes less anxiety, but now and then an ordinary civilised vocabulary is not equal to express one's feelings! I think I have had everything go wrong with my car that can go wrong. Much, of course, was due to my own ignorance; at the same time a good deal was not, but to the poor material and workmanship. And the repairs and replacements! The original chains only ran me a few months. I bought a new pair at five guineas, which also only lasted a short time. I now have Brampton's at half the price, lasting double the time. The first tires also came off after a few months' running. I had Connolly's fitted on all four wheels; after a year these split up, and two had to be replaced, Connollys making no reduction for the first bad tire. I have a hood to my car, for which I was charged £15; it was made of American cloth and flannelette, and simply rotted away in a year. I was told I could have a new one for £12! A back axle broke; I had to pay £7 15s. for a new one, also £1 5s. for a front spindle, and so on *ad nauseam*.

Still, I now get all my replacements from Hewetsons, who are most prompt and obliging; and, in spite of all, I would not go back to horses, but would see that I got a strongly-built car, and especially that there should be a possibility of getting parts and replacements without annoying and expensive delays. I thought, of course, that all the little annoyances "on the road" were due to my having only a small £200 car, and I must confess it was a great delight to me to read, in one of your contemporaries, the experiences in a car called "Sir Charles" (with a large number of adjectives attached). The troubles of a small car fade into insignificance beside those of the "great and good," etc., Sir Charles!

To conclude, for a medical man for whose work two or more horses are necessary, who has a natural aptitude for machinery, or who will keep a *mecanicien*, a really good motor is the thing

above all others, but he need not think then even that he will escape worries; these come with everything, but mostly with horses and coachmen.—Yours truly,

A. CHARPENTIER, M.D.

P.S.—My total expenses for the car are about £50 a year.

THE HOUSING PROBLEM.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The scheme put forward by the Right Hon. Arthur Balfour, in his letter which appeared in the dailies on Friday last week, with reference to the use of motor-carriages for public service, has already to a great extent been put into practical shape in various parts of the country. We have made and supplied over 110 motor-vehicles for this purpose to 42 different undertakings. They are mostly used to connect villages with large towns and railway stations; they are, in fact, taking the place of the old carrier cart that has for so many years done necessary and useful work.

The most complete services of the kind, however, exist in Bournemouth and Edinburgh. In the former town one undertaking runs fourteen cars entirely for public service, and recently, in a heavy snowfall, continued running when all horse drawn carriages had to be withdrawn from the roads; but there is another service which approaches nearer to the use to which motor-vehicles can be put suggested by Mr. Balfour. The owners of an estate in the neighbourhood of Bournemouth, called the Canford Cliffs Estate, have organised a system of motor-carriages from there to the town solely for the convenience of their tenants. In Edinburgh the service is run in direct opposition to the corporation tramcar service, which, according to local opinion, is not so reliable as the motor-carriage in regard to time and speed.

London has not yet taken this movement up to any great extent; but we are building motor carriages for two services, one in the north of London, and the other in the south. We understand these are intended to be run between local outlying places and not to the centre of London.—Yours truly,

JOHN H. GRETTON,

Chairman Motor Manufacturing Company, Limited.

THE annual general meeting of the Automobile Club is fixed to take place on Thursday next, the 28th inst.

THE Hozier Engineering Company, Ltd., have appointed Mr. Harold Smith, Colne, Lancashire, their agent for the sale of "Argyll" voituresses in Manchester and East Lancashire, and the southern part of Yorkshire.

MOTORISTS in the Clapham district requiring repairs to their cars will find Mr. Arthur Bills, of 320, Clapham Road, S.W., well equipped for the purpose. Mr. Bills has also a large riding track, on which would-be motor-cyclists could practise riding.

COLONEL JOHN JACOB ASTOR has offered to place at the disposal of the Automobile Club of America, free of all expense, the Maples, an old estate once belonging to the Champlain family, but now a part of Colonel Astor's Ferncliffe, situated on the road between York and Albany. The old mansion is to be fitted up in the most thorough fashion for the requirements of the Club.

MESSRS. RENAULT FRERES, of Billancourt, Paris, write to inform us that since the date of the contract (August 30th, 1900), under which they conceded to the Roadway Autocar Company the exclusive selling rights for their cars in Great Britain and the Colonies, they have stipulated in all their contracts with other firms that the cars purchased by them must not be sold in Great Britain either directly or indirectly.

A CYCLE and motor-car show was held at Northampton last week, at which Mr. J. Grose exhibited a $2\frac{3}{4}$ h.p. quad, with water-cooled head. There was also a motor dogcart built entirely at Northampton, to the order of Mr. J. Harrison. Other exhibits included a Mayfair voituress, and a New Orleans voituress. Messrs. Coley and Co., showed a Singer motor-bicycle, while a Humber motor tricycle was staged on the stand of Mr. A. E. Richardson.

THE FRENCH MOTOR-CAR EXHIBITION.

(From Our Own Correspondent.)

(Continued from page 843.)

THE carriages exhibited by the Société des Anciens Etablissements Panhard et Levassor were eleven in number, seven of these finding space on stand number 33, and the remainder in the heavy vehicle section of the exhibition. As these latter cars do not greatly interest the majority of automobile men, I do not propose to treat them in detail, but will merely signal the presence of an extremely large vehicle fitted

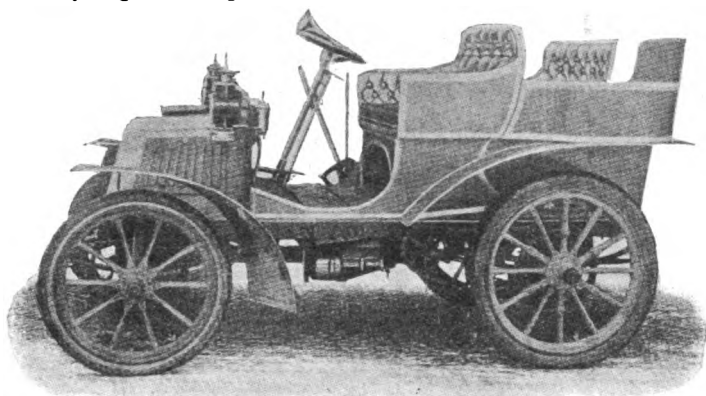


FIG. 1.—THE NEW PANHARD 7 H.P. LIGHT CAR.

with a 12 h.p. motor and designed to carry three tons of coal as load. Upon the firm's principal stand the first car to attract attention was a 16 h.p. two-seated carriage, which, by reason of its rather startling colours—light blue lined red—was very much in evidence. The carriage work is by Rothschild, and the two curved seats are partly surrounded by the petrol tank. The new gear, which requires but a single lever to give the forward and reverse motions and four speeds, is fitted, and the twenty-one teeth sprockets bespeak speed. The new springs are fitted to the rear wheels. A pretty 8 h.p. *tonneau* in natural wood by Felber was also shown, and the footboard in front is provided with a small window through which the driver can see the clutch without descending from his seat. Another *tonneau* was by Boulogne, while the third car of this type was a beautiful exhibition of Rothschild's carriage work. Both these cars were fitted with 12 h.p. motors, as was also a four-seated "spider" carriage built by Belvalette. In this latter example the sides and back of the front seat are done in wicker work, the effect being very pretty. For town use the company showed an 8 h.p. *coupe*, with a small seat behind for a servant. The motor is, as usual, carried in front, and the body is placed upon a dropped frame. The driving is effected from inside the *coupe* and the gear box is placed right at the back of the vehicle. The last of the large cars upon the stand was a 12 h.p. carriage designed to carry seven persons. Here the engine is placed under the front seat. Compound tires are fitted, and, as in the case of the *coupe* the body is by Mulbacher. I have reserved mention of the new light carriage until the last, for this is the company's novelty for the season, and upon this an enormous amount of attention was centred. The specimen shown was a four-seated *tonneau*, carrying in front a 5 h.p. two-cylinder vertical motor, but when desired this engine can be replaced by one developing 7 h.p. (Fig. 1). The ignition is electric, the accumulator being carried on the splash board and at the side of the frame just below the foot pedals. Naturally, tube ignition or electric and tube can be fitted just as the client prefers. The pistons work alternately, and the engine weighs about two hundredweight forty-eight pounds. The new gear is employed, and a single lever actuates the three forward speeds and reverse. Another special feature is the placing of the water-circulating pump in the tank itself. The weight of the car is about eleven hundredweight, and it is speeded up to some

twenty miles per hour. The price of the 5 h.p. *tonneau* is £280, while the same car fitted with the 7 h.p. engine comes out at £340, the motors and frames costing respectively £256 and £316. These figures do not include electric ignition.

MM. Léon Lefebvre et Cie., Rue Emile-Allez, Paris, made an excellent show of vehicles built by them on the famous Bolide system (Fig. 2). First of all there were a couple of enormous racing cars, each propelled by a horizontal motor developing thirty h.p. Needless to say that these cars are designed to carry but two persons. The water cooler is divided, a portion being carried on and a portion below the splash board of the vehicle. The controlling levers are placed at the driver's right hand, and a couple of pedals permit of the moderation of speed and the braking of the car. The three most striking successes obtained by this type of car in last year's events were:—Salon-Arles-Salon, first prize, one hundred kilometres in 1h. 20 min.; the last thirty-seven kilometres of this race were covered in 24 min. 44½ sec., or at the rates of ninety kilometres per hour (56¼ miles); Dyghem, near Brussels, first prize, speed ninety-four kilometres per hour (world's record); second prize, speed ninety kilometres per hour; Gaillon, second prize. The price of the motor and frame, including pneumatic tyres, is £1,000. Outside the racing category one found a four-seated phaeton by Rothschild, fitted with a 15 h.p. engine. Then there was a 10 h.p. *tonneau*-shaped carriage, and a small "spider" car fitted with an engine developing 6 h.p. This latter vehicle weighs some 400 kilogrammes, and measures 1m.05 in width, by 1m.35 wheel base. The motor propelling it is of the single cylinder horizontal type, measuring 120 mm. in diameter, and 120 mm. in stroke. The water circulation is effected automatically without employing a pump, and the speed of the engine is nine hundred revolutions per minute. The transmission is by means of a friction cone, commanded by a foot pedal, and by a set of pinion gears enclosed in a case. A single lever is utilised for actuating the three forward and reverse speeds, and in the case of the large cars the steering is of the sloping wheel type. The most striking novelties in connection with all these latest productions of MM. Lefebvre et Cie. are the carburettor, the system of ignition, and the means employed for readily verifying this latter. The first-named is remarkable for its double valve, permitting admission to the motor without changing the carburation, so giving exceptional suppleness to the motor,

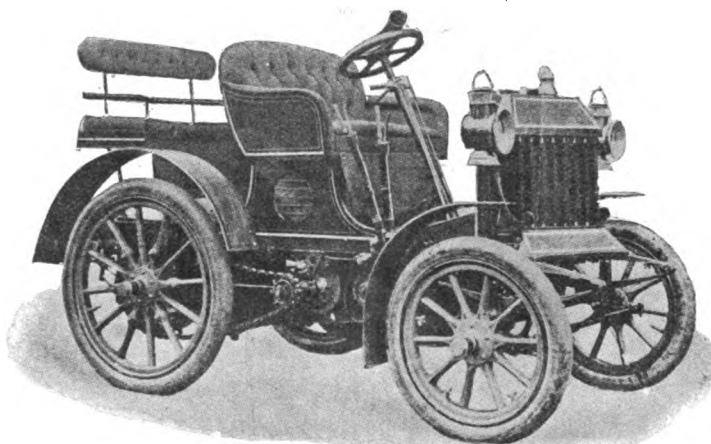


FIG. 2.—THE 10 H.P. BOLIDE SPIDER.

and economising considerably the consumption of petrol. Regulating the pulverising types of carburettors has always been a difficulty, but MM. Lefebvre et Cie. claim to have now quite overcome this drawback. Moreover, it is stated that the employment of this type of carburettor suppresses very considerably the noise produced by the exhaust, for one is enabled to admit but the minimum of gas into the cylinders and there explode it—by advancing the ignition—considerably in advance of the opening of the exhaust valves. Turning to the ignition, we find that the ordinary flat spring trembler has been dispensed with, its place being taken by a

spiral spring arrangement somewhat similar to that now in use by the Decauville Company, and described in a recent issue of the *Motor-Car Journal*. The plug used is insulated with mica, and is guaranteed three months' wear. The third novelty is the small apparatus employed for verifying the state of the electric ignition. The method usually adopted is to try the sparking plug in open air by withdrawing the induction valve. But this system is entirely wrong, for the conditions are totally different. When in work there is a very considerable pressure existing in the cylinder, which, with the removal of a valve entirely disappears. Without pressure the spark will often appear quite effective, but subject to some eight or ten pounds of pressure it cannot be produced. Now the "Bolide" apparatus permits of the testing of the sparking plug under conditions approaching those existent during its actual work, and by means of a small glass one can see whether or no the spark is produced as it should be. One can well imagine what a boon such a contrivance is to all automobilists who make use of a vehicle possessing electric ignition. It is small and light, and can be used in connection with no matter what type of sparking plug and no matter what make of tyre pump, for an air pump has naturally to be used to create the necessary pressure. The small model costs twenty francs, the larger one, with pressure gauge and joints for two types of sparking plugs and two makes of air pumps, comes out at seventy-five francs.

Except in the matter of carriage work there was no new feature to be found in the voitures exposed by MM. de Dion et Bouton, Puteaux (Seine). The novelty in this direction was a daintily designed double phaeton fitted with an awning, and somewhat similar in appearance to the small red Peugeot so familiar to Parisians. The other cars shown were a couple of

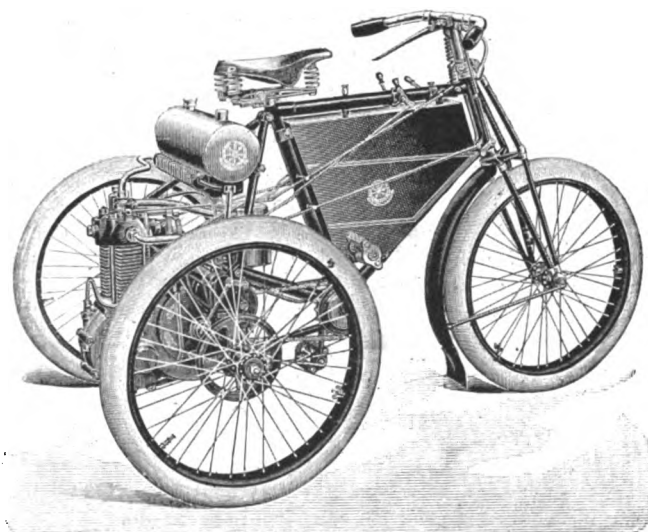


FIG. 3.—THE DE DION TRICYCLE WITH 2½ H.P. MOTOR WITH WATER-COOLED HEAD.

four-seated carriages, the one fitted with a hood, a hooded car designed to carry two persons, and a light delivery car. Nothing new in all this, but I was given to understand that the firm are busily engaged upon the design of a new *chassis*, in which the motor will be placed in front. Upon the stand there were to be found several examples of motor-tricycles and quadricycles (Figs. 3 and 4), and of the uses to which the firm's motor may be put, apart from the question of horseless vehicles. A handsomely-finished pumping apparatus driven by a water-cooled engine developing 1½ h.p., and a dynamo plant worked by a 3 h.p. motor of the same type, were of special interest to owners of country houses, where so often the light and water questions present serious difficulties. The dynamo is capable of supplying forty sixteen candle-power lamps, and, of course, can equally well be employed for recharging accumulators. A 4½ h.p. water-cooled motor and a complete set of gear for a boat were also exhibited, as well as a number of motor tricycles and quadricycles. In the heavy vehicle class MM. de Dion et Bouton showed some large steam-cars, which attracted considerable attention. The omnibus appeared to be a

very workmanlike and serviceable vehicle, with the steam boiler and engine in the front, and a long omnibus body behind. The van was of the same construction, but the omnibus body was replaced by a flat lorry-like construction with railed sides.

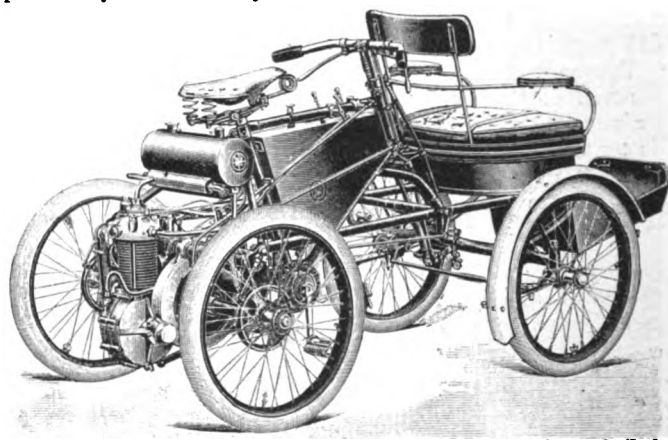


FIG. 4.—THE DE DION QUADRICYCLE WITH CLUTCH AND MOTOR WITH WATER-COOLED HEAD.

Many of these omnibuses are now running in the public service in various towns in Spain, and giving great satisfaction.

Messrs. Henri Lessieux and Co., of Rethel, Ardennes, claim to have been the first to introduce the universal jointed shaft for power transmission in light cars, and they have naturally applied this system to the voiturette they exhibited under the name of the "Ardennaise." The motor is of the two-cylinder V type, and develops 5 h.p. The cylinders are provided with ribs for air cooling and with four culasses, or breeches, two being ribbed, and two cast with water jackets, so that the owner may employ one or the other, according to the conditions under which he is using the vehicle. The change-speed gear operates directly on the rear axle. The steering spindle is inclined, and, if desired, it can be arranged to be kept under tension by a spring, so that, if left to itself, it comes back to the point which keeps the front wheels in a perfectly straight line. The vehicle exhibited took the form of a light *tonneau*.



FIG. 5.—THE RENAULT 5 H.P. COUPE (See issue February 9, p. 824.)

Messrs. E. Delahaye et Cie., Rue du Banquier, Paris, made a big display of cars, but there is no alteration in the mechanism except that 6 h.p. motors are being fitted to their light carriages instead of motors of 5 h.p. as heretofore. A new type of vehicle in the form of a victoria with four seats was staged, as also an elegant *tonneau*-shaped car.

One of the most striking novelties in the Salon was a dainty little voiturette shown under the name of La Mouche by Messrs. Teste, Moret, and Co., of Lyons (Fig. 6). It is fitted with a small De Dion water-cooled motor, and is more or less on quadricycle lines, but is remarkable for its carriage-work. The body is in

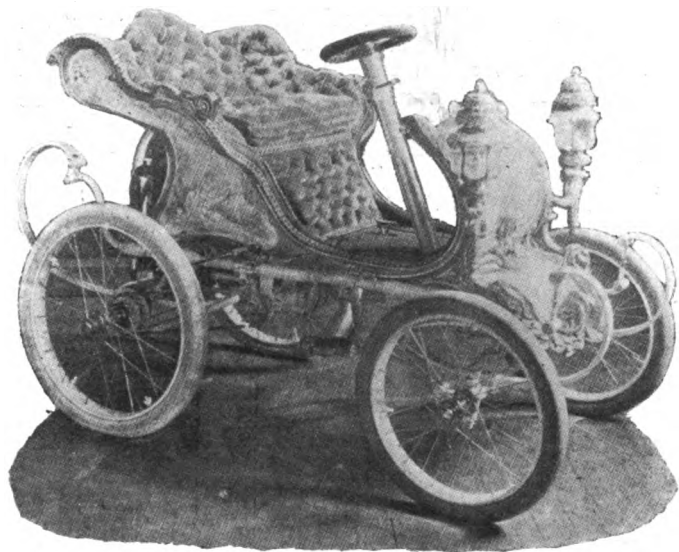


FIG. 6.—MESSRS. TESTE, MORET'S, LOUIS XV. VOITURETTE.

Louis Quinze style throughout, heavily gilded, and with decorated panels and lamps to match. The upholstery is in pink satin-plush, and the steering-wheel is padded with the same material. It is, of course, a fanciful creation, and not seriously intended for general use. The ordinary cars of the company, so far as low-priced vehicles go, were well worthy of inspection.

La Compagnie Française de Voitures Electromobiles, Rue Cardinet, Paris, had on view a couple of electrical cars. Originally this concern constructed all their cars on the Bersey system, with the batteries suspended underneath the vehicle, and though this method is still employed on public cabs, it has been found preferable in carriages built for private users to place the batteries in the body of the vehicle. One of the carriages exhibited took the form of a four-wheeled hansom, and was propelled by two motors geared directly on to large spur wheels fixed on the rear road wheels. The other vehicle was fitted with the well-known Doré transmission, consisting of a vertical shaft geared on to the front axle.

The Liberia cars were shown by V. Mathieu, Rue Taitbout, Paris. They are fitted with Aster water-cooled engines in the fore part of the frame. A very powerful light racing car was shown fitted with two coupled Aster 6 h.p. motors. An omnibus or hansom type of vehicle was shown, in which the passengers sat in the rear part, with a glass door and window, the driver and another passenger being provided with a seat in front. A glass front protects them from the weather. This was provided with a 6 h.p. engine. The transmission is similar to the Panhard system, and the change speed, reversing, and clutch are operated by one lever in the same way.

Messrs. J. B. Clément et Cie., Boulevard de Courcelles, Paris, exhibited two cars, a *tonneau* and spider, each weighing 350 kilogs. The firm have modified their old system of double chain transmission by adopting a shaft with friction clutch and a new system of change speed gear, but they still preserve a central chain for transmission from the countershaft to the rear driving axle. The power is supplied by an Aster water-cooled motor. Inclined wheel steering is adopted, all the levers being grouped around the standard in a compact and handy form.

La Maison Parisienne des Voitures Automobiles, Avenue de la Grande Armée, Paris, are no longer confining themselves exclusively to Benz cars, but exhibited a couple of electric vehicles on the B.G.S. system. The company also displayed a couple of Benz vehicles—the one a light car for two persons and the other a small van.

La Compagnie Internationale des Transports Automobiles, Rue de la Victorie, Paris, exhibited, among others, a new combination electrical and petrol vehicle designed by M. Jenatzy. A petrol motor drives a dynamo, which charges a battery of accumulators when the full force of the motor is not employed on the level and on the down grades; when it is necessary to overcome resistance, either uphill or otherwise, the energy stored in the battery is utilised, the dynamo then of course acting as a motor. The car shown was of the Mors racing type fitted with one of the old Mors 6 h.p. motors, but we were informed that this was merely a demonstration, and that the company intend to manufacture their own petrol motors. The dynamo on the motor-shaft has an output of 108 kilowatts, or close upon 14 h.p., so that with the aid of a petrol motor, as much as 20 h.p. can be utilised in case of emergency. The battery of forty-four cells weighs 170 kilogs, and is placed in the body of the car over the rear axle. The capacity of the battery will allow of the car being driven about twenty miles at slow speed in the event of an accident to the petrol motor. The total weight of the car is about a ton.

M. E. Chaboche, Rue Rodier, Paris, exhibited a heavy steam omnibus and wagonette. An interesting novelty, in the shape of a light carriage for two persons, attracted much attention. The boiler at the rear has a heating surface of four mètres, and is fired by paraffin instead of by coke, as in the larger vehicles. The propelling mechanism consists of a two-cylinder horizontal motor of 5 h.p. placed in the forepart of the carriage. Power is transmitted from the motor-shaft to the rear axle by a central chain. The liquid fuel is carried in a cylindrical tank in front of the car, and the consumption of oil is said to be about one pint a kilomètre. The water tank has a capacity sufficient for two hours' running.

M. E. Buchet, of Levallois-Perret (Seine), exhibited several 6 h.p. air-cooler motors, chiefly intended for quadricycles and voiturettes. M. Buchet also displayed several water-cooled motors

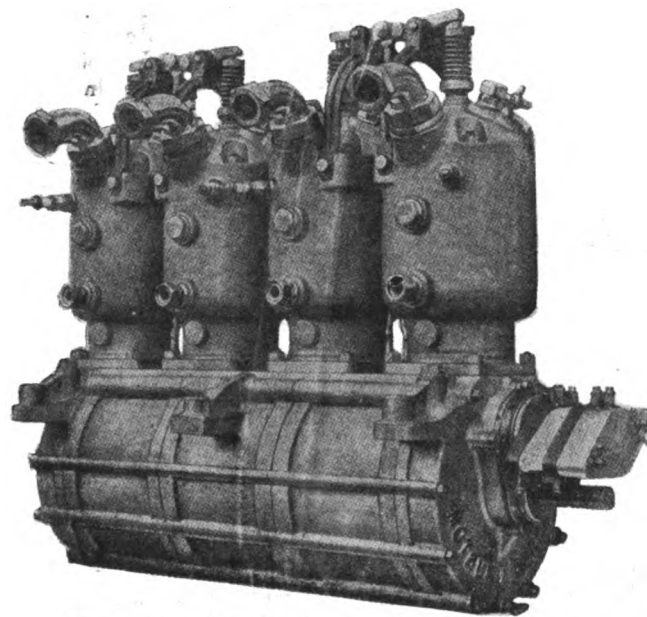


FIG. 7.—THE BUCHET 24 H.P. 4-CYLINDER MOTOR.

upon the same system, including one of four cylinders, with the piston rods operating the same crankshaft and developing 24 h.p. for large carriages (Fig. 7).

The Société Française des Automobiles (Gaillardet), Quai de Suresnes (Seine), exhibited one of each of their two standard patterns of vehicles, known as the "Doctoresse," of 6 and 12 h.p. respectively, and of which we hope to give an illustration in an early issue. It may be remarked that the company undertake to carry out all repairs to their cars, from whatever cause the damage may arise, for three years, at an annual cost which will not exceed 300 francs, so that the owner knows that his expenditure will be kept within reasonable limits.

(To be continued.)

THE CORMERY MOTOR AND MOTOR-TRICYCLE.

AMONG the new types of motors recently placed upon the French market, that devised by M. Henri Cormery, of Baugé (M. and L.), deserves special attention, for it contains some distinctly novel features, the system adopted being a remarkably ingenious one. In the construction of petrol motors the four-time, or "Otto" cycle, is that almost invariably adopted, and the employment of valves is universal. The Cormery motor works upon a two-time cycle and possesses no valves. These are the engine's two distinguishing features, and the method employed to arrive at this result is shown in the accompanying drawing. In this sketch (Fig. 2), which illustrates a single cylinder vertical motor constructed upon M. Cormery's system, *a* is the cylinder in which works the piston *b*. The lower side of this piston is elongated, so that its depth is one and a half times its diameter. It is jointed to the connecting rod *c*, which communicates the movement to the crank *d*, carrying two balanced fly-wheels, *e*, *e*. These fly-wheels are confined in a hermetically-sealed crank-chamber *f*, which is provided with a plug *g*, and attached to the side of which is a box *h* containing the usual arrangement of electric ignition. The cylinder *a* is pierced at *i* to permit of the escape of the exhaust and at *k* to allow of the admission of the explosive mixture. Moreover, the cylinder is connected with the crank chamber by means of a tube *l* containing a safety box formed of a number of asbestos washers *m* holding between them the metal netting *n*. This safety box, which should have a diameter of at least double that of the tube connecting the cylinder with the crank chamber, has for objects the prevention of the firing back of the explosive mixture, the filtration of the gas and the prevention of oil in the crank chamber being drawn through into the cylinder. The cylinder head *p* carries an ignition plug *o*, and is fitted with a compression cock *q*. Such is the disposition of the motor; let us now look at its manner of working. The piston *b* being at the lower extremity of its stroke it commences to ascend with the turning of the starting handle. In doing so it uncovers the orifice *k* through which is immediately drawn a supply of gas coming from the carburettor. Having reached the extremity of the upward stroke the piston commences to descend, compressing in the action the gas, which, unable to escape by the orifice *k*, now shut, does so by the tube *l*. By this time the inlet *r* and the outlet *i* are both open, and the explosive mixture entering by the former would escape by the latter were not the

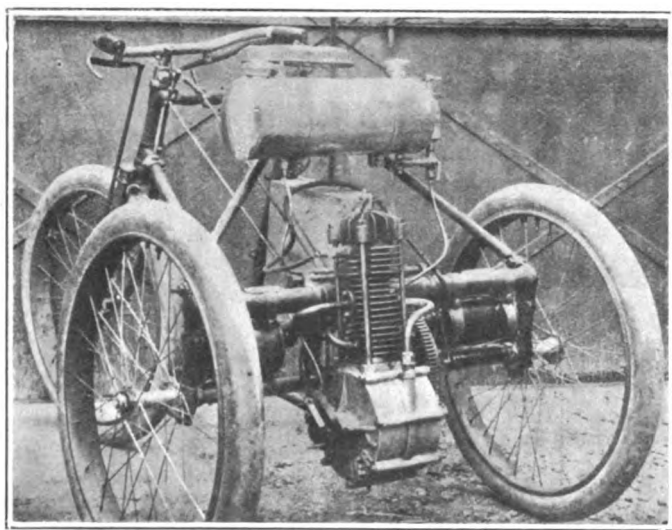


FIG. 1.—THE CORMERY MOTOR-TRICYCLE.

guide *t* so placed upon the piston *b* as to direct the gas upwards towards the explosion chamber *s*. If one considers the passage of the piston before the orifices of the cylinder as *one* time it will be seen that the exhaust is open twice as long as the admission, so considerably diminishing the resistance. The exhaust is then

open during two periods on the down and two periods on the up stroke of the piston, whereas the admission is but open one period each way, and it is by this disposition that the inventor claims to have overcome the great difficulty of the resistance of the exhaust. The characteristics of the engine may thus be summarised:—1. The utilisation of the crank chamber for the aspiration and the partial compression of the explosive mixture. 2. The long piston stroke assuring the utilisation of the expansive force to the best advantage. 3. The realisation in a valveless two-time motor of a normal and useful compression as

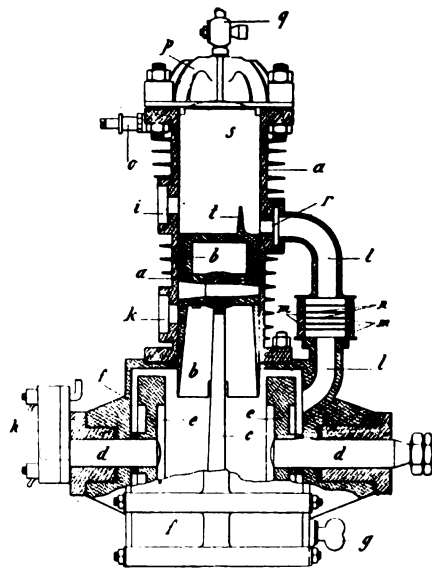


FIG. 2.—SECTION OF CORMERY MOTOR.

obtained in the best types of engines working on the four-time cycle. 4. The diminution of the resistance of the exhaust by retaining open the outlet twice as long as that of the admission. 5. The simplicity of construction; no valves with all their complications existing in the engine. 6. The force; for, given equal cylinder diameter and consumption of fuel, this motor develops nearly twice the horse-power of the four-time model. 7. The increase of cooling power secured by the disposition of the exhaust, and the comparatively low rate of speed at which the motor runs, for whereas the engine of similar dimensions revolving upon the "Otto" cycle makes from 1,460 to 2,200 revolutions per minute, this two-time motor only runs at from 650 to 850. The lubrication of M. Cormery's engine is effected by means of a lubricator working under pressure, and from which the oil passes into the cylinder through an orifice placed below the orifice of induction. Fig. 1 depicts one of these motors attached to a tricycle, and this machine has already done some most excellent work. Of course, the system can be equally well applied to water-cooled engines and to motors possessing two or more cylinders, and this quite irrespective of the position of the cylinders. For example, M. Cormery has constructed a motor in which the two cylinders are placed end to end, the explosion being produced by means of a single sparking plug at the moment when the two pistons are most closely approaching one another. The future of this ingeniously contrived engine will be watched with interest, for it marks a departure from the beaten track hitherto followed by constructors of light oil motors.

AN automobile battle of flowers is to take place at Hyeres, in the South of France, on the 28th inst.

ROWLAND HILL, King Street, Coventry, is establishing a very large trade in motor castings, in iron, gun metal, aluminium and phosphor bronze.

OVER twenty County Chief Constables have promised to attend the Automobile Club on Tuesday next, the 26th instant, and it is hoped that members will bring or send their carriages for the demonstration at eleven o'clock on that morning.

THE PAU AUTOMOBILE WEEK.

EVER since the early part of last week the old French town of Pau has been invaded by *chauffeurs* and their cars. The race meeting proper commenced on Friday, the 15th inst., with a course for tourists from Pau to Peyrehorade and back, the distance being 140 kilomètres (87½ miles).

The start was made at 11 a.m., the following being the official return as to the result:—

Prix de la Presse (2 seated cars)—1, Bergeon (10 h.p. De Dietrich), 3h. 30min. 5sec.

Prix du Commerce (2 seated touring cars)—1, Henri Farman (12 h.p. Darracq), 2h. 20min. 30sec.; 2, Lafitte (12 h.p. Panhard), 2h. 58min. 45sec.; 3, Guillemin (12 h.p. Panhard), 3h. 44min. 20sec.

Prix des Cercles (4 seated cars)—1, Rudeaux (12 h.p. Darracq), 2h. 43min. 57sec.

Prix de l'Automobile Club Bearnais (6 seated cars)—1, Bergeon (10 h.p. De Dietrich), 5h. 40min.

Prix de l'Automobile Club (voiturettes)—1, Edmond, 2h. 24min. 17sec.; 2, Marcellin, 2h. 26min. 31sec.; 3, Demester, 2h. 38min.; 4, Oury, 3h. 14min. 20sec.; 5, Cornilleau, 3h.; 6, Cramail, 4h. 27min. 55sec.; 7, De Seeger, 4h. 32min. 40sec.; 8, Fessart, 4h. 44min. 15sec.

Prix du Palmarium (motor-cycles)—1, Cornier (4 h.p.), 4h. 32min. 25sec.

The principal event of the meeting was the Circuit du Sud Ouest, which took place on Sunday over a 340 kilomètre (211 miles) course. The following were the entries:—

Grand Prix de Pau (cars).—1, Lorraine Barrow (Mercedes); 2, Knapp (Daimler); 3, Maurice Farman (Panhard); 4, Henry Meyer (Darracq); 5, Paul Meyan (Panhard); 6, Ribeyrolles (Darracq); 7, Marcellin (Darracq); 8, Charron (Panhard); 9, Gordon-Bennett (Napier); 10, Girardot (Panhard); 11, Bergeon (De Dietrich); 12, Magendie (Mors); 13, Pascault (Mors).

Grand Prix du Palais d'Hiver (voiturettes).—1, Ribeyrolles (Darracq); 2, Marcellin (Darracq); 3, Henri Farman (Darracq); 4, Cottureau (Cottureau); 5, Pinaud Duanip (Boyer); 6, Barras (Boyer); 7, Rudeaux (Darracq); 8, Legrand de Monbel (Boyer); 9, Cornilleau (Decauville); 10, Girardot (Panhard); 11, Schrader (Renault); 12, Oury (Renault); 13, Théry (Decauville); 14, Caillois (Renault); 15, Renault (Renault); 16, Demester (Renault); 17, Edmond (Darracq); 18, Bonneville (Darracq).

Prix du Béarn (motor-cycles).—1, Labadie; 2, Béconnais; 3, H. Loste; 4, Favier; 5, Cormier.

Last year this race was won by M. René de Knyff, in the astonishing time of 4h. 46min. 57sec., but this year the record was beaten by nearly 19min.

Especial interest attached to the race from the fact that one of the competitors was driving a car that is destined to take part on behalf of Germany in the Gordon-Bennett Cup race on May 29th. This was the Daimler-Mercedes car of M. Lorraine Barrow, but owing to the fact of its clutch slipping it retired from the race immediately after the start. The winner proved to be M. Maurice Farman, who completed the course in 4h. 28min. 10sec., or an average of 47 miles an hour. His car was a 24 h.p. Panhard. M. Girardot was second, also on a Panhard, in 5h. 44min. 5sec.; he collided with a sand-bank on the way, and buckled his wheels.

The results of the various races of the day are given below:—

Grand Prix de Pau.—1, Maurice Farman (24 h.p. Panhard), 4h. 28min. 10sec.; 2, Girardot (24 h.p. Panhard), 5h. 44min.; 3, Bergeon (De Dietrich).

Grand Prix du Palais d'Hiver.—1, Henri Farman (12 h.p. Darracq), 5h. 24min. 19sec.; 2, Edmond (12 h.p. Darracq), 5h. 55min. 40sec.; 3, Louis Renault (8 h.p. Renault), 6h. 25min. 10sec.; 4, Oury (4 h.p. Renault) 8h. 7min.

Prix du Béarn.—1, Osmont, 5h. 24min. 35sec.; 2, Gasté, 5h. 52min. 25sec.; 3, Béconnais, 5h. 55min. 50sec.

SEVERAL Glasgow motor-car owners made their journeys to and from the Edinburgh Cycle Show last week *en automobile*.

HERE AND THERE.

THE Duke of Sutherland is one of the latest candidates for membership of the Automobile Club.

"A. W. P." writes that the last sentence in his letter in our last issue should have commenced "And why," etc.

MESSRS. JOHN MARSTON, Ltd., Wolverhampton, have issued a useful book of instructions for the use of purchasers of their Sunbeam car, illustrated in our last issue.

IN the action brought in the Court of Chancery by the Agricultural Hall Company (Limited) against Messrs. Cordingley and Company, judgment was given on Thursday morning in favour of the plaintiffs. Notice of appeal was given.

THE French Automobile Club, to celebrate the closing of the successful Salon d'Automobiles et Cycles last week gave a banquet and theatrical evening, which were attended by all the leading lights in the French automobile world.

It is understood that at the forthcoming annual general meeting of the Cyclists' Touring Club, a proposal will be placed before the members that the privileges of the C.T.C. should be extended to automobilists.



TESTING THE FABRIK EXPLOSIONS-SICHERER GEFÄSSE'S SAFETY PETROL CASK (see page 847 last issue).

AN enterprising person in Chicago is arranging a special motor-bus service for the large department stores, for the transportation not only of their patrons to and from their homes, but of their help to and from their homes. Later he intends arranging a service for the large office buildings, which, at a moderate rate, will convey their occupants from door to door between home and office.

MR. WILLIAM K. VANDERBILT, jun., alarmed by the order of Mr. Clarence Mackay for a 32-h.p. Panhard, is reported to have cabled an order to Paris for a 42-h.p. racer with a possible speed of over 75 miles per hour. The new racer is to be completed by the time Mr. Vanderbilt starts homeward from Europe in the spring, and will be shipped from Paris to New York direct from the makers.

IN Forfar Sheriff Court on Tuesday Sheriff Lee heard evidence in the action in which James Macfarlane, cycle and motor-car dealer, Perth, sued Alexander Ross French, dentist, Forfar, for the sum of £135, being the price of a motor-car said to have been purchased by defendant in June last. The defence was that the purchase of the car had not been concluded, and that the car not being of the description, power, or capacity represented by pursuer, and not being suitable or fit for the purpose for which it was offered or required, the defendant, even if a sale had taken place, was entitled to reject as he had rejected it. Defendant conducted his own case, which, after lasting all day was adjourned.

THE SIZE OF WHEELS.

THE question of the size of the road wheels for motor-cars is one which is attracting considerable attention, and like other questions has two sides. The small wheel is stronger and cheaper. The large wheel rides easier and lasts longer. The manufacturer naturally prefers the small wheel because of its smaller cost. The buyer may be supposed to prefer the easier riding and more costly construction. The small wheel makes the vehicle appear relatively larger, and if the buyer is buying for appearances rather than for utility he will apparently get more for his money by buying a small-wheeled car. For this same reason he will probably select tall and ill-proportioned vehicles rather than long, wide, low, comfortable, and easy riding cars. If, however, he desires the best results he will select a vehicle with large wheels, large tires, long springs, low hung body, long wheel base, and with the passenger seats as far from the forward wheels as may be. He will select the large wheel because it makes less revolutions, does not drop into holes so deeply, does not rise so quickly over obstructions, does not wear out the tires so quickly, nor compress the tires so much to carry a given load. It may be argued that these points are theoretical rather than practical, but the experience of years in two other lines points to this decision.

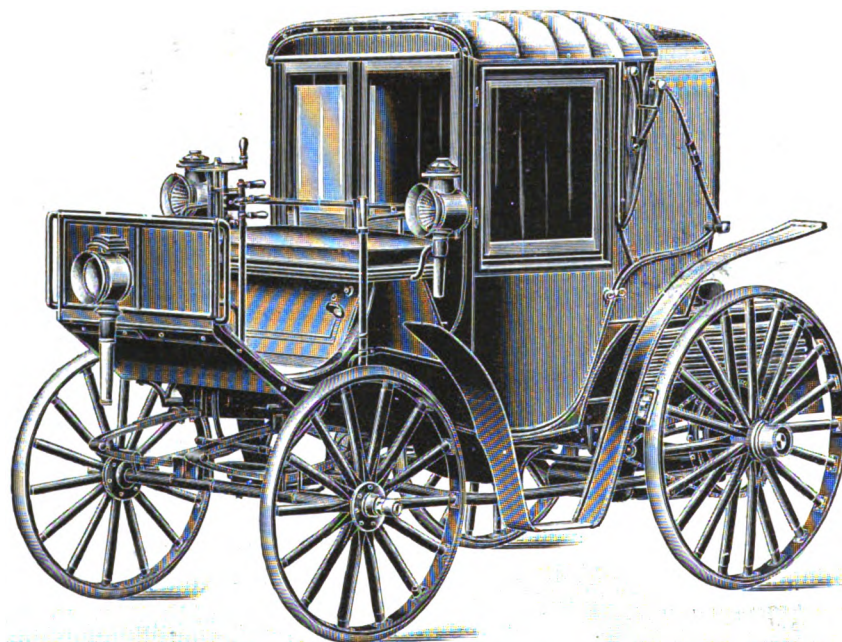
The foregoing are the opinions of Mr. Charles E. Duryea, who, in an American contemporary, remarks that horse vehicles used all sizes of wheels, but the majority of them are equipped with wheels approximately 4ft. in diameter. The use of elastic tires will permit a somewhat smaller wheel. How much smaller, is the question. In the cycle business wheels were tried of all sizes from 24in. up, and, although 24in. and 26in. wheels were cheaper, lighter, and stronger than larger ones, no argument could persuade the public to accept in quantity any size except 28in. This size carried cycle and rider, a total weight of less than 200 lbs., or an average weight of 100 lbs. per wheel. It would seem to need no argument that if this size is right for cycles (and such was the verdict of the public) a larger size is necessary and right for automobiles, which carry two to ten times as much load per wheel. Either this reasoning is correct or else we must conclude that the public in their verdict of 4-foot wheels, with steel tires for horse vehicles and 28in. wheels, with pneumatic tires for cycles, did not know what was right. If history teaches us anything it certainly indicates that a wheel should be much larger than 28in. for all around motor-vehicle use. Having admitted this, the next question is, how much? The writer's first vehicle used ordinary carriage wheels and his first pneumatic tired machine used 44in. and 48in. wheels. He next used 34in. and 38in., which have been proved by five years of use to be very satisfactory sizes. He next tried 30in. and 34in., but decided that the rear wheels were too small, and on account of this experience are now using 30in. front and 36in. rear.

There is no question but that this combination, coupled with large tires and long springs, makes the easiest riding motor-vehicle yet shown, and it is the writer's opinion that a 36in. wheel is as small as should be used under two or more persons. This wheel is much nearer cycle size than ordinary horse-vehicle wheels, and it is quite probable that larger sizes would show better results. Wheel makers have no difficulty in making their product carry large loads under all conditions when drawn by horses, and there is therefore no reason to believe that automobile wheels cannot do likewise.

THE BENZ MOTOR COUPÉ.

WE are this week able to give an illustration of still another of the many types of cars built by Messrs. Benz and Co., of Mannheim, Germany—a my-lord coupé for five or six persons. The motive power is supplied by a two-cylinder horizontal engine, developing up to 10 h.p. The transmission is on the well-known Benz system, three speeds forward and a reverse motion being provided for. The car can

attain a speed of twenty miles per hour on the level, and ascend gradients of 1 in 5. Usually solid rubber tires are fitted, but these can be substituted by pneumatics if desired. The body is so arranged that it can be quickly converted into an open victoria. The weight is about 1 ton 2 cwt. It is hardly necessary to add that the agents in this country are Messrs. Hewetsons, Limited.



THE BENZ MOTOR-COUPÉ.

THE Competitions Committee of the Automobile Club have agreed to receive a deputation from the Committee of the English Motor Club, to discuss matters in connection with the competition rules of the A.C.G.B.I.

A SALE by auction of a number of De Dion and other motors, 18 motor-tricycles, etc., from the works of Messrs. Paris, Singer and Company, Clapham, S.W., is to be held by Messrs. Fuller, Horsey, Sons and Cassell, on Thursday, March 7th.

At a meeting of the French Automobile Club last week, it was decided that the tourists in the Paris-Berlin race will start on June 25, and the racing section on June 27. The race will be divided into three sections: (1) Paris Aix la Chapelle, (2) Aix la Chapelle-Hanover, and (3) Hanover-Berlin.

A PRACTICAL illustration of the working of a device known as Compin's patent springs was given at the Hotel Cecil last week. The contrivance is intended to supersede the old spiral springs with which nowadays the average carriage-cushion is fitted, the invention being claimed to reduce vibration.

THE Roadway Autocar Company, Limited, of Berners Street, W., will shortly have on hand some powerful Mors cars which they propose to fit with wagonette, char-à-banc, or other bodies suitable for private hire or local service work. They are prepared to co-operate with persons interested in this class of motor service.

THE ROYAL AGRICULTURAL HALL COMPANY,
LIMITED, v. CORDINGLEY.



In the High Court of Justice, Chancery Division, on Tuesday, the 19th inst., before Mr. Justice Byrne, the following case was heard. Mr. Levett, K.C., and Mr. Sebastian appeared for the plaintiffs, Mr. T. Terrell, K.C., and Mr. O. Leigh Clare, M.P., instructed by Mr. Staplees Firth, appeared for the defendant.

Mr. Levett: If your Lordship pleases, the question in this action which your Lordship will have to decide is simply this—what is a cycle? It is rather a curious question for an action. The action is an action without pleadings, and if your Lordship looks at the writ you will see what is claimed. The plaintiffs are the Royal Agricultural Hall Company, and the defendant is one Charles Cordingley. The claim is "for an injunction to restrain the defendant, his servants, tenants, licensees, and agents from showing or exhibiting, and to restrain the defendant from enabling or permitting to be shown for sale or otherwise at the Royal Agricultural Hall, Islington, at any time or times during the period commencing the 9th day of April, 1900, and ending on the 9th day of May, 1900, any goods, articles, or things other than such as are included in the engineering, sanitary, laundry, or motor-car trades, and especially any cycles of any kind or description." Your Lordship notices the times. The only question is now a question of principle. The case arises in this way. Your Lordship heard, in another case, a great deal about the Stanley Show. The Stanley Show have an agreement with the Agricultural Hall. If your Lordship looks at the endorsement of the agreement outside you will find it lasts for seven years, from 1898 right down to 1904. There is a clause in that agreement—

Mr. Terrell: Is it material against me what is in another agreement between other parties?

Mr. Levett: It explains the action.

Mr. Justice Byrne: I have not heard who the parties are.

Mr. Terrell: My client is a man called Cordingley, who has an agreement of his own.

Mr. Levett: It is a material part of my evidence why I had to take this action. It will not affect the question of cycle or no cycle.

Mr. Justice Byrne: Does your client act under the Stanley Show agreement?

Mr. Terrell: No, he has an agreement with the Agricultural Hall Company, and he is sued for a breach of that agreement. What an agreement which the company has with somebody else has to do with it I do not know.

Mr. Justice Byrne: I do not know enough about the circumstances to say yet.

Mr. Levett: Very well, I will go straight to his agreement. It is an agreement on the 27th June, 1899, made between the Royal Agricultural Hall Company and Charles Cordingley [reading from agreement].

Mr. Justice Byrne: Paragraph 5 is important, I suppose?

Mr. Levett: Yes. "The tenant shall use the said premises during the period of tenancy for the purpose of an Engineering, Sanitary, and Laundry Exhibition and Motor-Car Exhibition (hereinafter called 'the said Exhibitions'), and for the purpose of preparing for the said exhibitions, and of clearing away after the close thereof, and for no other purpose or purposes whatsoever, and no goods, articles, or things, other than such as are included in the above-mentioned trades, and especially no cycles of any kind or description are to be shown or exhibited for sale or otherwise, these prohibitions being inserted not by way of an admission that apart from them any such goods, articles, or things might be exhibited even as accessories to the said exhibition, but by way of express notice to the tenant that under no circumstances can such exhibits be allowed." That is pretty clear that he is not to exhibit cycles. Then rider A. comes in at the end of 8. The important one is 10. [Read clause 10.] I think those are all the material sections; it turns on 5 and 10.

Mr. Terrell: 9 deals with motor-cars: 9 will be material with regard to something else.

Mr. Levett: I will read it. [Read clause 9.] In that state of affairs the defendants proceeded to issue a catalogue of their Exhibition. I will first take the outside of the catalogue, "Catalogue of the Automobile Club's Motor-Car Exhibition." The first page advertises "Progress" Motor-Cycles, and the advertisers are the Progress Cycle Company, Limited, Coventry.

Mr. Justice Byrne: It says Stand 90; was this a stand belonging to the defendant?

Mr. Levett: This is the defendant's own catalogue; they run the show.

Mr. Justice Byrne: So they were proposing to exclude these Progress Motor-Cycles.

Mr. Levett: On page 3 there is an index of exhibitors. Each person who is an exhibitor hires a stand from the defendant. On page 6 it is again called a motor-car exhibition. Now we come to look at the different stands. On page 23 we get a catalogue of exhibitors and exhibits. The first one there is no doubt we will agree is a genuine motor-car. If your lordship will turn on your lordship will see motor-cars.

Mr. Justice Byrne: Then you get to a type which gets very much like a motor-cycle. It is a carriage, but it is not much more of a carriage than the Progress cycles.

Mr. Levett: Then passing on to page 57, that is the first one where we get what we complain of. Here we have the Eadie quadricycle. I need not read the description about the Dunlop tires, rims, axles, with which the wheels are fitted. Then there is the "Eadie motor-tricycle, with

'avant train,' for converting into quadricycle. Then "Eadie motor cycle fittings; including ball head, with patent front forks, bottom bracket, with clutch, machined lugs, stay ends, etc." That is the first one we object to. Passing on to page 63, "Sternoline rust preventative for motor-cars and cycles," and the last line of that "Varicus other specialities for autocars, motor-cars, motor-cycles, etc." Passing on to Stand 43 on the same page "These tires are made in all sizes from that for the cycle to that for the largest motor-car." Now Stand 46, on page 65, "The latest pattern Phebus Aster tricycles, with front attachment for quadricycles, 1900." A little lower down you get Gladiator tricycles and quadricycles, "with the latest 1900 improvements." On page 69, Stand 52, "Motor Quad" — that means quadricycle—"2½ genuine Dion engine. Two speed gear. Grappler tires." Passing to page 85, Stand 76, "One Burgess tricycle."

Mr. Justice Byrne: Does your objection extend to the cycles moved by motive power?

Mr. Levett: Yes I am going to define a cycle as that which is or may be moved by pedals—a motor-car has no pedals—anything you can work by your feet.

Mr. Justice Byrne: Then what do you say to those you work with your hands?

Mr. Levett: I think they have gone out of fashion.

Mr. Terrell: I saw one yesterday.

Mr. Justice Byrne: They are not common. They are used by people not able to use their legs.

Mr. Levett: There are none exhibited here.

Mr. Justice Byrne: There was another invented which used the action of an oarsman.

Mr. Levett: I do not see how they can be called cycles. They would not even be velocipedes. I do not know what they would be.

Mr. Justice Byrne: It is only with reference to that particular definition.

Mr. Levett: We define the trade meaning of "cycle" as, "worked by pedals." It is perfectly immaterial whether you add to that a mechanical contrivance and use electricity or oil or whatever it is. The essential difference between a cycle and a motor-car is, one has pedals and one has not.

Mr. Justice Byrne: Those motor-cycles have pedals.

Mr. Levett: Yes. Stand 76, "one Burgess tricycle fitted with 2½ h.p. auto-moto engine with new exhaust valve lift, Clipper tires, band brakes to front wheel and back axle." The last line, "one Burgess fore carriage to convert Burgess tricycle to quadricycle, fitted with Clipper tires." There are some more of these.

Mr. Terrell: You need not go through all of them. I should have thought one instance would have done. Let my friend take the best he has got and try it on that. We are trying a question of principle.

Mr. Levett: We are trying what is a cycle. It is not immaterial to find that in all these advertisements. The cycles come first and the vehicles come later.

Mr. Justice Byrne: Not all of them. Just then I came across another instance: "Tires for heavy cars and light motor-cars."

Mr. Terrell: If the question of priority settles it I am entitled, because they are always called motor-cycles.

Mr. Levett: Take page 93, stand 90, "One motor-tricycle, two quadricycles, and a small motor-car." Page 97, stand 14—that is in the annexe—"Cycle lamps, cycle axles." Below that, stand 16, "Motor-cycle lamp; acetylene motor-cycle lamp accessories." I need not trouble about any more. Will your Lordship look at the last page of all. I say the one in the left hand corner is a motor-car because it is without the pedals. The one half way down the page is a motor-cycle because it has got pedals, and the one at the bottom is a motor-cycle too, because it has got pedals as well. Your Lordship will see the names given on the outside. That motor-car is called a voiturette. The second one is called a tricycle, and the third is called the De Dion motor quadricycle. I think if my friend wishes we will take that as a test case, whether those two are cycles.

Mr. Terrell: I am perfectly entitled to succeed if I succeed on one case.

Mr. Levett: My friend's suggestion reminds me I have omitted to notice that in the schedule there is a clause which makes the agreement with the Stanley Show relevant—the second paragraph of the schedule. [Reading a paragraph.] Having had notice he cannot interfere with what I have given to the Stanley Show. That brings in the Stanley Show agreement, and what the Stanley Show agreement says is this—

Mr. Terrell: I submit that that does not bring in the Stanley Show agreement.

Mr. Levett: I can give evidence what the privileges are.

Mr. Terrell: You have not sued me for that; you have sued me for a simple breach of my agreement in exhibiting cycles.

Mr. Levett: It is a breach of both. I have simply sued you for an injunction to restrain exhibiting cycles during that month.

Mr. Terrell: The question is, have I agreed not to exhibit cycles in the sense in which you use the word. That is all.

Mr. Levett: You may be breaking that clause of the schedule.

Mr. Terrell: The action is not based upon that. The action is based upon the agreement. The affidavits which were used upon the motion and upon which no pleadings were to be delivered are based simply upon the agreement.

Mr. Justice Byrne: Mr. Levett, there will be a difficulty about that. Suppose you had granted a licence to do a certain thing, and you afterwards grant a licence to do something included in that to somebody

else, in that case you could not say that was to prevail over his rights under this agreement.

Mr. Levett: No, I do not think I could. It fixes him with notices of what all the other agreements were, to date. He is not to do anything contrary to any existing agreement.

Mr. Justice Byrne: If that infringes any right you have granted him he could counter claim for damages, because you have not fulfilled your agreement. It would not do for you to render nugatory the whole of his agreement because you had granted to other people certain licences. There is nothing here which says it must be of the same date.

Mr. Levett: In the schedule part of the agreement he has got notice of other agreements, and he cannot object to evidence of what they are.

Mr. Justice Byrne: That is the worst of having no pleadings. Your writ is confined specifically to the things named in the agreement. Is not that really your case? We quite understand, and everybody knows this is a cycle show. You may give evidence, if you like, that there are numerous exhibitors of cycles in the place. Mr. Terrell will not deny that.

Mr. Terrell: All I object to is my agreement being construed by another document to which I am not a party.

Mr. Levett: My friend complains about this. It is the evidence on the motion. (Reading from affidavit.)

Mr. Terrell: Call him now and let him give that evidence.

Mr. Justice Byrne: For what do you want to use the other agreement?

Mr. Levett: To show it is necessary to bring this action to be fair to other tenants.

Mr. Justice Byrne: People would not dispute that. If it is not really a question of your legal rights it does not matter. It is not suggested that this is done maliciously.

Mr. Terrell: Not at all.

Mr. Justice Byrne: It is for the protection of other exhibitors.

Mr. Terrell: Yes. My friend probably stands in this position—we are claiming something and the Stanley Show are claiming the same thing, and he has got to fight somebody.

Mr. Levett: I think now my friend has said that I need hardly read the correspondence.

Mr. Justice Byrne: Is not it a simple question whether they have been advertising things which do not come within their agreement?

Mr. Levett: Whether they have exhibited cycles.

Mr. Terrell: What is the meaning of "cycles of any sort or kind," as used in that agreement—what is the scope of it.

Mr. Levett: Very well. Then the motion came on, and the undertaking was given in those terms.

Mr. Terrell: A motion comes on, and it is agreed between the parties that this should be tried without pleadings and quickly, and to get rid of the motion we gave an undertaking. Is not that all prejudice—reading that?

Mr. Justice Byrne: You may trust me not to be prejudiced in such a way that you cannot displace it.

Mr. Terrell: I do; but we have a case here which ought to be tried in an hour, and we shall be a day.

Mr. Justice Byrne: Tell me what it was; it does not matter.

Mr. Levett: "And the plaintiffs, without prejudice to any question, agreeing that the defendant may exhibit twenty-five, but not any greater number of bicycles and tricycles, at the said Royal Agricultural Hall from the 9th April to the 9th May, 1900. And the defendant also, without prejudice, by his counsel, undertaking not to show or exhibit, or allow to be shown or exhibited, at the said hall during the said period (1). Any greater number of bicycles and tricycles than twenty-five altogether, whether the same shall be propelled by mechanical motors or other mechanical means, and (2) any accessories other than accessories or applicable to motor-cars." That is all the undertaking. On those facts we come to the simple question, has he or not broken his contract? Those are the whole of the facts.

Mr. Terrell: My friend need not call any evidence as to what we actually exhibited in fact, because we agreed that we exhibited all that is stated in that catalogue.

ERNEST AUGUSTUS LAMB, sworn.

Examined by Mr. SEBASTIAN.

I think you have for the last six years been secretary of the Stanley Show Committee?—Yes.

That is a sub-committee of the Stanley Cycling Club?—It is.

The object of that show of the committee is to have an exhibition of cycles and accessories?—It is.

That has taken place for some years past at the Agricultural Hall?—Yes.

I think you are also well acquainted with the different kinds of bicycles and tricycles, however propelled?—Fairly well.

On the 18th April, 1900, you attended at the Agricultural Hall to see what was going on?—I did.

On the 19th April you went there again?—I did.

And on the 20th again?—Yes.

And you saw what was on show on the stalls, and you also saw certain machines?—I did.

Mr. Terrell: I have admitted all this.

Mr. Sebastian: Did you on the 19th April examine the accessories which were on show?—I did.

Have you a list of those accessories which you saw?—Yes.

Can you point out in the list of accessories any that are applicable to non-motor cycles, and some which are applicable to motor cycles as dis-

tinguished from motor-cars?—Those which are applicable to non-motor cycles on the North British Rubber Company's stand are twelve cycle tyres, B 1½ in., with jointless rims.

Mr. Justice Byrne: You say these are appropriate only to cycles as distinguished from motor vehicles?—Yes.

Mr. Sebastian: Non-motor cycles.

The Witness: Also on the Eadie Manufacturing Company's stand there was a bicycle front fork with ball head; also a bicycle bottom bracket fitted with chain wheel and cranks. Also No. 89, the Radax Tire Company, three sample cycle tires with rims. Others applicable to cycles with motors attached are No. 4, a tricycle frame. Also a set of tricycle fittings. On stand No. 36 a tricycle frame, no wheels. Stand No. 39 two tricycle front forks. I think that is about all.

Mr. Sebastian: That is a complete list?—Yes.

I think Mr. Philpot went with you and checked your figures?—He did.

I may take it, just putting it all in one, on each occasion you were there the number of cycles—what you call cycles in your view—was considerably in excess of twenty-five?—Yes, it was.

Cross-examined by Mr. TERRELL.

Did not you give Mr. Firth, the solicitor of the defendant, notice to go with you and count these motor-cycles, or did somebody on your behalf?—Not that I am aware of.

You do not know that he went up, in fact, and counted them and found that there were only eighteen, all told?—No, I am not aware of that.

You were there several days?—Yes.

You knew what the contest was?—Certainly.

You knew that the Cycle Show Company were claiming to have the right of exhibiting motor-cycles?—Yes.

And you went there, I suppose, to carefully see whether Mr. Cordingley was committing a breach of his agreement?—Yes.

You examined all the accessories carefully?—Yes.

And these three things are the only things which you could find in the whole show which from your point of view could only be applied to cycles in the sense of cycles and not to motor-cycles?—There were probably others, but they were so difficult to bring in exactly.

"Probably others"—but your business was to find out, and you were there doing so?—Yes.

You were doing your best to find out?—I was.

And doing your best to find all that was there?—Yes.

And that was all you could find?—That was all we claimed.

Did you tell Mr. Cordingley "We object to these 1½ in. jointless rims on the North British Rubber Company's stand"?—I had no communication with Mr. Cordingley.

Did anybody on your behalf tell him?—Not that I am aware of.

You kept that quiet—you did not give him any notice that with regard to these 1½ in. jointless rims you were objecting to them?—As a matter of fact I had nothing to do with Mr. Cordingley.

Whom did you tell that to?—The Agricultural Hall Company, who were our landlords.

Did you complain to them about those particular rims?—Certainly.

What person?—The Secretary of the Hall Company.

What is his name?—Mr. Venner.

When did you tell him first that you complained of the North British Rubber Company exhibiting 1½ in. jointless rims?—I should say Thursday, April 18th.

When was the show finished?—On the 21st.

Did you go and tell him then?—Yes.

Had you complained of those rims?—Yes.

Had you complained of the cycle tires?—Yes.

As being not applicable to motor-cycles?—No.

They were not applicable to motor-cycles?—No, they were not applicable to motor-cycles.

Did you tell the Secretary of the Agricultural Hall that you complained of these articles?—Yes.

That you are sure of?—With the other accessories.

Did you complain of these particular articles?—I did.

Did you do it in writing?—I did not.

Did you think it was very important—these twelve tires?—Everything is important that infringes our agreement.

Did you think this was a very particular and important thing that the North British Rubber Company should exhibit twelve cycle tires?—Yes, I did.

And you only mentioned it by word of mouth to the secretary of the Agricultural Hall Company—you said nothing to Mr. Cordingley, or to anybody on his behalf, so as to give him notice of what you were objecting to. That is how you left it?—I notified to the solicitor of the Hall Company that our agreement was being infringed.

Do the same answers apply to other things you have complained of, the things that were not applicable to motor-cycles. For instance, you complained of the Eadie Manufacturing Company exhibiting bicycle front forks?—Yes.

Did you mention that at the time to the secretary of the Agricultural Hall Company?—Yes. I mentioned that with the other accessories.

Did you mention the three sample cycle tires on rims shown by the Radax Co?—Yes.

None of your complaints were in writing?—I went round the Hall during the show and I went straight up to the secretary's office.

None of your complaints are in writing?—No, not at that time.

And no complaints were made to Mr. Cordingley of these particular articles so far as you know?—Not by me.

These particular articles are every one of them parts of bicycles and tricycles, are not they?—Certainly they are; they are accessories.

There is no pretence that there was any exhibition of bicycles or tricycles, that is excluding motor cycles and tricycles. There are only the three things which are said to be accessories to bicycles and tricycles in that sense. These three items, as I understand them, are all bicycles and tricycles which carried motors, and it is alleged we broke the understanding of having only twenty-five. It is said we had more than that.

Mr. Justice Byrne: Those were motors?

Mr. Terrell: Yes; we say we only had eighteen. That is our case on that part of the case.

Now as to tires. Tires are parts of bicycles and tricycles, are not they?—Yes.

They are not accessories in the sense of being something which is added to it; but they are part of the thing itself?—You cannot ride a bicycle without a tire.

Quite so; you cannot ride a bicycle without a bicycle?—No.

They are parts of the bicycle—part of the instrument itself?—A part, or an accessory.

A lamp is an accessory?—Yes.

It is not part of a bicycle?—A lamp would be an accessory.

And not a part of the bicycle? A spanner is an accessory, and not a part of the bicycle?—Yes.

There are numbers of other things—cases for putting the bicycles in, stands for holding them, tools for cleaning them and for using them, which are all accessories, but not parts of the bicycle—and pumps?—Yes.

And cyclometers?—Yes.

Could not these tires exhibited by the North British Rubber Company have been used for motor-bicycles or tricycles?—They were not of the right size.

Could not they have been used for motor-bicycles or tricycles?—No; not at that time.

Can they now?—I believe you can take an ordinary bicycle off the street and have a motor attached to it.

Would these tires be useful for the purpose of making a motor bicycle or tricycle or a quadricycle?—Certainly not a quadricycle.

Well, a tricycle with a motor to it. Are you prepared to pledge yourself that they are things quite outside the possibility of being used for motor-tricycles?—I should say certainly they were outside.

What diameter were these sample cycle tires?—I cannot give you that.

Cannot you remember enough about it to know the diameter?—It was not marked.

But about—was it 28 inches?—I do not know.

How can you say they were not capable of being used for a motor-bicycle?—As far as my knowledge of a motor-bicycle goes they are not used for motor-bicycles at all.

Is your knowledge of motor-bicycles limited?—I daresay it is. It is. I am not an expert.

With regard to the bicycle front fork which you complain of, could not that have been put on to a motor-bicycle perfectly well. The front fork is nothing to do with the motor?—But it is wider than the ordinary bicycle.

Not always. I thought you said they were applied to motor ordinary bicycles.—I am speaking of that time. They do now do so.

The weight of a motor is on the back wheel principally?—Yes.

And being on the back wheel the fork which will do for an ordinary bicycle would do for a motor-bicycle, would not it?—No, they have larger tires.

You have said "At that time." Now ordinary bicycles can be fitted with motors?—I understand so.

At that time they could not?—Not that I am aware of.

So at the time, of all times material to this action, a thing that was to be used as a motor bicycle had to be specially constructed from beginning to end as a motor-bicycle?—Yes, I should think so practically.

And having been so constructed it would be no good as an ordinary bicycle?—Yes, it would if you had got pedals—if the motor breaks down you must use the pedals.

And if you start you must use the pedals?—Yes.

Would you like to go on a long ride with a motor of that sort, using your pedals?—No, I should not.

Turn to the catalogue of these things, page 55. Do you see the North British Rubber Company. That is the description of their exhibit, "Clincher motor pneumatic tires for tricycles, light and heavy motors"?—Yes.

Is that the exhibit you are complaining of?—No, it is not.

Which is the exhibit you are complaining of?—It may not be in this description.

Is it there—never mind about "may be"?—I should say it is the Clincher wired-on tire.

Then it is there?—Yes, I should say so.

You see that it first of all deals with motor pneumatic tires for tricycles, Clincher solid tires for carriages, Clincher wired-on tires. The object of the exhibit, "Clincher wired-on tires," was to show how the wires were applied, was not it?—In the exhibit do you mean?

Yes. Have you ever heard of the Welch pattern?—Yes.

There was a good contest about the wiring on of tires for some long time?—Yes.

Was not this exhibit for the purpose of showing how they were wired

on?—This exhibit is for the purpose of showing they sold ordinary cycle tires.

Was not it for the purpose of showing how the wiring was done?—That is my construction of the exhibit of the tires there.

You see it is described as "Clincher wired-on tires," merely?—Yes.

A wired-on tire is wanted for a motor as well as for anything that uses pneumatic tires?—But these were not motor tires.

Just look at page 57, "Eadie Manufacturing Company." You are complaining of them now. Which of these on Stand No. 39 are the ones that you complain of?—I do not see it in the description.

You will see everywhere throughout the description so far as the catalogue is concerned, he uses the word "motor"?—Still on the other hand it does not follow that he was not exhibiting the other.

You see that?—Yes.

You say it is over and above what was in the catalogue?—Yes.

It was something that Mr. Cordingley had not had printed in the catalogue?—Yes.

Do not you think, seeing it was not in the catalogue, if you were going to complain of it, it would have been fair to have told Mr. Cordingley—"Look here, there is something being exhibited on this stand which is not in the catalogue, and we object to it"?—No, I was not there to protect Mr. Cordingley's interest.

But you were there to protect your own?—Yes.

You did not want to catch Mr. Cordingley in a trap. You wanted really to see that nothing was done which was unfair to you?—He must have known he was showing accessories.

You suggest that he must have known that these things were there. The only few things that you can find and complain of, and as regards two of them you cannot show them in the catalogue?—Many exhibitors exhibit goods on their stalls without putting them in the catalogue.

And without anybody knowing anything about it sometimes.

Mr. Justice Byrne: I notice the word "etc." in that part of the catalogue.

Mr. Terrell: Yes, but it begins always "Eadie Motor." The point is this, that in the catalogue they put it all as being motor. I am not suggesting that we did not exhibit accessories for motor-cycles. If we are wrong with that, we are wrong altogether. I only say that these two or three instances which they are tacking on to the case had no foundation.

Do your answers with regard to the Eadie Manufacturing Company's exhibits apply also to the Radax—these three simple cycle tires on rims?—You mean the same as the North British Rubber?

Yes?—Yes, just the same.

Re-examined by Mr. LEVETT.

Just tell me exactly, taking No. 35, the North British Rubber Company, Limited, twelve sample cycle tires, why do you say they are not accessories for motor-cars?—A motor-car tire is two or three times the size and weight of an ordinary cycle tire.

Why do you say they are not accessories of motor cycles?—Some-what the same reasons, because motor-cycle tires are larger and of a heavier calibre.

At that time had you ever seen a motor-cycle with a tire as small as these?—I had not.

Passing on to No. 39, the Eadie Manufacturing Company, Limited, bicycle front fork you gave us?—Yes.

Tell my Lord why you say that would not do for a motor-cycle?—It is not large enough or heavy enough.

Passing to the Radax, why would not those tires do for motor-cycles?—For the same reason as the North British Rubber Company's—they are not heavy enough or large enough for the rim.

Mr. Levett: We have another witness, my Lord, but after the admission made by Mr. Terrell we need not call him to prove it again.

(To be continued.)

MOTOR-CARS AT THE MANCHESTER CYCLE SHOW.

AT the fifth annual Manchester Cycle Show, which opened in the St. James Hall on Thursday last week, a good display of motor-cars is to be seen. The exhibition was opened, in the presence of a large number of visitors, by Mr. Alderman Rudman, Mayor of Salford, who, appropriately enough, was driven to the hall on a Marshall motor-car. Messrs. Marshall and Co., Clayton, Manchester, show two of their latest 6 h.p. cars, one with a *tonneau* and the other with a dogcart body; a Renault motor-tricycle is also staged. Mr. William Lea, Birkenhead, has a large collection of cars, including several English-made Benz cars and a Decauville. Mr. Johnson exhibits a Déchamps car. The Imperial Autocar Company, Hulme, Manchester, show two well-finished cars of their own design. Both are driven by water-cooled vertical engines, 6 h.p. and 3 h.p. respectively, and placed in the front. The larger car has three speeds, while the smaller is fitted with two. The Manchester Motor-car Corporation have a big display of cars, including the Allard four-seated dog-cart, with 5 h.p. engine in front, Argyle light car, with 2½ h.p. engine, Benz car, and a very fine-looking Motor Manufacturing Company's 6 h.p. Panhard phaeton. The Locomobile Company of America make a big display of their well-known steam cars. Messrs. Bennett and Carlisle, Limited, Exchange Arcade, Manchester, have a Progress voiturette and a Locomobile steam car on their stand. Messrs. Newton and Company, Blackfriars Street, Manchester, have on view one of the latest pattern De Dion 4½ h.p. voiturettes with the new *tonneau* body. The New Century Company show one of their Century motor-tandems. Other

exhibitors of motor-vehicles include Messrs. R. M. Wright, of Lincoln. Messrs. Jennings and Company, Deansgate, Manchester, show a Singer motor-bicycle, which is attracting considerable attention. An "Excelsior" motor-bicycle is to be seen on the stand of the Bracegirdle Cycle Company, Mercury Cycle Works, Manchester. The Riley Cycle Company, Ltd., Coventry, have on view an example of their motor-tricycles and quads. Brampton's motor chains are shown by Mr. C. E. Skinner, while Mr. Hans Renold also shows samples of his power-transmitters. Motor-car and cycle tires are shown by the North British Rubber Company, Ltd., the Swain Patents Syndicate, Ltd., the Radax Pneumatic Tyre Company, Ltd., and the Challiner and Willoughby Carriage Tyre Company, Ltd.

THE RECENT TRIALS OF ELECTRICAL CARS.

THE report of the judges in the trials of vehicles propelled by electricity, held at Chislehurst from November 6th to November 9th, 1900, has just been issued and deals in a very lucid way with the origin and carrying out of the events. Then follow the following general criticisms of the performances of the following cars:—

1. The "Powerful," Krieger car for two persons, with Leecoll batteries, sixty cells and Postol-Vinay motor.

8. A Joel car to carry two persons, with Rosenthal battery and Joel motor.

11. An Electric Motive Company's car to seat four, with the Company's batteries and 4-pole enclosed series motor.

12. A Still Motor Company's car for four persons, with Ideal battery and Still Motor Company's Motor.

13. A car for three or four persons, with Leitner battery and Lundell motor.

WEIGHT OF CARS AND BATTERIES.—Car No. 1 weighed 48½ cwt., being designed for long distance runs, and carrying 29½ cwt. of cells. Next in weight came Car No. 11, 30½ cwt., with 12½ cwt. of cells, next Car No. 13, weighing 26½ cwt., with* 9½ cwt. of cells, the highest car being No. 12, 18½ cwt., with 6½ cwt. of cells.

DISTANCE TRIALS.—The first and last days' runs were arranged so as to give the heavier cars an opportunity of showing what they could do, the trials on each occasion being for an unlimited distance, the driver to declare to the observer when the run was to be considered as finished. The distances run in these tests are given in the Table, and also the units per mile run. The latter figure, however, has been omitted in the case of the first day's run because it was impossible to ascertain how much the batteries contained on starting out. Efforts were made to obtain a record of the current output during the run, but the results were considered unreliable, and have consequently been disregarded. It is no doubt of value in an electrically driven car that the speed should be capable of reduction on heavy grades, so as to relieve the battery as much as possible from large overloads. Efforts were made during the tests to ascertain the current taken by the different cars on certain grades. Such observations are only of value if the corresponding speeds are taken, and this it was so difficult to do that the current readings have not been published.

TRIALS OVER LIMITED DISTANCES.—The runs on the second and third days were for limited distances on one charge, namely, on the second day 29½ miles, and on the third day 29½ miles. Cars No. 11, 12, and 13 completed 21½ miles on the second day, and the whole distance on the third day. Car No. 1 completed 24½ miles on the second day and could have run the whole distance but for an accident to one of the cells. On the third day it completed the whole distance.

BATTERIES.—The batteries used were of different types. That driving car No. 1 was peculiar in many respects, the time required to charge being remarkably short. This is a feature of importance. On the other hand, the judges have had no opportunity of ascertaining what loss these or any of the cells show during an interval between charging and discharging. Certain battery renewals were rendered necessary by the excessive current taken on the hills, and might no doubt have been avoided by a better system of control. The arrangements for coupling up the cells were extremely bad in some of the cars, and could hardly fail to cause trouble on a long run. Besides the renewals of the cells above referred to, several small failures of parts were noted.

RECUPEATION.—Much had been expected from recuperation, whereby the motors act as generators in descending a hill and return current into the battery. The experience of the observers, however, was unanimously to the effect that this action really amounted to very little in practice. Considerable current was no doubt returned, but for such short intervals of time that the saving of energy was practically nil. An indirect advantage of recuperation may perhaps be found in the case of those batteries which tend to become polarised. In such cases a return current no doubt has a beneficial effect in depolarising the plates.

PASSENGER ACCOMMODATION.—Some of the cars which ran were capable of carrying four passengers, or three with the driver, but car No. 12 was the only one which actually did so. In a few instances one or more of the passengers had to dismount on the hills.

COST OF RUNNING.—The cost of running so far as current is concerned may be arrived at by reference to the Table, where the number of units per mile run is given. The price paid for current at different stations varies from 2d. to 8d. per unit. The judges are of the opinion that the weight of the respective cars should not be credited to them in forming an opinion of their merits and they have therefore not given any figures showing the units of electrical energy used per ton-mile. They consider that the number of units per mile run is a fairer estimate of the capability of the cars, since the heavy cars had ample opportunity

of showing what they could do on the runs of unlimited distance. The judges have, however, refrained from attempting to class the cars in order of merit and have confined their efforts to stating, in a way easily accessible for reference, the actual observations made during the trials, believing that this course would be the most serviceable. They wish, however, to call attention to the excellent record made by car No. 12. This car weighed only 18½ cwt. with 7 cwt. of battery, and while carrying four persons made a high average speed on all the trials and the highest speed in ascending Knockholt hill.

The following table summarises the performances of the cars during the tests:—

No. of Car	1	8	10	11	12	13
No. of passengers carried	2	2	2	2	4	2
Weight of car including passengers	48½ cwt.	19 cwt.	not taken.	30½ cwt.	18½ cwt.	26½ cwt.
Weight of battery in lbs.	3,300	846	1,320	1,416	756	1,042
Ratio weight of battery to total weight	·6	·4	—	·414	·365	·3
Normal voltage	150	33	74	61·5	80	86
<i>Tuesday's run, miles</i>	59	36½	17	33	23	33½
Average speed, miles per hour	10·92	7·35	—	8·25	12	7·5
Open circuit volts, beginning	158	33	—	60	Not given.	86
Open circuit volts, end of run	128	30	—	45	„	71
Tuesday night's charge, units	63·4	20·9	—	26·9	11·6	16·5
<i>Wednesday's run, miles</i>	24½	—	—	21½	21½	21½
Average speed, miles per hour	12	—	—	8·8	11·25	8·5
Average speed, up Knockholt do.	8·34	—	—	6·52	9·66	5·78
Open circuit volts, beginning	156	—	—	61·5	Not given.	Not given.
Open circuit volts, end of run	—	—	—	59·3	Not given.	Not given.
Units per mile run, based on previous night's charge	2·59	—	—	1·235	·533	·757
Wednesday night's charge, units	59·7	—	—	19·9	9·0	14·1
<i>Thursday's run, mile</i>	29½	—	—	29½	29½	29½
Average speed, miles per hour	12	—	—	8·3	8·68	7·63
Open circuit volts, beginning	158	—	—	60	Not given.	86
Open circuit volts, end of run	—	—	—	48	—	80
Units per mile, based on previous night's charge	2·04	—	—	·682	·308	·482
Thursday night's charge, units	51·8	—	—	19·8	8·6	14·8
<i>Friday's run, miles</i>	60	—	—	14½	117	35½
Average speed, miles per hour	9·8	—	—	7·2	11·3	7·4
Open circuit volts, beginning	153	—	—	60	Not	86·5
Open circuit volts, end of run	100	—	—	55	given.	54·5
Units per mile, based on previous night's charge	·865	—	—	1·34	·505	·414
Total mileage for four runs	172½	36½†	—	98½	91	120½
Average speed, miles per hour	10·97	7·35	—	8·22	10·75	7·66
Best day's run, miles	60	36½	—	33	29·25	35·75
Miles per cwt. of car	1·242	1·93	—	1·09	1·58	1·36

† Ball-bearing on motor-shaft broke, preventing longer run.

‡ One run only.

NOTE.—No speeds in excess of twelve miles an hour are recognised or entered.

ONE HUNDRED AND NINETEEN electric conveyances now ply for hire in Chicago.

THE *Liverpool Mercury* is one of the latest dailies to start a column of motor notes.

THE next house dinner of the Automobile Club will be held on March 13th. A paper on "Some Automobile Experiences" is to be read the same evening.

THE Motor-Car Journal.

VOL. II.]

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COMMENTS.



IT was, of course, not to be expected that the decision of the Roads and Bridges Committee of the East Suffolk County Council with regard to the legal speed permitted to motor-cars would meet with universal approval. During the past week a number of letters have appeared in the Ipswich papers on the subject. Mr. James Keith, of Capel Hall, Trimley, was early in the field with a letter in which he expressed the opinion that "we shall soon have these vehicles running on our roads as fast, or faster, than railway trains. I can plainly see that those of us who pay mostly all the rates will have to give up the roads to others who only find these rapid machines and paint and oil for them." Mr. W.

T. Pretty, the well-known motorist, of Ipswich, lost no time in replying to Mr. Keith, to whom he points out that the views of the members of the East Suffolk County Council were much the same as his (Mr. Keith's) until they had obtained a certain amount of information about motor-cars and experienced the safety of automobile locomotion. Feeling that Mr. Keith's prejudice on this question is mainly through lack of information thereon, he has offered to practically demonstrate to him the possibilities of a motor-car of to-day. We hope Mr. Keith will accept the offer.

Motor-Car Service at Southampton.

AT the last meeting of the Southampton Borough Council the Watch Committee reported that they had received an application from Mr. F. H. Compton for permission to run motor-cars in Southampton and district as public conveyances, and applying for the necessary carriage licences accordingly. The Committee did not recommend the Council to comply with the application. No doubt this was due to the fact that the Corporation is contemplating its own motor-car service, for the Town Clerk of Southampton is at present inviting tenders for the supply of three motor-omnibuses, each with portable top covers, and capable of accommodating twelve persons.

The Nottingham and District Automobile Club.

A GENERAL meeting of the members of this club took place on Friday evening of last week at the head-quarters, the Black Boy Hotel, Nottingham, when Mr. Percy Richardson gave a most interesting and instructive address on "The Daimler System." The chair was taken by Mr. E. W. Wells (vice-president), and there were present, amongst others, Messrs. G. H. Kirk, G. Cowen, S. Harvey, C. Duly (Bulawayo), W. H. Warburton (Leicester), Gilbert (Lincoln), R. Harbidge, M. Ross Browne, R. Cripps, P. Huskinson, G. Rimington, H. Rimington, and A. R. Atkey (hon. secretary). Mr. Wells, in introducing Mr. Richardson, thanked that gentleman on behalf of his fellow members for his kindness and courtesy in coming down from London specially to address the Club. Mr. Richardson, who was

cordially received, then went very fully into the details of the Daimler system, his remarks being rendered very lucid and interesting by means of a full-size working model of a 6 h.p. engine, which he had specially brought from London for the purpose of the lecture. Questions and a full discussion followed, the meeting concluding with a very hearty vote of thanks to Mr. Richardson.

Motor-Cars in France.

MR. E. S. CHEEL, in the course of a letter from Paris, remarks that in driving a 6 h.p. Panhard car last Sunday afternoon from the Arc de Triumphe to Versailles and back *via* the Bois de Boulogne, he counted no less than 230 motor-vehicles, most of them being splendidly equipped cars in every respect. Mr. Cheel adds, "It is a noticeable fact that most of the tricycles and quadricycles are fitted with water-cooled engines and radiators. Not a single specimen of the motor-bicycle was to be seen. When are our people going to show the same enthusiasm? Fancy seeing 200 or more cars in Hyde Park on a fine afternoon, and yet it ought to be, and will surely come before long."

The Projected Irish Automobile Tour.

THOSE members of the Automobile Club who are in favour of the projected automobile tour in Ireland will be glad to learn that at a meeting of the Waterford County Council, Captain Coughlan, J.P., proposed, and Mr. Y. J. Usher, J.P., Co. High Sheriff, seconded, the following resolution: "Resolved, that we fully endorse the views contained in Mr. R. J. McCreedy's letter, and also cordially approve of the observations made by Alderman W. G. D. Goff at the recent meeting of the Automobile Club of Great Britain and Ireland; and we sincerely trust that the Club may visit Waterford and enjoy the delightful scenery of our beautiful County; and we promise that as far as in us lies the well-known good qualities of our County roads will be fully maintained during the approaching touring season." The resolution was adopted unanimously.

The Value of Races.

IT is idle to question the value of races for stimulating improvement in construction, and there are few of us who do not turn with some interest to the columns of racing news at this time of year, whatever pious horror we may express in public at the idea of "scorching" on our own roads. Once again the honours have fallen to the 24 h.p. Panhard, which was unfortunately not faced by any bigger competitor. Curiosity regarding the possible performance of larger speed monsters is, consequently, still unsatisfied, and the problem of how much bigger an engine it is possible to carry on pneumatics at racing speed is no nearer solution. Even if races only encouraged the production of durable tires they would be well worth holding, for, admitting that the racing car is neither comfortable nor useful for any other purpose, the qualities of its tires are the same as those demanded for the touring vehicle. And the admission is

THE GENERAL AUTOMOBILE AGENCY, D. Farman, Man., Garage open day and night, all cars in stock, 100-104, Long Acre, W.C.

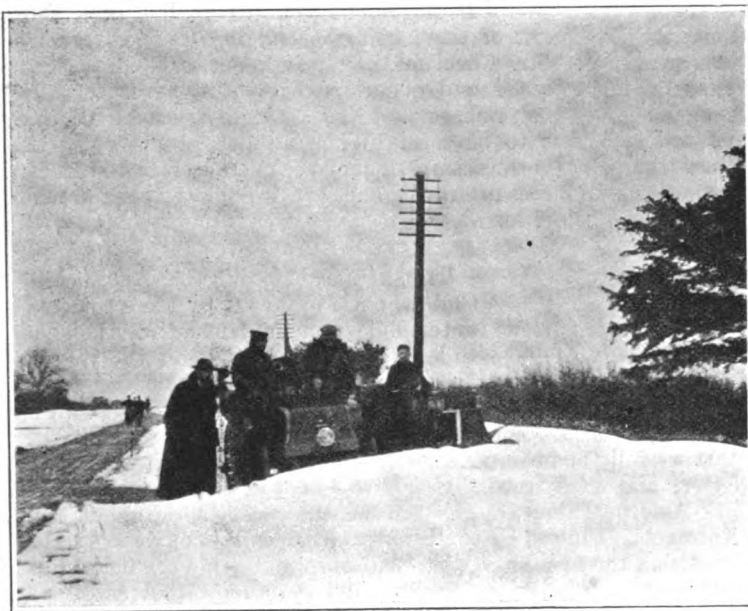
one it would be rash to make; for though the error of too light construction may be encouraged to some extent by racing, it is an error that brings its own detection and punishment, which is not the case with the opposite practice, to which many builders have been so liable.

Why not an "Autodrome."

It is to be hoped that the idea of establishing an automobile racecourse, suggested some time ago, will not be dropped. It is too much to expect that road racing will ever be permitted in this country, even if it were desirable; and the difficulties of keeping a clear course for it assert themselves more or less in every French race; and though there might be a diminution of interest for the drivers in being confined to a small circle of route, there would be much more for spectators to see. Many questions would of course arise regarding the possible dimensions and situation of such a racecourse, and some public-spirited land-owner might do much to solve them; but the idea is one worth consideration in the interests of British automobilism.

Motoring in the Snow.

MR. G. D. BARNES, in his account of the recent run to Farnham in our issue of the 16th ult., referred to the many snow drifts encountered on the trip, and to the fact that a number of photos were taken of the cars amid most wintry surroundings on the Hog's Back. By the kindness of Mr Von Laer,



IN THE SNOW ON THE HOG'S BACK.

who also took part in the run on his 6 h.p. Panhard, we are this week able to reproduce one of the many interesting photos taken on the occasion.

The Wolseley Voiturette.

In our issue of September 8th, 1899, we mentioned the fact that the extensive works of the late firm of Starley and Westwood, of Adderley Park, Birmingham, had been acquired for the Liquid Fuel Co. The negotiations then in progress collapsed, and until recently the works have been idle. Now, however, they have been taken possession of by the Wolseley Tool and Motor Car Co., Ltd., of which company Mr. H. Austin is the manager. The extent of the new works may be gauged from the fact that they cover an area of about $3\frac{1}{2}$ acres, the dimensions of the main shop being no less than 300 ft. by 209 ft. The object of the new company is primarily to manufacture the Wolseley voiturette, which vehicle, it will be remembered, was so successful in the 1,000-mile trial of last year. Since then orders for cars have poured in to the old company, which they

were unable to supply in sufficient numbers, but with the facilities at the new company's command, and under the able management of Mr. Austin, this state of affairs will soon be altered. The new company has a well tried and popular machine and should be successful.

The Edinburgh Motor-Car Service.

WITH reference to our Comment of last week regarding the Edinburgh Auto-car Company, Mr. Norman D. Macdonald writes us that there has not been any disagreement amongst the directors; and that Mr. T. Roland Outhwaite is still a director, although for some time past he has ceased to be the manager, Mr. Brakenridge now occupying that position. There was a little friction among the men for a few days through the introduction of some new regulations, but as soon as the men met the directors all was amicably arranged, the cars being once more in operation.

A Protest.

ON Tuesday last, before proceeding to Sheen House, we had the privilege of driving two Chief Constables round the Park and while travelling between the Marble Arch and Hyde Park on fourth speed—this specially at the request of our passengers—we heard the sound of a motor horn, and a four-cylindrical car with an unfinished body on dashed by at a speed of probably twenty-five miles an hour. The car was in charge of a *mécanicien* and the pace it was travelling amounted to furious driving. Bearing in mind the locality, we consider the driver should be spoken to by the manufacturers whose car he was driving.

The Automobile Club for Glasgow.

ABOUT a month ago a number of gentlemen met to consider the formation of an automobile club for Glasgow. They remitted to a committee to determine whether the proposed club should become allied to the existing Scottish Automobile Club, or become a distinct association. The committee called the supporters together again on Friday last week in Glasgow, and unanimously recommended the former course. Mr. J. R. Nisbet again presided, and from his report it appeared that the committee had met Mr. Norman Macdonald and Dr. Dawson Turner, representatives of the S.A.C., and these gentlemen had agreed on behalf of their Club to reconstitute it so as to embrace the Clubs that were being promoted in Aberdeen and Glasgow. Mr. Norman Macdonald and Mr. J. R. Nisbet were therefore asked to wait upon the Automobile Club and make certain overtures respecting representation of the Scottish Automobile Club upon the council of the parent body, with the result that the standing committee of the A.C.G.B.I. have placed upon their agenda for the acceptance of the Club certain new rules, which provide "that the Scottish Automobile Club shall have three sections, viz.: (i.) Eastern section, having its centre at Edinburgh; (ii.) Northern section, having its centre at Aberdeen; (iii.) Western section, having its centre at Glasgow. The local work of the sections to be controlled by local committees; the local committees to be represented on the general committee of the S.A.C., which shall deal with automobile matters affecting Scotland as a whole. The president and a vice-president, or two vice-presidents, of the S.A.C. and two delegates elected by each section of the S.A.C. shall become members of the general council of the A.C.G.B.I." The meeting unanimously agreed to the recommendation, and reappointed the committee to meet the committee of the S.A.C. with a view to reconstruct its constitution accordingly. When this has been done another general meeting will be convened, and on the adoption of the revised constitution the western section of the Scottish Automobile Club will become an accomplished fact.

Trade Matters.

WITH the approach of spring, matters in motor-car circles are beginning to move with rapidity, and it appears that fresh *garages* are about to be opened in several parts of London. One which has just been opened is that of the General Automobile Agency, in Long Acre, W.C. It consists of an immense

ground floor and basement, rivalling in size almost the *garage* of Charron's, in France. This will be open day and night, for the purpose of repairs, storage, etc., and is under the management of Mr. D. Farman. Another show room for the sale of American electric vehicles has been opened off Regent Street, and yet another, we hear, will be shortly opened off Oxford Street. In the meantime, manufacturers and agents report trade as being exceedingly brisk, and all are hopeful that the coming spring will see a material development of the motor-car industry.

The Motor-Vehicle Users' Defence Association.

THE committee of the Motor Vehicle Users' Defence Association has just issued its report for 1900. A schedule of cases selected from a large number is given, from which it is seen that the association has rendered valuable service to members who claimed its assistance. The working organisation of the association runs smoothly, and the committee carefully consider on its merits and properly deal with every case brought before them by members; and, moreover, advice is given on all matters which come within the scope of the objects for which the association was formed. In order to increase the membership of the association, a scheme has been proposed whereby the administration and duties of the association shall be transferred to the Motor Union about to be formed by the Automobile Club of Great Britain and Ireland. Should this scheme be approved, the members of this association will be called together to approve and pass the scheme. During the year the association made awards to members out of the Defence Fund to the extent of £46 10s. towards costs in respect of claims, etc.

"Punch" and Motor-Cars.

SKETCHES in which the motor-car plays a prominent part appear to have become a regular feature of *Punch*. Last week's issue of our contemporary contained a sketch of two prominent members of Parliament seated in an accurately-drawn motor-car, although of a somewhat old fashioned type, threading their way amid a variety of obstacles in the shape of progressive legislation. They doubt whether they can get through at all. In the current issue "The Joys of Motoring" form the topic of the automobile sketch, a motorist being seen lying on his back under the car "tightening up a nut or something."

The Question of Novelty.

"THERE is no new thing under the sun," said the Wise King; but motors and the Maybach patent were not dreamt of in his philosophy. If the account of a scientific contemporary is to be relied on, it would be difficult to deny the merit of novelty to the latest American production in the automobile line. The vehicle in question, which hails from the State of Maine, is described as having a 20 h.p. explosion engine, and weighing 1,200 lb.; but the axles of the wheels are parallel to the length of the car, and the "wheels" themselves consist of two hollow steel bolsters, 10 ft. by 2 ft. Each has a spiral skate-blade enwrapping it in the form of a right and left hand thread, while the front support of the car is a runner like that of an ice-yacht. The engine rotates the spiral bolsters in opposite directions, and is thus supposed to screw itself along. We are informed that the best pitch for the spirals was a problem to the inventor, until he thought of carrying two sets, one for level and one for hill work. The car is intended for running on ice or frozen snow; it can run on land we are told, "but the friction is greater." So we should suppose!

A Demonstration at Chelmsford.

THE committee of the Automobile Club of Great Britain and Ireland arranged a demonstration of motor-cars at Chelmsford on Tuesday last week, to which they invited the Highways Committee and other members of the Essex County Council, but these gentlemen for some reason did not avail them-

selves of the opportunity. Those motorists who were good enough to face the dreadful weather were, however, rewarded by the presence of an interested gathering of inhabitants of Chelmsford, including many prominent persons, who had some enjoyable experiences with the cars. The High Sheriff of Essex and representative of Chelmsford on the Essex County Council, Mr. Henry Collings Wells, J.P., D.L., was induced to take a trip in Mr. Edge's 16 h.p. Napier, and this car was made the leader of a triumphal procession of all the cars to Broomfield Lodge, where Mrs. Wells viewed the carriages, and where the High Sheriff generously dispensed hospitality. So pleased was Mr. Wells with the ease and comfort of the car he rode in, that he volunteered to accompany the party on a call on Mr. Henry Marriage, J.P., C.C., whose name is well known to automobilists throughout the country on account of his speeches concerning them at the Essex County Council; but Mr. Marriage was not at home. The snow on the ground made travelling heavy, but some ten or a dozen cars nevertheless appeared at the trysting place, and their owners and mechanics were generously entertained to luncheon at the New Arc Works by Col. R. E. Crompton, and afterwards shown over the works by him. The cars, in addition to the Napier already mentioned, were a 7 h. p. M.M.C.'s Panhard, driven by Mr. John H. Gretton; a Locomobile driven by Mr. Griffin; a De Dion voiturette, by Mr. G. F. Usborn; a Benz car, by Mr.



THE RECENT TRIALS AT LIVERPOOL—MESSRS. C. JARROTT ON THE 4½ H.P. DE DION VOITURETTE, AND MR. CECIL EDGE ON THE 2½ H.P. WATER-COOLED FREE-CLUTCH TRICYCLE.

Photo by [illegible]

[illegible]

J. H. Rosling; another Benz, by Mr. A. Rosling; Mr. W. L. T. Arkwright's De Dion voiturette; Mr. Wellington's 6 h.p. Panhard; etc. Fog in and about London prevented other cars from reaching Chelmsford in time. Other automobilists present were the Hon. C. S. Rolls, Colonel Crompton, Mr. Claude Crompton, Mr. Julius Harvey, Mr. W. T. Pretty, and Mr. Shrapnell Smith. Mr. E. A. Rosenheim acted as hon. secretary locally and made all the arrangements for the demonstration, which has proved to the local inhabitants that the up-to-date motor-car is not so black as it is painted by certain County Councillors.

Motor-cars, Past and Present.

THE same evening Mr. E. Shrapnell Smith gave a lecture at the Chelmsford Corn Exchange on "Motor-cars, past and present," Mr. R. E. Crompton being in the chair. The lecturer dealt with the subject very exhaustively, his remarks being illustrated with lantern slides. At the close of the lecture Major Rasch, M.P., moved a vote of thanks to the chairman and the lecturer. He expressed his personal pleasure that Mr. Crompton was a member of the committee appointed by the War Office to report on the question of motor-traction, and he wished that there were more men of business like him on the civil side of the War Office instead of "the old women who wasted the

money of the ratepayers." He also thought there was a feeling against motor-cars by people who had not been sufficiently instructed about them; but to motorists he said: "Don't come round corners at 40 miles an hour; pull up if a horse is kicking about; and remember that people who don't ride motor-cars are, after all, human creatures." The Hon. C. S. Rolls seconded the proposal, and spoke of the "grandmotherly legislation" in England affecting automobilism. Mr. Crompton, in acknowledging the vote of thanks, alluded to the cruelty inseparable from the use of oxen and horses for military transport purposes. He asked the people to be tolerant with those who were developing the new class of traffic until it was perfected. The noise and smell and the frightening of horses were merely temporary. Halve the omnibuses in London, and the noise, smell, and dirt of the streets would be halved. Mr. Shrapnell Smith, replying, said the real automobilist detested the class of car driver referred to by Major Rasch just as much as the driver of the horse did. Her late Majesty the Queen had set an excellent example by having all her horses trained to motor-cars, and he would suggest that no County Councillors who sought to put a millstone round the neck of the coming industry should be re-elected at the forthcoming elections.

Accumulator Charging.

A SMALL inconvenience that troubles the automobilist in country districts is periodical charging of accumulators for ignition purposes. In the early days—no further back than 1896—Daniell cells were sometimes used instead of accumulators, but their messiness and bulk was an objection, though at that time only two were employed, while with modern coils four would be necessary. The usual charge—pecuniary, that is to say—for the supply of current for this purpose, amounts to from 12 to 18 shillings per horse-power-hour at electric light stations, and even this is not always considered to compensate for the trouble of attending to them. The inevitable waste when a few accumulators are charged from a 100 or more volt circuit through the needful resistance is, of course, partly accountable for this; and it would be worth while for motor agents to consider the advisability of setting up small installations specially adapted for charging a few cells. Country users who doubt their inability to manage such an installation have the alternative of fitting a small dynamo on the car to keep the cells charged, or of charging them by means of a battery; the former, though rather a rough-and-ready method, as the charging current must vary with the engine speed, and must only be switched on when running at a sufficient rate, has been found satisfactory by several automobilists; and the latter, though somewhat messy, has the advantage that there is little risk of injuring the accumulators by inadvertence. Various batteries are sold for this purpose with fancy names and—sometimes—prices; but they usually consist of double-fluid chromic cells, which are on the whole the most satisfactory where a primary battery is required.

The Absent-Minded Automobilist.

NOTWITHSTANDING the value of automobilism in stimulating the observational and ratiocinative faculties of its votaries, they are sometimes liable to lapses of memory. What tricyclist has not at one time or another tried to start without putting in the switch-plug? It is an advantage of lamp ignition that we have never seen brought forward by its defenders, that no one has hitherto tried to start their car without lighting the lamps. An amateur statistician recently informed us that "at a moderate computation" (the usual formula preceding an astonishing statement), £200 worth of nuts, split-pins, etc., were annually deposited on the roads by the motorists of the United Kingdom. He took no account, however, of the spanners, etc., left there after making adjustments, and it is certainly convenient to have the receptacle for such fitted so that each tool has its appointed place. It will be some time before last year's record of an entire Pennington car forgotten at a railway station and sold with other unclaimed property is beaten. The back panel of—apparently—a De Dion voiturette, however, was found near Ripley a few

days ago, left there, presumably, after making some adjustment; and for the benefit of its owner we may add that it awaits him at Mr. Ostler's motor dépôt in Guildford.

An Irish Incident.

A CERTAIN young gentleman, who is the owner of a motor-tricycle and trailing car, and who is notorious for travelling through the streets of Dublin at excessive speeds, was recently motoring down one of the principal thoroughfares of the suburbs of Dublin, namely, Rathmines Road, without a passenger in the trailer. A constable stepped out from the pavement when the said gentleman was within some fifty or sixty yards of him, put up his hand and motioned him to stop. The constable, who, by the way, was a "Fine Broth of a Boy," standing some 6ft. 3½in. in his stocking feet, said, in the richest of brogues, "Now, my foine young jintleman, you can't be racing through the streets at thirty miles an hour, frightening ladies, children, and horses." The motorist stated that he was not going at a pace which exceeded the legal limit (which in Ireland is six miles an hour within the Dublin Metropolitan Police district), but the constable insisted that he must have the motorist's name and address, which, when given, showed that the offender belonged to Her Majesty's forces. The Constable seemed rather taken aback and was all apologies, and, calling the motorist by his rank, stated that he was very sorry to have stopped him, but he would have to be very careful for the future. The motorist in his turn insisted that the constable should report the matter, and that if he did not he would report the constable for having stopped him without any cause. Further, he (the motorist) was of opinion that the constable had no idea as to what speed he was travelling, and the best thing the constable could do was to get into the trailer to see how fast the motor could go. At first the constable refused, but the persuasive powers of the motorist prevailed, and the two went careering along at something like fourteen miles an hour, to the great surprise of the constable and to the delight of the passers-by at seeing a "Limb of the Law" being towed along in a trailer, the experience being funny in the extreme. But where the joke comes in was when they arrived at the Phoenix Park, which was some five miles from the starting point, the motorist politely asking the constable to get out as he had a call to make, and when he went away he unfortunately forgot to come back. What happened to the constable after we cannot say, but we fancy that he returned to his beat a sadder and, perhaps, a wiser man.

Motor-Car Service in Cheshire.

AT the last meeting of the Chester Town Council, a letter was read from Messrs. Watson and Company, cycle and motor-car manufacturers, Falkner Street, Liverpool, announcing their intention, subject to receiving the consent of the Corporation, of running a motor-car service between Chester and Farndon. The applicants stated that the Cheshire County Council offered no objection to the service, and they would be glad to know whether the Cheshire Town Council had any objection to offer. The letter was remitted to the Improvements Committee for consideration. Farndon, which is 8½ miles from Chester, and the adjacent village or township of Holt, are very prettily situated on the banks of the River Dee, and are a great resort for visitors in the summer months. There has, however, always been a difficulty to get there or back, there being no railway station handier than Chester. The only means of conveyance is by bus, which takes nearly two hours to do the 8½ miles journey. There is a fairly large traffic between Farndon and Chester all the year round, but Messrs. Watson anticipate creating a big traffic owing to the quick and pleasant mode of travelling afforded by motor-cars which will easily do the journey under the hour. The projected service will undoubtedly be a great boon to Farndon and district, and should be the means of opening up the place considerably. Messrs. Watson have six Daimler wagonettes for the service, but they do not expect to require more than two or three to start with. They hope to be in a position to inaugurate the service on Saturday next, the 9th inst.

CHIEF CONSTABLES AND MOTOR-CARS.

THE Chief Constables of Counties were some time ago invited by the Automobile Club of Great Britain and Ireland to attend at the club on Tuesday last, the 26th ult., in order that they might have drives in motor-vehicles belonging to members of the Club, and thus obtain personal knowledge of the control which the driver has over his automobile. Among the vehicles which were found outside the Club premises on Tuesday, at eleven o'clock, were the following:—Mr. Frank Butler's 6-horse Panhard; the Daimler Company's 6-horse Parisian car, driven by Mr. Percy Richardson; Mr. John R. Hargreaves' 19-horse Daimler, driven by the owner; Earl Russell's Panhard



MR. J. R. HARGREAVES (19 H.P. DAIMLER) AND MR. FRANK BUTLER (6 H.P. PANHARD) AT SHEEN HOUSE CLUB.
Photo by] Argent Archer.

carriage with 8-horse Napier engine, driven by the owner; Mr. Cordingley's M.M.C. phaeton, driven by Mr. Critchley; Mr. Hewetson's Benz, driven by Mr. Coles; Mr. Barnes' Renault, driven by the owner; Mr. Estcourt's 6-horse Daimler, driven by the owner; Mr. W. C. Bersey's 12-horse Delahaye; and Mr. W. J. Peall's 6-horse Daimler. Amongst the late arrivals were the Hon. C. S. Rolls' Locomobile, a Roots and Venables car; two M. M. Company's Iveagh phaetons, one of which was driven by Mr. E. M. C. Instone; and Mr. Roger Wallace's 6-horse M.M.C. phaeton.

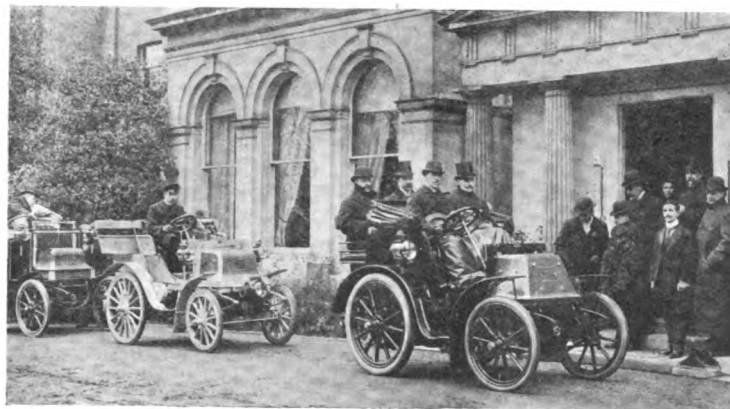
The Chief Constables were driven to and around Richmond Park, and were subsequently entertained by the Automobile Club at luncheon at the Sheen House Club, where a room was courteously placed at the disposal of the Automobile Club by the management of the Sheen House Club. After luncheon the Chief Constables were driven back to the Automobile Club, where they held a private conference. At 3.30 p.m. a conference was held between the Chief Constables and the Club Committee, Mr. Roger W. Wallace, K.C., in the chair. Amongst the members of the Club Committee who were present were:—Mr. Frederick R. Simms (Vice-Chairman), Capt. the Hon. Cecil Duncombe, J.P., The Hon. C. S. Rolls, Sir David Salomons, Bart., J.P., Mr. W. Worby Beaumont; Professor Vernon C. Boys, F.R.S.; Colonel R. E. B. Crompton, R.E.; Mr. Charles Cordingley; Mr. Bryan Donkin; Professor H. S. Hele-Shaw, F.R.S., LL.D.; Mr. John Henry Knight; Mr. W. J. Leonard; Mr. Edmund Macrory, K.C.; Mr. C. Harrington Moore (hon. sec.), Mr. Arthur Paget, Mr. E. Shrapnell Smith, and Mr. Stanley Spooner. Among the Chief Constables present were:—Lieut.-Colonel J. F. Josselyn, Bedfordshire; Major Otway Maine, Buckinghamshire; Mr. Charles Stretten, Cambridgeshire; Mr. R. Middleton Hill, Cornwall; Lieut.-Colonel Eden, Durham; Major R. T. Webber, Flintshire; Lieut.-Colonel Henry Daniell, Hertfordshire; Colonel W. B. Ferris, Isle of Ely; Lieut.-Colonel H. M. Moorsom, Lancashire; Mr. Edward Holmes, Leicestershire; Major T. W. Best, Merionethshire; Mr. Paynton Piggott, Norfolk; Mr. J. Dalgleish

Kellie MacCullum, Northamptonshire; Captain G. Williams; Freeman, Shropshire; Captain J. G. Mayne, Suffolk, East; Major A. F. Poulton, Suffolk, West; Captain M. L. Sant, Surrey; Major H. G. Lang, Sussex, East; Captain J. T. Brinkley, Warwickshire; Captain Sterne, R.N., Wiltshire; Major W. H. Dunlop, Yorkshire, East Riding; Major R. L. Bower, Yorkshire, North Riding; and Captain J. Stuart Russell, Yorkshire, West Riding.

The Chairman welcomed the Chief Constables on behalf of the Club, and said that the Club was anxious to hear the views of Chief Constables on the proposed further regulations for motor vehicles. He said that he hoped the experience of motor-vehicles which Chief Constables had had in the morning would tell in favour of automobilism. Without further preface he asked them to favour the Club with their views and advice.

Colonel Eden (Durham) thanked the Club for the invitation and for the practical way in which they had demonstrated to Chief Constables the control of a motor-vehicle. He said he had that morning been driven in an automobile through Regent Street, the Embankment, and many other crowded thoroughfares, and he had been much struck with the way in which motor vehicles could be handled. Indeed in some ways it had been a revelation to him. All the Chief Constables were agreed that, so far as they were concerned, and so far as lay in their power, they were anxious to encourage the movement. Decisions respecting legislation did not, however, rest with Chief Constables, but with County Councillors and the Local Government Board. The great difficulty with which constables had to contend was that of identifying careless or dangerous drivers. If a driver be competent and skilful, and if he drive with judgment, there was no reason why accidents should happen in connection with automobiles; on the other hand, there were drivers who did not stop when called upon to do so, and even when they had been the cause of accidents. He wished it to be distinctly understood that Chief Constables had no authority, but were simply giving their opinions on the questions under discussion.

Lieutenant-Colonel Moorsom said that it was the first time he had been privileged to drive in a motor-car. He had been driven by a perfect charioteer. There would be no need of further regulations if all drivers were so skilful and considerate. He said that he was a horseman, and that his experience had been that when he met motor-vehicles and asked to be allowed to ride by the side of them in order to train his horses he had always met with the utmost courtesy from the drivers of these vehicles. However, Chief Constables were concerned in the safety of the public; they had no authority to speak, but could



MR. P. RICHARDSON (6 H.P. DAIMLER), MR. PEALL'S CAR, AND MR. E. ESTCOURT (6 H.P. DAIMLER).
Photo by] Argent Archer.

only give their individual opinions. His individual opinion was that if means were employed by which motor-vehicles might be identified speed need be no difficulty. He thought that Chief Constables should obtain more experience before they gave any very decided opinion one way or the other.

Major R. L. Bower, C.M.G. (Yorkshire, North Riding), said that he had been the owner of a motor-vehicle for the last few months, and had come to the conclusion there was nothing like

them. All Chief Constables would have to have them. When Chief Constables are provided with motor-vehicles and there is a proper system of telephones and telegraphs there would be no difficulty in stopping scorchers. Any system of identification should, he thought, be tentative. People as they became used to, or users of, motor vehicles, would soon change their opinions. Personally he saw no reason why his motor-vehicle should be numbered any more than his dog cart. His dog-cart was frequently a more dangerous vehicle than his motor car.

Lieut.-Colonel Henry Daniell (Hertfordshire) said that he lived in a County through which every north road out of London passed. Personally he had met with the greatest civility from motorists, although it was impossible for them to know who he was as he was dressed in private clothes. Very often he liked the motor vehicle to pass quickly by his horse so as to get out of the way. Unfortunately there had been several accidents which caused discomfort to the people in the County. The vehicles in question were, he believed, not driven by members of the Club, but belonged to a manufacturing company, and were driven by professional drivers. He thought that Major Bower had struck a somewhat discordant note in stating that he thought numbering was not necessary, as there was a general consensus of opinion among Chief Constables that motor vehicles should be numbered, but if they were numbered the matter of speed was of no importance. He pointed to the fact that steam launches were numbered for the purposes of identification, and he could not see why motor vehicles should not be similarly numbered.



THE COURTYARD AT SHEEN HOUSE CLUB.

Photo by]

[Argent Archer.

Mr. Paynton Piggott (Norfolk) said that last year eighteen vehicles started one morning from the Maid's Head Hotel, Norwich, and one of them ran over a dog belonging to a lady who was highly connected. It was admitted that it was not the fault of the driver. The driver drove on and left the lady with the dead dog in the road. He, as Chief Constable, had sent to the proprietor of the Maid's Head Hotel to find out the name of the driver. Yet although the motorists were all driving there he failed to ascertain the name of the driver. People in the County had been annoyed to this day by the fact that the motorists failed to give the name of the driver.* Another instance was one in which some wagon horses had been frightened by a motor and damage had been caused. The driver of the motor-car did not stop or go back to help. People asked, "Why don't the police find out who the driver was?" He had told the police to spend any money to find the offender. He was eventually traced and when the constable mentioned the matter to him the driver said he did not remember the incident. The driver's wife, however, blurted out, "Oh, yes! don't you remember, you said that you had better not stop." The owner of the wagon said he would "never run down the Norfolk Police again after that," meaning the clever way in which the offender had been traced. He thought that numbering would be an advantage to motorists who

* The Secretary of the Automobile Club states that if the incident occurred during a visit of the Automobile Club to Norwich it is certain that no application was made to him for the name of the driver.

were gentlemen, and drove with consideration, as it would show that they were not driving in such a way as to make them ashamed of identification. The Chief Constable of Norfolk added, "If anyone will give me a motor, they may put numbers all over it." He thought motors ought to be numbered back and front.

Captain J. Stuart Russell (West Riding of Yorkshire) said that if every driver was as good as the driver who had driven him that morning, there could be no need for identification. However, they were not so good or careful. Therefore means of identification were necessary. He pointed out that in Austria bicycles were numbered. He thought bicycles should be numbered here, too. If motors were numbered, in his opinion, speed was no consideration. He thought drivers should be certified also.

Captain Drummond (West Sussex) said he had experience of the Brighton road, and many motors passed through Crawley. He had very few complaints. One Member of Parliament had said that his horse had been frightened by a motor and had turned right about face. The motor driver had driven behind him, and had been rather amused at his predicament. Motorists had taken to wearing black masks.* The general feeling of the public was in favour of numbering. The argument that motors would not be used if they were numbered was sentimental. Constables were numbered, and motorists must not object if constables gently suggest in return that motor drivers should be numbered.

Someone here inquired, "Are Chief Constables numbered?"

Major Lang (East Sussex) said that on the London and Brighton road cyclists and motors scorch at a fearful pace. He had measured tracks on which to catch the scorching cyclist, but had not yet employed this measure with regard to motors. He could not see any objection to numbering.

Captain Stern, R.N. (Wiltshire), said that a motorist near Marlborough drove up behind a doctor's trap without sounding a signal and caused the horse to bolt. The driver was stopped. He said he was a Frenchman, and gave a name and an address which proved to be false. Those were the men who made numbering a necessity—not the respectable men.

Captain G. Williams Freeman (Shropshire) did not set much store on a limit of speed. He thought that if the Automobile Club would agree to numbering, the speed limit might be removed.

Major A. F. Poulton (West Suffolk) reported that a motor owner in his county had been twice summoned for furious driving and his excuse was it was his driver's fault and he could not get another qualified driver. These were the only complaints he had received about motors. Otherwise reports on motors had been favourable.

Captain Drummond said that a motorist has stated as a defence that he could not make his vehicle go below a certain speed. Was this true?

Mr. Roger Wallace (the chairman) said he did not know of any motor vehicle which could not be driven as slowly as the driver liked. It was quite manifest that Chief Constables, whose duty it was to see the law properly carried out, would wish to put their hands on individual offenders with as little trouble as possible. But the difficulty of identifying an offender existed with regard to all classes of offenders—not motor drivers only. Since the warning to motor drivers and the letter to Chief Constables issued by the Club no complaint had been received at the Club. If a complaint had been received the Club would have thoroughly investigated the matter, and would have endeavoured to furnish the name and address of the breaker of the law. He would like to put this on record. The Automobile Club recognised that Chief Constables are brought face to face with a difficulty, because there are black sheep among automobilists as there are in every other portion of the population. Even criminals were not forced to wear identifying numbers when released. It would doubtless be very convenient to Chief Constables if all criminals were forced to wear numbers on their fronts and on their backs. It was easy to say

* Probably a fancy name for dust spectacles.

that there ought to be means of identifying a motor driver, but it would be very hard if the behaviour of a few black sheep were used as a reason for numbering all motor-drivers. A suggestion had been made that the removal of the speed limit might be agreed to if the Automobile Club would agree to numbering. The Club would not lightly disregard this suggestion. What would be the best means of identification must be a matter for careful consideration. The numbering of steam launches had been used as an argument in favour of numbering motors. The numbers on launches were small numbers on the deck or elsewhere by which an offending launch might be identified when the launch was impounded in a lock. People who are rude enough to disregard a signal to stop would be quite capable of covering up an identifying number. Such people, the black sheep, would not scruple to evade identification. If numbering were insisted on the fair-minded automobilist would be subject to all sorts of petty annoyances. People who had a dislike for motors would lodge complaints, and the driver not knowing of it would have no opportunity of collecting evidence. He would have no knowledge at the time that he was to be accused of offending. Every motorist might be required to carry his carriage licence as a man is required to carry his gun licence. This would provide a means of identifying a driver when he is stopped. But it may well be pointed out that the danger is that the driver would not stop. No means, Mr. Wallace thought, would be effective with such a man. A very heavy penalty should be imposed on drivers who fail to stop when justly called on to do so. The Club had given its views on the questions in a circular letter. The Club was now anxious to hear the views of Chief Constables on these questions. The Club was anxious to aid in securing the black sheep.

The Chief Constable for Norfolk said it should be clearly understood that the Chief Constables collectively could give no opinion. They had no right or authority to do so.

Mr. Roger Wallace said that it was thoroughly understood that nothing which had been said was a pledge on the part of County Constables. Chief Constables were not law-makers, but had to see that the law was carried out.

Sir David Salomons, Bart., chairman of the Foreign Relations Committee of the Automobile Club, said that in this country he drove fifty times with a horse to once with a motor. In France he drove automobiles. The provisions of the present Act and regulations affecting motor-vehicles originated with him, as he had been called to assist the Government authorities in the framing of the Act and regulations. He had at the time made two suggestions. One was that motor-vehicles, like farm carts, should have their owner's name and address painted on them, the other that every driver should be registered as a driver. He was told that these suggestions were "un-English." In France every motor driver is required to obtain a driving certificate from a Government engineer. In France every car has its owner's name and address painted on it. Any accident occurring in connection with a motor vehicle was magnified and widely reported in this country, although had it taken place in connection with a horse-drawn vehicle nothing would have been said about it. He remembered seeing a boy run over by a horse-drawn carriage in Grosvenor Square. The lady driving in the carriage drove away before her name could be taken. How many other similar cases were there? In France, at the beginning of the motor movement, the opposition had been as strong as it is here now. But the authorities had the foresight to take the view that the new industry was a great industry, and should not be strangled by repressive legislation. At the recent motor exhibition held in Paris £30,000 were paid for cars intended for this country. There were 20,000 to 30,000 men employed in the motor industry in France. If we are to hold our own these new industries must be encouraged—not killed—here. Greater speed on the road has the effect of facilitating commerce and of annihilating space. In fifteen years time, unless we keep abreast with other countries, we shall find ourselves a third-rate power. Automobilmism was of great importance and would benefit the whole country. He implored all those

who are interested in the welfare of the country to smother feelings of objection, and to encourage high road speeds rather than allow this country to become behind other nations in power and prosperity. Numbering motor vehicles would in no way do away with scorchers, but the number of summonses which the considerate motorist would find on his table would depend on the district through which he had been travelling. The Kent County Council, of which he (Sir David) was a member, had recently passed a resolution to the effect that fourteen miles per hour was not too fast a speed for motors. The opposition to cycles had been lived down. This opposition must be lived down, and he thought the name and address of the owner being painted on the motor vehicle and the registration of drivers would suffice.

Mr. John I. Thornycroft, F.R.S. (member of the Club Committee) said that the numbers on a launch were not large, conspicuous numbers intended for identification by passers-by. Numbers on launches were only sufficiently large for identification when the launch was at rest. For a run-away launch the numbers would be useless. A placard on a motor vehicle sufficiently large for identification by the passer-by would be very objectionable.

Mr. Charles Stretten (Cambridgeshire) said that it must not be thought that Chief Constables wished to interfere with invention or enterprise. They had been asked to give an opinion and they had done so. As regards speed, the law as to "common danger" would, in his opinion, be sufficient.

Captain the Hon. Cecil Duncombe (member of the Club Committee), speaking for himself and not for the Club, suggested a badge on the car.

Professor Hele-Shaw, F.R.S., LL.D. (a member of the Club Committee), suggested an official badge signifying that the wearer was allowed to drive a motor vehicle.

Colonel Daniell and Captain Russell again spoke in favour of numbering. Mr. Middleton Hill (Cornwall) suggested that members of the Automobile and other duly recognised clubs should only be required to have driving certificates and the crest of the Club on their cars; other drivers to be certified and their cars to be numbered.

Mr. Roger Wallace approved this suggestion. He dwelt on the usefulness of the conference, and said that the Club would shortly be dealing with the difficult question of road congestion. He pointed out that increase of speed means increase of traffic on a road. Twice the speed means making a space do twice the work. The regulation of heavy traffic, hours for delivery of goods, were matters of importance. He explained the absence of the Marquis of Chasseloup Laubat owing to illness.

A vote of thanks was proposed to the Chief Constables by the chairman, seconded by Mr. Shrapnell Smith, and carried by acclamation; and Colonel Eden and Captain Russell proposed and seconded a vote of thanks to the chairman and club for courtesy and kindness extended to Chief Constables.

[The foregoing report, which was prepared for the Automobile Club "Notes and Notices," is supplied in advance by the Committee of the Automobile Club.]

THE *Horseless Age* reports that the United States patents of Messrs. Roots and Venables, London, on a kerosene vehicle motor have been sold to parties who propose to manufacture the motors in America.

THE statistics for December relating to accidents in France have just been published, and are as follow:—Deaths due to horses, 69; injured, 656; railway, 12 deaths, 80 injured; bicycles, 3 deaths, 35 injured; automobiles, 1 death, 11 injured.

THE French automobile caravan which is to make the tour of Tunis arrived at Tunis on Monday. The following is the list of "chauffeurs" forming the caravan:—Mr. Didier (Paris), de Dion car; M. Gosior (Dijon), Cottureau car; Baron Romano Gianotti (Turin), with Signor Poggio as his guest, de Dion car; Mr. Wright and son (Nice), de Dion car; M. Marteau (Paris), de Dion car. A de Dietrich car will follow the caravan with spare fittings and pneumatic tires while a Panhard will convey the *mechanicians* and luggage.

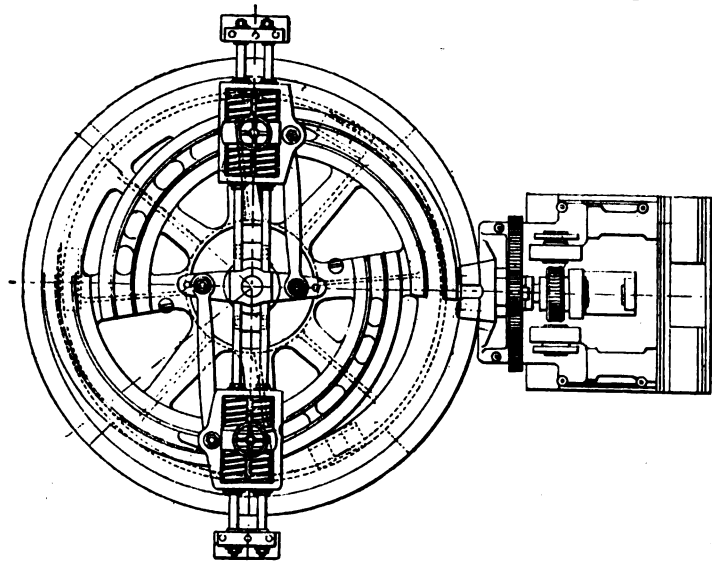
CORRESPONDENCE.

THE NESSELSDORF STEERING GEAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of February 16th there appears a description of the Nesselsdorf petroleum-spirit motor-car, and it is stated that the manufacturers of the car have taken out a patent for a new steering gear. So far from being a new thing and a novelty, this device has been my patent both in this country and Germany for a period of eight years. I am fitting these steering gears to various vessels and vehicles. The gear is a splendid success and ensures perfect safety in the management of a motor-car or heavy wagon.

The accompanying illustrations will enable your readers to see one form of this invention as I apply it to steamships. On



PLAN OF KERMODE'S STEERING GEAR.

account of the extraordinary charges and other difficulties experienced in Germany with this invention I allowed the German patent to expire, but I have all along worked the British patent. You will see, therefore, that our Austrian friends cannot put this particular patent on the British market unless I grant them a licence or they come to some other arrangement. For heavy wagons this gear is invaluable, and for high speed cars it is even more so.

Kindly afford me the space to correct what may otherwise give rise to the idea that this invention is that of our neighbours on the Continent.—Yours truly,
J. J. KERMODE.

THE BOLLÉE VOITURETTE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I shall be glad if any readers of the *Motor-Car Journal* would give me their experiences with this car, stating running cost, and whether the gear is very noisy; also whether back tires give trouble, and whether an air-cooled engine is likely to get unduly hot.—Yours truly,
ZERO.

MOTOR-BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to the inquiry of your correspondent, "J.," re Motor Bicycles, especially the Minerva and Excelsior, I would just say that both makes are fitted with exactly the same motor and method of driving. The only difference is that the cycle proper of the Minerva is made in Belgium, and that of the Excelsior in England. The motor and its accessories are the invention of a Swiss, but are made by a Belgian firm.

With regard to the general efficiency of the two machines, I must say that on all points I consider the Minerva the simplest and most easily managed motor-cycle I have yet had the pleasure to ride. The tendency to side slip is very minute, owing doubtless to the centre of gravity being so low.—Yours truly,
ALFRED TAYLOR.

FOOTWARMERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in your last issue a paragraph on Footwarmers, in which acetate of soda is recommended. This would be rather expensive, but I think a strong solution of hyposulphite of soda—the photographer's "fixing-bath"—would answer equally well, and would be cheap. Every photographer knows by experience the length of time a solution of hypo. made with hot water takes to cool. I have never tried this for the purpose in question, but it struck me that it would be very suitable.

Yours truly,
A. J. ALDRED.

WHY DO WE BUY FRENCH CARS?

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to a paragraph in your last issue headed, "Why do we buy French cars?" I think the great point that your contributor makes is that owing to the start the French have had they have been able to a very great extent to set the fashion in automobile construction. That this is not always the case, as an English motor manufacturer, I can testify by referring, if I may, to the "Napier" car. In this we have made a carriage which has particular points in regard to construction; we made it with gearing, bearings, and frame of such proportions that will last for years without renewing. At first, it was feared that the increased weight in some portions would militate against the success of the Napier, and I now find that owing to the opportunity we give to all purchasers to inspect carriages in the course of construction at the works, either themselves or competent engineers on their behalf, the points which we have embodied in the carriages are being appreciated, and that people are willing to pay the extra money that the cost of the manufacture necessitates.

It is very pleasing to us in view of the fact that, when we first started to make the Napier car, we were told by those who should have known, that if we made a more costly carriage than the French cars, we could not sell it; but experience now shows me that, providing one is prepared to give value for money and prove it to the customer, there are customers to be found for carriages with the vital parts made at the necessary cost to insure long life.

Yours truly,
S. F. EDGE.

THE CHISLEHURST TRIALS OF ELECTRICAL CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We have read the long-looked-for report of the judges, as issued by the Automobile Club, with considerable interest, perhaps all the more so as the Still electromobile car, entered by us as British agents on behalf of the Canadian Electric Vehicle Company, clearly showed the merits of the Still system, by the results obtained. The particular car entered in the above trials was not one of the latest type of vehicles as now built in England and equipped with Ideal storage batteries, but was one built for Canadian work, and had already done over 6,000 miles of work both in Canada and England, frequently taking such districts as Petersham Hill, Holly and Highgate Hills with ease, carrying four passengers up at about nine miles an hour. It had also frequently been used, as test run, from the depot in Long Acre, W.C., to Lord Salisbury's residence at Hatfield and back, a distance of 46½ miles, at an average speed of twelve miles an hour for the double journey, on one charge of the battery. Had we entered one of the newest type of cars now being constructed in England under the Still patents, the results, although very good, would have been much better; but, finding it impossible to finish the special car in time for the trials, our friends decided at the last minute, rather than be out of the hunt, to enter No. 12 car, Oxford type. This was the only car which carried four persons daily throughout the trials, and this with a set of batteries already used to propel the car for over 1,000 miles in and around the London district. Since the trials this car has done quite another 1,000 miles, and, like Charley's Aunt, is still

running; from recent inspection Mr. Still thinks the car is good for another 7,000 to 8,000 miles with the small cost of a new set of tires.

The judges selected by the Committee of the Club could not have been better selected, all being gentlemen well-known as having practical knowledge of electrical matters, hence their impartial reports cannot fail to enhance the merits of the "Electro-mobile," which we have always maintained as the ideal car for those who can afford to pay the price and obtain current at a moderate charge to work them.

We quite agree with the judges that units used per ton-mile is not so fair a basis of comparison as units per car-mile, and it occurs to us that this idea might be carried still further and that the proper comparison should be units per load-mile, or, in tests of the above class, per passenger-mile. On this basis it may be observed that the units used by the leading cars would be as follow:—say for Wednesday's tests, Car No. 1, took 1.49; No. 11, .617; No. 12, .133; No. 13, .378; whereas on Tuesday's run, Car No. 1, took 1.02; No. 11, .341 and No. 12 only .077. Thus the mean average of watts consumed for say twelve days work of thirty miles per day, would give valuable data as to the efficiency of any particular system.—Yours truly,

SHIPPEY BROTHERS, LIMITED,
per Arther Shippey.

A SINGLE-SEATED CAR WANTED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be obliged if your readers could give me information of any inexpensive motor-car having a comfortable single arm-chair seat, and yet is not a motor-tricycle or bicycle, but a car, or a voiturette, in fact as much as possible like a motor bath chair, with leather head to put up, and leather apron to cover knees, so that the driver could, if he pleased, be entirely shut in during storms.

Such a car would have an enormous sale. It should have a window at back and sides to permit of seeing passing vehicles; it should also be steered from inside and have a thin gauze blind to pull down in front of occupant. When closed up a rider in such a car could defy the elements, could laugh at the Clerk of the Weather when he was bent upon making himself ridiculous by converting the earth into a quagmire and the air into a shower bath, from which, except in such a vehicle, there would be no escape.—Yours truly,

ATHOL MAUDSLAY.

THE AUTOMOBILE MUTUAL PROTECTION ASSOCIATION.

THE following is a copy of a letter addressed to the British Motor Traction Company, 40, Holborn Viaduct, E.C.:

DEAR SIRS,—At a meeting of the Executive Committee of the Automobile Mutual Protection Association, Ltd., held this evening, I was surprised to hear that a report had been spread in automobile circles that I had agreed with your group to practically give away the Association in consideration of certain advantages to be given me. My only object in agreeing to meet you the other day was to hear what you had to say, and report to this Association, with a view of seeing whether such negotiations might be used to advance the interest for which the Association has been formed. I find, however, that apocryphal accounts of our negotiations have been spread (certainly not by me) which are damaging to me and to the interest of the Association. I beg, therefore, to inform you that I decline to discuss the matter further with you except through the solicitor of the Automobile Mutual Protection Association, Limited—Mr. Firth.

Yours faithfully,

C. FRISWELL.

Le Velo makes a statement that Mr. Harvey Du Cros, has ordered from a Paris firm a powerful racing car, which is to be driven by Mr. C. Jarrott in this year's races on the Continent, notably Paris-Berlin. The horse power is, adds our contemporary, being kept a secret.

COUNTY COUNCILS AND THE SPEED OF MOTOR-CARS.

——
KENT.

AT the meeting of the Kent County Council last week Mr. Burch-Rosher moved the following resolution: "That the Kent County Council does not consider that twelve miles an hour, sanctioned by 59 and 60 Vic., chap. 36 (the Locomotives on Highways Act, 1896), s. 4, an excessive speed at which to drive a motor-carriage along a public highway, provided that all persons at any time recklessly driving any such motor-carriage in such a manner and at such a speed as to cause damage to persons, animals, or other property shall be liable, on summary conviction, to a penalty not exceeding £10 and costs, or in default of payment to imprisonment, with or without hard labour, for not exceeding two months." He explained that he wanted the Council to support the motion because a number of persons had taken up a hostile attitude with regard to motor-carriages and desired to restrict their use very considerably. Mr. East seconded the motion, stating that the people of England ought not to put hindrances in the way of the development of the motor-carriage industry in this country. Alderman Salomons supported the motion, and showed that France now supplied many of the motor-cars and carriages used in this country. He believed that with a broad, liberal freedom in regard to this form of locomotion this industry would soon grow in England. The resolution was ultimately carried by a small majority, and the clerk was directed to forward a copy of it to the Local Government Board.

Mr. Rosher next moved: "That the Kent County Council does not consider it just or reasonable that the owners of private motor-carriages should be compelled to have a number painted on or affixed thereto, unless all owners of private carriages drawn by any horse, mule, or other animal have the same obligation imposed on them; but the Council recommends that every such private carriage should have painted thereon in one or more conspicuous place the armorial bearings, crest, or surname initial letter of the owner plainly and legibly depicted." Mr. East again seconded. Alderman Stanhope, however, considered that motor-cars should possess some means of identification, and therefore opposed the motion. Alderman Salomons, on the other hand, suggested that if a number were placed on motor-carriages the driver would simply be persecuted by the police. If the owners of the motor-cars were registered the whole difficulty would be met. On being put this motion was rejected.

PAT'S FIRST MOTOR-CAR.

PAT MURPHY made a motor-car, one of the petrol type, Four wheels were on the highway and many out of sight; Four seats the car provided, two fore and two were aft, Not sideways, but both frontways, and that's what caused a laugh. Full many a patent to that car the trustful Pat now added, Band brakes, free-wheels, pneumatic tires, and cushion seats well padded; Electric lamps to light the way when he went record breaking, And silent engines, so that all could hear each other speaking. Said Pat, "If engines one do twenty miles an hour, Well, surely two will double that, and two I'll have for power." So two were added to the car, and two ignition tubes Were placed beneath the foremost seat connected by a fuse. Pat, ready for to try the car, sent post-cards to three friends To join the festive party "for a fly down to Land's End." The day arrived, the party too, all in tarpaulins clothed, Four cans of petrol and of gin were in the car soon stow'd, Pat saw his mates were seated before he manned the wheel, And then he turned a tap, and the wheels began to squeal. "Pip-pip" sang out the signal horn, "Phut-phut" the engines cried: A violent jerk! a mighty plunge! and all the riders sighed. The car proceeded not upon the journey mapped, Nor did Pat leave the levers until the brake had snapped. Then once again the levers were pushed and pulled and turned, And Pat gazed at the works to see if the petrol burned, But not an inch that car would move, because of imperfections, For it is true, the engines two, worked in opposite directions.

EUSTACE B. BEESLEY.

SCOTTISH NOTES.



Glasgow Week.

THE liveliest satisfaction is felt among Scotch automobilists, and especially those of the west of Scotland, that the suggestion made at the recent special meeting of the Automobile Club in London to dispense with an organised "trial" this summer, and instead hold an Automobile Week in Glasgow during the course of the International Exhibition, is likely to be carried out. The wisdom of cancelling the proposed 1,200-miles Trial is admitted by everyone who has, even in a cursory way, considered the special difficulties which present themselves to such an undertaking this year. Lord Kingsburgh's query, too, "Why repeat a success?" was particularly *apropos*, and very few manufacturers will be sorry to be spared the large expenditure of time and money such a "trial" involves.

A Scotch Welcome.

THAT Glasgow will not be lacking in the warmth of its welcome, nor be grudging in the hospitality it will extend to the Club on its arrival and during its stay in the "Second City," I am certain. The Glasgow men with whom I discussed the matter the other day recognised the opportuneness of the proposed visit, and were convinced that it would give the movement in Scotland the biggest "lift" it had received since the introduction of the motor-car to Britain; in consequence every effort will be made to make the "Glasgow Automobile Week" a stupendous success.

An Eye Opener.

THERE can be no doubt as to the far-reaching effect it will have in popularising the use of motor-vehicles in Scotland. My belief is that to many a "canny" Scot the demonstration will be a positive revelation. He has probably seen the Edinburgh service cars, and perhaps occasionally some of the privately-owned cars in the west or south of Scotland; he has also heard of motor-cars in Perth, Dundee, and far Aberdeen, and just here his knowledge of the automobile movement in many cases ends, except, of course, that he knows that in London and "sic places" they all "bolt" or "blow up." A procession of noblemen and ladies, with members of Parliament, members of the Cabinet, and other notabilities, driving their own well-appointed motor-carriages, would be a veritable "eye-opener" and leave an impression not easily removed. He may witness this sight in Glasgow this summer; and if it were possible for His Majesty King Edward VII. to bring one of his own motor chariots when he visits Glasgow to open the exhibition, which it is still hoped he will be able to do, much amazement would be experienced, and the motor-car would be henceforth exalted to a higher position in society.

Signs of Improvement.

IN writing this I do not wish to be misunderstood. In motor-car manufacture Scotland was early in the field, and the first use of motor-cars for public service work was north of the Tweed. My complaint is that the great Scottish public have in the matter of adopting the mechanical carriage been more than usually slow in discovering a "good thing," and for some inexplicable reason Glasgow—the great engineering city, forsooth—has evinced the same "dullness." Things are changing for the better, however, and there are indications that the city is waking up, not the least important of which is the formation of an influential club, a thing that was found impossible in the West of Scotland twelve months ago, and I have the feeling that Glasgow will most certainly "catch on" this year and move ahead with a rush.

The Proposed Glasgow Club.

A WELL attended meeting of West of Scotland men interested in the formation of an Automobile Club was held in Glasgow on Friday last week, when the committee made the recommendation that the Glasgow Club should form a section of the Scottish Automobile Club. This recommendation the meeting unanimously approved. The decision is certainly a wise one and will be productive of much good. The Scottish Club, it is admitted, has not been so active as it might have been since it came into being, but the introduction of this fresh blood will undoubtedly imbue it with new life, and as each section will be self-managed a healthy rivalry may spring up between them to excel in "good works."

Scottish Club Run.

THE run to Bathgate fixed for February 2nd, and which, on account of the Queen's death, was postponed, is now to take place to-day (Saturday, the 2nd inst.). Bathgate has been selected as a suitable meeting-place for members coming from either east or west. Automobilists in Scotland desirous of taking part in the run who are, as yet, not members of the Club, can obtain full particulars of the time of starting, etc., from Mr. Newton, the Secretary of the S.A.C., 13, George Street, Edinburgh.

The late Mr. Fred Pullar.

IN the death of Mr. Fred Pullar, of Bridge of Allan, particulars of which appeared in the *Journal* last week, Scotland has lost an enthusiastic automobilist. When I met him a few days previously he was in his usual happy humour, looking forward to the coming season's runs of the S.A.C. Mr. Pullar's manner at once impressed those who met him as a young man of grit and pluck, and his heroic attempt to save life at Aithrey Loch, and in which he himself perished, bears ample testimony to this. His parents, I am sure, have the respectful sympathy of all Scotch automobilists. BROWN HEATHER.

FROM LUTON TO MANCHESTER BY MOTOR-CAR.



MR. J. A. BENNETT, of Messrs. Bennett and Carlisle, Manchester, sends us the following brief account of a run made by him and a client last week on a 5-h.p. double-cylinder Sirene voiturette from Luton, Bedfordshire, to Manchester, a distance of about 150 miles:—The roads were in a shockingly heavy condition after the late frosts, and although we carried 120 lbs. of luggage with spare petrol, we only put the low gear in twice. Stopping at Lichfield on Saturday night, we continued the journey on Sunday morning, and arrived in Manchester in good time in the afternoon. Our client learnt to drive in a few miles, although he had not driven a Sirene or similar geared car before, and the fact that he managed to change the gears without any noise speaks volumes for the simplicity of the car, as well as the smartness of the driver. We did not put a spanner to any nuts, nor had we to touch a sparking plug or wire during the whole journey. Motorists would do well to note that a little way past Coleshill on the way to Lichfield the road is up and a new bridge is being built. In the dark we nearly ran into the railings put across the road, there being no warning light.

MR. J. S. CRITCHLEY, who has been on a visit to the United States, returned to London last week.

THE Corporation of Huddersfield are at present inviting tenders for the supply of motor-carts suitable for conveying about five tons of coal from the local collieries to the electricity works in that town.

THE FRENCH MOTOR-CAR EXHIBITION.

(From Our Own Correspondent.)

(Continued from page 859.)

THE novelty on the stand of La Société Parisienne de Construction Automobile, Avenue de la Grand Armée, was a light tonneau car, with removable back seats, and fitted with a new system of transmission gear. Power is supplied by a 6 h.p. Aster motor, the shaft of which carries the fixed wheels of the change-speed gear, the loose wheels being always in mesh and keyed for the required speed. The second shaft carries at the end a pinion which operates a large toothed wheel on the countershaft.

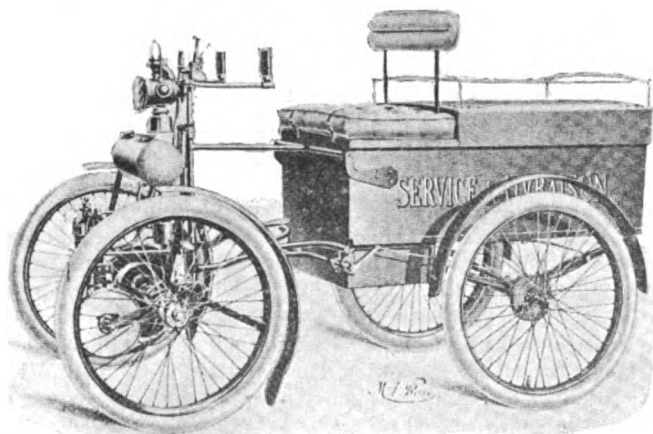


FIG. 1.—LA SOCIÉTÉ PARISIENNE'S LIGHT DELIVERY CAR.

All this mechanism is located above the front axle, every part being enclosed. At the ends of the countershaft are large pinions of the same diameter as those on the rear hubs, they being connected by a chain. The well-known Victoria Combination has undergone several improvements. It is fitted with a $3\frac{1}{2}$ h.p. water-cooled De Dion or Aster motor, three speeds, and a friction clutch. The engine is geared on to the front axle by spur wheels. They also showed a carrier (Fig. 1) constructed on the same system, capable of carrying a load of 3 cwt. without the driver.

The Gladiator Company, of Pré St. Gervais (Seine), exhibited a couple of their small two-seated cars fitted with $3\frac{1}{2}$ h.p. water-cooled Aster motors, and a four-seated tonneau propelled by one of the new Aster engines developing $6\frac{1}{2}$ h.p. (Fig. 2). The frame of this car is built up of wood and channel steel. The engine is water-cooled, a pump and radiator being provided.

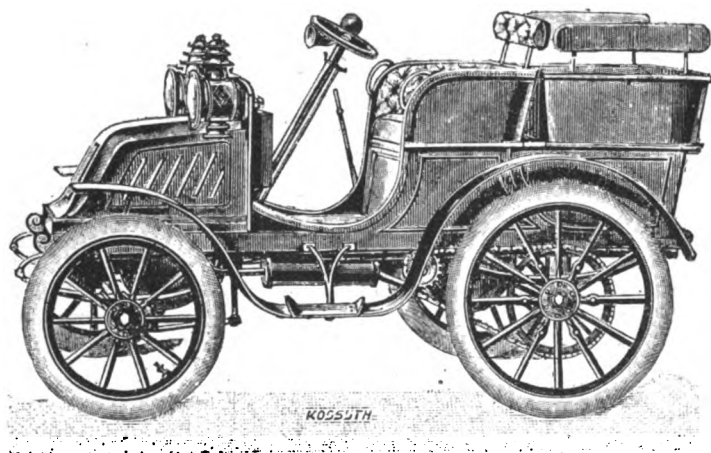


FIG. 2.—THE GLADIATOR $6\frac{1}{2}$ H.P. TONNEAU.

Three speeds forward, up to thirty-two miles, and a reverse motion are provided, the transmission being effected by gears and chains. The petrol tank, which is located under the driver's seat, carries twenty-five litres of spirit, and the consumption of the motor is said to be eight litres per 100 kilometres. The frame is spring suspended on the axles fore and aft, while three brakes

are provided. With tonneau, body the car complete weighs about 7 cwt. The most interesting feature of this stand was, however, the military voiturette used by a staff officer during last year's army manoeuvres, which looked very smart in its grey paint. A box is carried at back for the officer's baggage and a basket gives accommodation for his sword. The rest of the exhibit was made up of bicycles and motor-cycles, the quad fitted with a 3 h.p. water-cooled Aster, and carrying an ingeniously-placed radiator, only being of interest to motor-men.

M. H. Lepape, Puteaux (Seine), exhibited two cars which were novel in so far that the shape of the motor was such that the heat is conducted and radiated by the mass of metal that forms the cylinder. The cylinder is cast with a great thickness of metal, and a 5 h.p. motor weighs about 176 lb. Of course, if this system is as effective as water-cooling, the increased weight would be compensated for by the absence of a water tank, while it would, of course, save the motorist a good deal of anxiety. The motor runs at only 750 revolutions a minute, so that it would not be likely to develop much heat, but, as a precaution, M. Lepape directs a current of cold air on to the motor by means of a fan operated by a wheel on the motor-shaft. Power is transmitted in these vehicles by belts running on large wooden pulleys. M. Lepape also exhibited a carrier tricycle propelled by a $2\frac{1}{2}$ h.p. air-cooled motor with change-speed gear and clutch. It is built with a wide carriage body, one half of which carries the chese for loads of 2 cwt., and there is a seat at the side for the

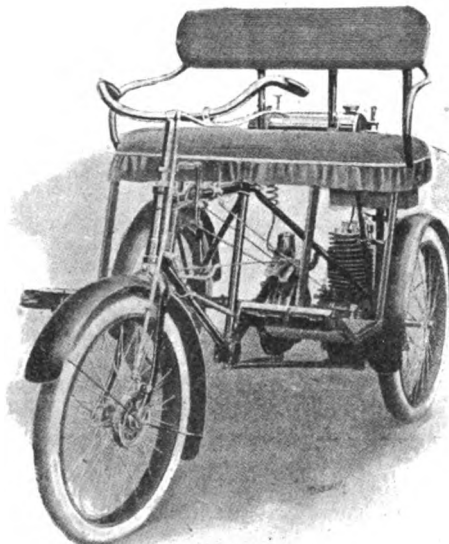


FIG. 3.—THE LEPAPE COTE-A-COTE

driver. A similar vehicle was shown constructed on the sociable system for two persons (Fig. 3). The motor is started by means of a detachable handle. On the level the vehicle can, it is claimed, attain a speed of 24 miles per hour.

Both electrical and petrol vehicles were displayed by La Société des Automobiles Créanche, Rue Brunel, Paris. Their petrol cars which were described in the *Motor-Car Journal* of September last, are propelled by De Dion water-cooled motors carried on a movable fore train. The engine, with bonnet, can be made to slide backwards and forwards a few inches by operating a lever so as to give the necessary tension to the belt that connects the motorshaft with the countershaft. The company are also now building a light delivery van on the same chassis as the voiturettes.

La Fabrique Nationale d'Armes, of Herstal, near Liège, exhibited three light cars similar to those shown at the Crystal Palace in December last, which they are turning out in large numbers. The vehicles are propelled by a two-cylinder vertical motor situated under a bonnet in the front of the frame. It develops 4 h.p. in the cars with three seats, and 5 h.p. in the vehicles with seating capacity for four persons. The company employ an automatic carburetter, which is regulated by the motor itself. Power is transmitted from the motor-shaft to the counter-shaft by two crossed belts, which give two speeds and reverse motion, intermediate speeds being obtained by varying the ignition.

The belt is a short one and tension is given to it by a jockey pulley.

Among other cars La Société Million, Guiet, et Cie., Avenue de Villiers, Paris, exhibited an electric delivery van on the Krieger system. This vehicle has been ordered by the postal authorities in Paris with a view of carrying out trials in the conveyance of mails between the General Post Office and the railway stations.

MM. M. and A. Dulac, Boulevard Pereire, Paris, exhibited a Vehel tonneau fitted with a two-cylinder vertical motor developing 8 h.p. The engine is fixed in the fore part of the frame, and its running is varied by advance of ignition, as well as by a regulator operating on the exhaust valve. The transmission gear consists of the ordinary fixed and sliding trains of spur wheels, giving three speeds and reverse motion. The countershaft is connected with the driving wheels by the usual chains. The car has accommodation for four persons and weighs about 11 cwt. The firm are also building a 6 h.p. car fitted with a single-cylinder engine.

The cars of Messrs. Bégot and Cail, of Rue du Ponceau, Reims have already been fully described in the *Journal*. At the Salon they exhibited a couple of vehicles—one a tonneau propelled by the firm's two-cylinder motor with the cylinders inclined at an angle of 45 deg., and giving 7 h.p., and another

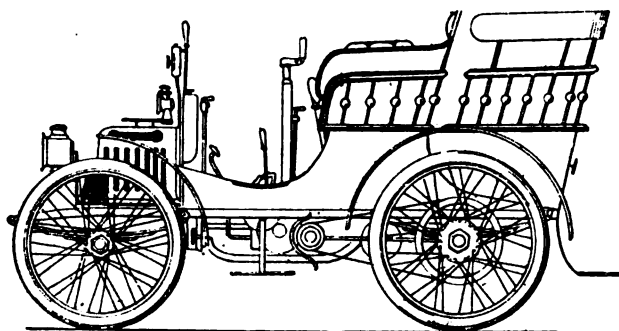


FIG. 4.—THE BEGOT AND CAIL 5 H.P. TONNEAU.

(Fig. 4) propelled by a De Dion motor of 5 h.p. The car is fitted with pump and radiator, and with a Longuemare carburetter. The variable gear is adapted to give four speeds forward and reverse. I was informed by this firm that they are arranging for the introduction of their cars on the English market.

La Société Industrielle d'Automobiles Pluton, Rue Victor Hugo, Levallois-Perret, exhibited several cars constructed upon the Vigneron system, and propelled by 5 h.p. water-cooled De Dion motors. The power is transmitted by a belt to the countershaft, which carries the change-speed gear and driving chains. Two speeds are provided, and by means of an accelerator the rate of travelling can be increased up to twenty-five miles an hour. The cars shown comprised a tonneau and a spider, with removable back seat, so that luggage can be carried if desired.

La Compagnie des Automobiles Rochet-Petit, Rue de la Folie-Regnault, Paris, had on view two new types of cars. One was a vis-à-vis voiturette, propelled by a 4 h.p. Aster water-cooled motor geared on to the rear axle. Inclined steering wheel is fitted. A side lever controls the change speed gear which gives a variation of from eight to forty kilometres an hour. The weight of this car is about 15 cwt. The company had also on view a new light car fitted with a two-cylinder engine of 6 h.p., and having a body of the popular tonneau type.

The novelty on the stand of La Société l'Energie, Rue Sedaine, Paris, was a small car of the tonneau form, propelled by a two-cylinder Buchet motor developing 8 h.p. The spur wheel change-speed gear is arranged for three speeds forward and reverse motor, the power being transmitted to the rear axle by a universal jointed shaft. There is one lever for changes of speed and reversing, another for band brakes on the rear hubs, and the clutch is operated by a pedal, which also actuates a brake on the differential. The car has a long wheelbase, and all four wheels are of the same diameter. I hope to send you illustrations of the car for a later issue. The company also displayed one of their well-known Renaux tricycles, which has already been illustrated in the *Journal*.

(To be continued.)

HERE AND THERE.

ON Saturday next, the 9th inst., the Automobile Club will have a run to Virginia Water. The start will be made at 2 p.m., and dinner will be taken at the Wheatsheaf Hotel.

AMONG the visitors examining the motor-cars outside the Automobile Club on Tuesday last was to be noticed the Hon. Gerald W. Balfour, the Chief Secretary of Ireland.

THE Wolseley Tool and Motor-car Company, Limited, has been registered with a capital of £40,000 to carry on the business of motor-car, cycle, and vehicle machinists, ironfounders, tool makers, etc.

MR. REGINALD TREVOR, who recently met with a serious accident through colliding with a trap, is now, we are glad to learn, out of danger. He still lies at the White Lion Hotel, Cobham, and his complete recovery is only a question of time and rest.

THE Bedfont Motor and Wagon Company, Limited, has been registered, with a capital of £2,500, to adopt an agreement with G. Sparks, and to carry on the business of coachbuilders, mechanical engineers, motor and motor-car builders, etc.

A NUMBER of the employees of the Motor Manufacturing Company gathered together in Coventry last week to give a hearty "send off" to five of their fellow employees, who are going to South Africa as volunteers in the Imperial Yeomanry.

MR. WM. LEA, of Birkenhead, formally opened his new dépôt in Berry Street, Liverpool, on Tuesday, the 26th ult. Mr. Lea has obtained the exclusive agency in Liverpool for Progress, Benz, Decauville, and Darracq cars, types of which he has on view at his new premises.

"MOTOR PROBLEMS" is the title of a new pamphlet just issued by Mr. C. H. Guest, M.I.M.E., of Draycott, Derbyshire. In addition to forming a catalogue of Mr. Guest's specialities, it contains a good deal of useful information to motorists, who can obtain a copy on application.

ON Saturday last one of our correspondents was cycling through the Phoenix Park, Dublin, when he was passed by an officer of the 21st Lancers in regimentals mounted on an Ariel motor-tricycle. There is a great possibility that this officer was using his motor-tricycle in his duties instead of his "Hay Motor." Anyway, this is evidently what we may expect in the future.

DURING the annual mart, or fair, held at King's Lynn last week, Mr. Frank Morriss had a Daimler car running about. The vehicle was in the form of a delivery van, the exterior of which was covered with Mr. Morriss' own advertising matter. It attracted considerable attention from the hundreds of visitors to Lynn, who came from all parts of the Eastern Counties.

THE Derwent Cycle and Motor Company, Scarborough, are now open to undertake repairs of all kinds to any make of motor-car or cycle, they having a complete plant at disposal and an efficient staff of workmen. They have always a stock of petrol, lubricating oils, replacements for De Dion type of motors, and accessories on hand, and have been appointed official repairers to the Motor Manufacturing Company for their district.

MESSRS. R. W. Wright and Company, of Lincoln, have sent us a copy of the very complete motor catalogue they have just issued. In addition to the firm's own "Stonebow" cars, illustrations and particulars are given of the De Dion Progress, M.M.C., Decauville, Gladiator, and the New Orleans voiturettes, the Napier and M.M.C. Panhard cars, the Coulthard steam-waggons, etc. In addition the list contains some useful information for motorists.

CALLING in at Messrs. Friswell's dépôt on Holborn Viaduct, E.C., on Wednesday afternoon, we were able to inspect one of the latest Peugeot 5 h.p. voiturettes that had just arrived. The two-cylinder engine is fitted with both tube and electrical ignition, the arrangement being very compact. There is only one burner for the two tubes, and this is arranged centrally between the two ignition plugs. The car is fitted with wooden wheels, while a feature of the body, which is adapted to accommodate four persons, is that the back rest of the front seat is hinged, so that by simply turning it over the passengers can either all sit facing forward or vis-à-vis fashion.

THE ROYAL AGRICULTURAL HALL COMPANY,
LIMITED, v. CORDINGLEY.

—8—

(Concluded from page 865.)

MR. MORGAN DONNE, sworn. Examined by Mr. SEBASTIAN.

You are a manufacturer of motor-cycles?—Yes.

I think you have carried on that business for about a couple of years?—That is so.

Before that time were you for about eight years works manager to the North Typewriter Manufacturing Company, who manufactured bicycles and tricycles?—Yes.

And you are acquainted with the manufacturing of such things?—Yes.

Have you seen the accessories which were exhibited at the Motor-Car Exhibition at the Agricultural Hall?—I have.

And which Mr. Lamb has been describing?—I was not present when Mr. Lamb was in the box.

Having seen those did you consider that they could, for practical purposes, be used for motor-cars?—Not all of them.

What were those articles? How should you describe them?—Parts for cycles and parts for motor-cycles.

Do you say that in the trade a line is drawn between motor-cars and motor-cycles?—Yes.

Including in the term, "motor-cycle," bicycles, tricycles, and quadricycles, I suppose?—Yes.

Will you go on and tell us where the line is drawn, as between cycles and cars?—There is a wide distinction between motor-cycles and motor-cars; cars have large carriage bodies, cushioned seats, and such-like.

What do cycles have?—Motor-cycles are the usual bicycles and tricycles, strengthened up to receive the auxiliary power of the motor.

What is the next point, if there is one?—The general construction of motor-cycles is exactly similar to bicycles and tricycles. Motor-cycles have the usual bicycle saddle except in the case of quadricycles, where they usually have a cushioned seat in front for the front rider.

How is a motor-car put in motion—how do you start it?—By a crank handle, or it may be started by the fly-wheel of the engine.

How do you start a motor-cycle?—That is usually done by pedalling—similar pedals to what are used on ordinary bicycles and tricycles.

Supposing the motor apparatus comes to grief, can you manage to work the motor-cycle by the pedals?—Yes, the same as an ordinary bicycle or tricycle.

Is there anything corresponding to that in a motor-car?—Not to my knowledge.

How do you steer a motor-cycle?—They are usually steered by means of the handle-bar, as in an ordinary bicycle or tricycle.

Is that so with a motor-car—is there any handle-bar there?—In some motor-cars they have a handle. Sometimes they are steered by means of a lever or a bar somewhat similar to a tricycle or by a wheel, which is the most popular.

Is that line of distinction which you have described, the one generally adopted in the trade?—Yes.

Have you collected some catalogues of manufacturers which bring that out?

Mr. Terrell: Catalogues which somebody else writes are not evidence against you.

Mr. Justice Byrne: This is put in as generally in the trade.

Mr. Terrell: I shall not object. I do not think it is material, but I should think it is not evidence.

Mr. Sebastian: What are those catalogues?—One is the Dion Bouton Syndicate, the British and Colonial Syndicate—that is the largest manufacturer of cycles and light cars in France. The next is a catalogue by the Motor Manufacturing Company, and the next is a catalogue published by the Automobile Manufacturing Company.

Mr. Justice Byrne: And the last one?—The United Motor Industries.

Mr. Sebastian: What is the usual trade distinction putting them all collectively of motor-cycles, motor-tricycles, or motor-quadricycles?—Motor-cycles.

Cross-examined by Mr. TERRELL.

You have had how many years' experience of the cycling trade?—The motor-cycling trade?

The cycling trade altogether.—Well, I was eight years with North's Manufacturing Company, and I made several hundred cycles there.

I only want to know how far back your knowledge goes.—Eight years there, and I have been two years in business on my own account in the motor business.

You are very well acquainted with the conditions under which the trade is carried on?—Yes.

Before the year 1896 substantially in this country there was no trade in motor-bicycles at all?—That is so.

Either motor-cars or motor-cycles. Whatever they may be, there was no trade?—No.

That was because there was an Act of Parliament which prevented locomotives going on the roads?—That is so.

Do bicycles, tricycles, and quadricycles pay duty as carriages?—Yes, they do.

Bicycles?—Bicycles I am in doubt about.

Have you ever heard of anybody paying a duty on a bicycle—I mean to say outside motors—ordinary bicycles, tricycles, and quadricycles?—No.

When they have motors they do as carriages?—Yes.

In 1896 an Act of Parliament was passed allowing these locomotives to be used on the roads?—Yes.

Then the trade began?—Yes.

Long before the year 1896 the Stanley Show was going on?—Yes.

And also Mr. Cordingley was having an exhibition, was not he?—That I could not say. I do not know that.

What do you consider the definition of a motor-cycle as distinguished from a motor-car? Do you say that it is the steering apparatus?—No.

It is not the way of steering that makes the difference?—No.

Is it the way of starting that makes the difference?—No.

Is it the fact that one has pedals and the other has not that makes the difference?—That is a very strong point no doubt—the principal point.

Is it the form of the seat that makes the difference?—No.

I suppose you would say it is taking everything altogether—looking at it altogether?—I should look at it in that light. It is a very strong point.

There are several considerations in your mind which you would take into consideration in deciding whether the thing was a motor-car or a motor-cycle?—Yes.

Would you mind taking this catalogue which has been put in and look on top of page 43. That is a motor-car, is not it?—Yes.

And the next one is a motor-car? How is that steered?—That is steered with a lever.

Steered with a lever which makes the two front wheels turn one side or the other?—Yes.

And very much as a quadricycle used to be steered in the old days before the motors were invented at all?—Yes.

So far as that steering is concerned that and the old quadricycle is the same?—Yes.

That has got a cushion seat and not a saddle?—Yes.

Now look at page 44. What do you think of that? That is a motor-car, is not it?—Yes, it is similar to the other.

Mr. Leigh Clare: Not the steering.

Mr. Justice Byrne: There is a bent handle Mr. Clare wants to call attention to.

Mr. Terrell: It has a chain gearing which is connected with a wheel underneath.

The Witness: Yes, it is connected by a chain and sprockets. Some of the American cycles are steered in that way.

So far as steering is concerned, the different forms of steering are common to motor-cars, to motor-cycles, and to ordinary cycles?—Yes.

Now we will come to the cushions. Look at page 54. Is that a motor-car or a motor-cycle according to you—the bottom one?—That is a motor-quadricycle.

What is the front seat of it. The front seat looks like a motor-car seat?—It is a seat.

I did not say it was not. It is intended to sit upon. It is a cushion seat, is not it?—Yes.

Is there any difference between that seat and the motor-car seat I have just pointed out on page 44?—Yes, there is a difference. On page 44 it is a proper carriage seat, and this is only a kind of an apology for a seat.

This would do very well for a dog-cart seat would not it? You have seen that on dog-carts, have not you?—I do not think that would satisfy the owners of dog-carts.

You could sit on it?—I could sit on anything, pretty well.

The back seat on that is a saddle?—Yes, a cycle saddle.

The cycle saddle was invented as long ago as the old bone shaker?—Yes.

There is nothing remarkable about that?—No.

Look at page 59; what is that? It takes you a long time to make up your mind, does not it?—There are a great many of these things which are on the border line of motor-cycles and motor-cars.

Who is going to show that, the Stanley Show or Mr. Cordingley?—That I cannot say.

Two people are to sit abreast on that, are they not?—Yes.

That is what they call a sociable?—Yes.

Mr. Justice Byrne: I see the cost is £285 to £315.

Mr. Terrell: All these costs are enormous.

The Witness: I see no pedals on this, and I should say it is started by means of a crank handle. I have not seen the machine.

Mr. Justice Byrne: You would call this a motor-car, would you?—Yes.

Mr. Terrell: You say that the pedal is the most important thing?—Yes.

I suppose you are prepared to admit that motor-tricycles and bicycles are not primarily intended to be ridden with pedals?—They are meant to assist the motor.

They are not intended to be driven with pedals. What does a motor weigh—half a hundredweight?—I should say about a hundred-weight and a half.

People who want to ride bicycles and tricycles do not put a hundredweight and a half on the machine if they can help it?—No.

So the primary object of the thing is to be a carriage to travel by mechanical means?—Not a carriage, a cycle.

I tried to use a word we should not quarrel about; it is a carriage, is not it?—No.

Is not it a carriage by Act of Parliament; have you read the Act?—It is looked upon as a light locomotive.

Do you say that the word "carriage" is not applicable to a thing, which is a cycle?—No.

It is not?—To my mind it is not. I think the usual idea of a carriage is a carriage body on wheels mounted on springs.

Interested as you have been in motor-cars, you have not taken the trouble to read the Act which enables them to be used?—I have read it, but I forget it.

Now let me ask you one question about these accessories; there are things known as accessories in the bicycle trade?—Yes.

And there are things known as components?—Yes.

And components are not accessories?—No.

And accessories are not components?—No.

Are bicycle tires components or accessories?—They are usually called tires.

We will get something which is a little nearer. Look at this thing which is complained of. Is a bottom bracket fitted with a chain wheel and cranks a component?—Yes, that is a component.

There is no doubt about that?—No.

Because it goes to make up the machine?—Yes.

You would say a front fork is a component?—Yes.

You are not quite sure about a tire?—No.

When did your company or the Stanley Show Company first exhibit motor-cycles?—That I could not say.

Two years ago?—I could not say.

Three years ago?—I could not say.

You do not know at all? Not a bit?—No.

You do not know whether they have ever exhibited them or not?—I have seen them at their shows.

When did you first see them?—I saw them in 1896—not at their shows.

But at their shows; that is the question?—I could not say positively when.

Nowhere near?—No.

They were things that you remarked in 1896—you remember that date?—Yes.

Re-examined by Mr. LEVETT.

You told my friend something was somewhere near the border line between cycles and motor-cars. You were referred to page 43. Have you any doubt which side of the line those are?—No. I consider those motor-cars.

Have you any doubt?—No, none whatever.

Would the cycle trade have any doubt about it?—No.

Now page 44. Have you any doubt about that?—No, none whatever. 54, the top one; have you any doubt about that?—No, that is a cycle.

Take the middle one?—A carriage.

Could that be called a cycle?—No.

I see the bottom one is described as a "Brown motor-quadracycle." Is that correctly described as a cycle?—A motor-cycle, yes.

59 is the border line one, is not it? Just let us examine 59. You thought 59 was a motor-car. "I should call it a motor-car," you said?—Yes.

Tell my Lord why you should call that a motor-car and not a cycle?—Principally on account of the means of propelling it, there are no pedals.

Mr. Justice Byrne: What is that at the back. I suppose it is the motor, is not it?—I should think so; I have not read the description of this.

Anything else?—No, my Lord, that is all, as far as I can see.

Mr. Levett: Turning back to page 43, the lower picture, I think you said that was steered by the lever?—Yes.

Which is the lever; is it that little handle we see here—that little thing that sticks up?—Yes.

How does that lever operate the front wheel?—It is connected with the front wheel by means of either a rod or a chain.

Is the handle which steers the bicycle connected with the wheel in the same way?—Not usually; it is generally connected with the front wheel.

Mr. Terrell: With the front fork?—The front fork, yes; but in some American cycles, in tandem cycles, they are steered in that way, where both riders can steer the machine.

CHARLES WILLIAM BROWN, sworn. Examined by Mr. LEVETT.

I think you are a journalist and a cycle-motor expert?—Yes.

Have you considered the question, what is the difference between a cycle and a motor-car?—Yes, I have.

I mean the words as used popularly in the trade—the difference in what the trade means between a motor-car and a cycle. What is the difference between a motor-car and a cycle, to begin with?—One is driven by mechanical power and the other is propelled by manual force, by the force of the rider, however applied; it might be applied by the pedals or in any other way.

What is the difference between a motor-car and a motor-cycle?—The motor-car is propelled entirely by mechanical means. A motor-cycle is a machine on which the rider is capable of applying manual power.

Mr. Terrell: Foot power, not manual power?—Not necessarily pedal power. It is usual to propel them by pedal power because that has been found to be the best means.

You mean physical power. You do not mean manual power—you do not mean the hands?—Yes, physical power.

Mr. Justice Byrne: You mean capable of being propelled without any assistance of any other power beside the rider's own—which can be propelled by the rider without the assistance of any artificial outside means.—Without any mechanical means; but the rider may also render assistance to the motor up a steep hill.

I was asking about a motor-cycle, a bicycle-motor. If it is capable of being used by a man independently of the motor, then it is a motor-cycle as distinguished from a motor-car.—It may also mean that the rider would be able to use it altogether without the motor, as up a hill—to assist the motor up a hill.

Mr. Levett: If it can be moved, or helped to be moved by physical power, you say it is a motor-cycle?—Yes.

Mr. Justice Byrne: That is not quite right. It is moved or helped by the rider. You might get someone to push it behind.

Mr. Levett: I mean the physical power of the rider.

Speaking of a motor-car, how do you define a motor-car as to the way it is moved. How is a motor-car moved?—Simply by the motor.

Now come to the starting. How must a motor-car be started?—It is usually started by the driver first of all starting the motor. He connects the motor up to the car, and that starts the car.

Mr. Justice Byrne: There is another thing which used to be called a coolie cycle, where a man drives behind—propels it by driving it behind.

The Witness: That was not unlike a motor-cycle.

Mr. Justice Byrne: That was an exceptional sort of thing.

Mr. Levett: Will you look at this catalogue, page 43. I will take the same as my friend took before. How do you describe these two things on page 43?—They are both motor-cars.

Have you any doubt about it?—Not the slightest doubt.

Now take the two on page 44?—They are both motor-cars.

Now take page 54, what is the top one?—The top one is a motor-cycle.

What is the middle one?—A motor-car.

What is the bottom one?—A motor-cycle.

Have you any doubt about it?—No doubt at all.

Now take page 59, what is that?—A motor-car.

In going up hill what use can be made of physical power in that motor-car?—None whatever.

And in a motor-cycle?—You can help the motor materially.

Cross-examined by Mr. TERRELL.

You are what, on the C.T.C.?—Cycle expert and show reporter, for many years.

The C.T.C. is a cycling club?—A cycle touring club.

A very large club, perhaps the largest in the world?—Not the largest in the world.

Have they got rules?—I think so, but I am not certain on the point.

Have they rules with regard to the admission of members?—Yes.

What people are qualified to be members?—Anybody who is not a professional cyclist.

And he must be a cyclist?—I do not think it is necessary for him to be a cyclist; it generally is.

Have they been considering that in regard to motor-cars lately?—They have been considering the question of motorists being admitted; motor-car owners or drivers being admitted to membership.

How did that come to be considered?—I am not on the Council of the Club, and I cannot tell you.

It was thought to be outside the scope of the club by some people?—Some people thought so.

They thought cycling was a sport, and a thing propelled by machinery was not within the sport?—Some of them thought that.

Did that objection apply to what you are pleased to call motor-cycles as well as motor-cars?—I do not know; I was not present at the time it was raised.

But you have heard about it?—I should think it would apply to motor-cycles. There are many questions raised like that. I believe the club will admit motorists eventually.

Mr. Justice Byrne: They do not admit any motorists at present?—They proposed to admit them. I dare say they would admit them now.

Mr. Terrell: Do you use the expression "motorists"?—Yes.

Is that a known expression?—It seems to be a common expression enough in the papers.

That is to distinguish people who go by motors from people who go by what you call manual power?—Yes; or physical power on cycles.

With regard to the starting of these things—many motor-cars are started by hand?—The majority of the motors are.

But the car itself is given a shove to give it a start?—Occasionally, when they are out of order.

Sometimes they have a crank handle to start?—To start the motor.

And to start the car?—I have not seen a big car started in that way.

Have you seen small cars started in that way?—No. I do not think I have seen small cars started in that way.

What is the object of the pedals in, say, a motor-quadracycle? I think you said a motor-quadracycle was a cycle?—Yes, I do.

The object of the pedals there is to start?—One of the objects.

Look at that picture you have had attention called to on page 54—that bottom picture. You would not like to drive that along any distance without a motor?—No. I should not like to; but I would also say that machine would not go up some of the hills without those pedals.

That would depend on the power of the motor?—As a matter of fact they hardly ever will go up a steep hill without.

It depends whether it is like a wall?—No.

Or very bad motors?—Yes.

The whole trade is in its infancy?—Yes.

Motor-cars and cycles are quite a new thing?—Yes.

Do you remember the Act enabling them to come into operation?—Yes.

It is only since that Act that there has been any trade at all in these things?—In this country.

Do you attend the Stanley Show amongst your other duties?—Yes. When did you first see motor-cycles exhibited at the Stanley Show in any quantity. I do not mean one little exhibit. When did you first see a substantial show of motor-cycles at the Stanley Show. I take as substantial, say if even three or four makers exhibited them?—I cannot say three or four. I think there would be some in 1895.

The Stanley Show has gone on for a large number of years?—Yes. I would not say there were more than three or four, if three or four.

There were not three or four in 1898, were there?—I think so, in 1898.

Did you attend the show?—Yes, but I was doing cycle reporting only.

Then you would pay particular attention to what was there?—I should pass over motors at that time.

You were doing cycle reporting, and you would pass over motors?—Yes, I was doing the *Gazette* reporting. We did not include motors. The motors were done by Mr. Douglas Leechman.

When are you talking of?—1898.

In 1898 the *C. T. C. Gazette* was the organ of English cyclists—the principal one?—Yes.

As distinguished from the trade?—Yes.

The Stanley Show is a show to the public as distinguished from the Crystal Palace Show?—They are both shows to the public.

But it is the large trade show at the Crystal Palace and the smaller trade which shows at the Stanley Show?—Not necessarily; we have had some of the largest makers at the Stanley Show.

Mr. Justice Byrne: I have had a good deal of evidence lately on the subject. There is a great deal of wholesale at the Stanley Show.

Mr. Terrell: The *C. T. C. Gazette* is the organ of the actual cycling public—the person who wishes to cycle on the road as distinguished from the trade?—The *C. T. C. Gazette* is a private publication sent to members of the club only, and is not a public journal.

How many thousand members has the C.T.C.?—60,000.

That is pretty public. Do you think any other cycling publication has anything like that circulation?—I should not like to say.

The *C. T. C. Gazette* in 1898 limited itself, and you were limited in reporting for it to cycles propelled by the feet or the hands?—It did not limit itself. I was doing my report relating to these cycles. There was a report of motor-cycles. It was done, I believe, by Mr. Douglas Leechman.

They were employing two separate persons who were doing separate reports of two separate sorts of things?—It may be they looked at it in that way or they may not.

You looked at it in that way?—I looked at it that I had to do what the Editor told me to do.

Have you had an engineering education?—No, not entirely.

You require an engineering education to understand a motor?—I do not know. I think I understand it pretty well.

But you require an engineering education to understand it?—Yes, in a certain sense.

To understand its construction and mode of operation?—Yes.

Mr. JOSEPH VAN HOODONK, sworn, examined by Mr. LEVETT.

I think you have made bicycles for eleven years?—That is so.

And motors for two years?—That is so.

I think you are well acquainted with the trade, and you have a knowledge of engineering?—I have been in the trade eleven years now on my own account, and I have been in the engineering business ever since I was nine.

Is there a difference made in the trade between motor-cycles and motor-cars. Tell my Lord the points of difference made by the trade?—The usual difference considered in the trade is that the motor-cycle is a sort of a vehicle pretty well on cycle lines, which can be partly or wholly propelled by manual power. A motor-car is a vehicle of a larger description altogether, it is propelled by a motor of some kind, and is not intended to be assisted partly or wholly by manual power.

Take a copy of the catalogue and take page 43. What are those?—Both cars.

Page 44?—Both cars.

Page 54, the top one?—A motor-tricycle.

What is the middle one?—A car.

And the bottom one?—A quadricycle; we call them "quads" in the trade, but still it would be a cycle.

Page 59, what is that?—We have not got a name for that.

You give that up?—I remember now a thing is being made by a man named Reny, in Bradford, which he calls a motorette. I have seen an illustration of that, and from that I should call this a motorette. I should not call it a motor-car. The wheels are cycle wheels. It is not a cycle and it is not a car.

Mr. Justice Byrne: You call that a nondescript, I suppose?—Yes.

Cross-examined by Mr. TERRELL.

Do you know the Hildebrand and Wolfe-Müller motor-cycle?—No.

Do you know the Century motor-cycle?—Yes.

Is that a motor-cycle?—Yes.

Has it pedals?—No.

Why do you say that the Century is a motor-cycle as distinguished from a motor-car?—Because the general get up of the thing is on cycle lines. It is practically a cycle frame with the pedals left off and an engine added to it.

So your evidence is it does not matter. A thing may be a motor-cycle which has no pedals whatever. Is that what you say?—So far as you were to take an ordinary cycle.

Could not you answer my question, yes or no? Can a thing be a motor-cycle which has no pedals?—Yes.

What you say makes the distinction between a motor-cycle and a motor-car is the general get up. That is your view of it?—That is part of it.

What is the other part of it?—The pedals.

It does not matter whether there are pedals or not; it may be a cycle, and made without pedals.—It does to some extent; one thing without pedals would be more a motor-cycle than another thing with pedals.

Are there things which are more motor-cycles and things which are less motor-cycles?—Most decidedly.

Mr. A. J. WILSON called.

Mr. Levett: This witness is so deaf that he wants an interpreter. He is an author; he has written a book on motor-cycles.

Mr. Justice Byrne: Perhaps he can exhibit his book.

Mr. Levett: His proof is his book.

Mr. Terrell: Only I cannot cross-examine him on it. [Book handed to Mr. Terrell].

When was this printed?—It was printed in the commencement of last year, reprinted from articles which I had published during the previous year, 1899, in the Motor-car newspapers.

What part of 1899?—About October.

Mr. Terrell: I shall obviously have to cross-examine this gentleman on this.

Mr. Justice Byrne: He must be sworn then.

Mr. Terrell: To save time I will admit it if your Lordship will take the date it was written. I will take that date without cross-examination.

Mr. Levett: That book had better be marked A. J. W. That is our case.

Major H. C. L. Holden, Royal Artillery and F.R.S., called for the defence, described a motor-car as a carriage propelled by motive power, and which was too heavy to be propelled by human power. A motor-cycle was a smaller variety of motor-carriage, which could be started by human power, and in some cases be subsequently assisted by human power. He described a cycle as a light machine that was entirely propelled by human power. Bicycles, tricycles, and quadricycles—outside motors—never paid duty as carriages, whereas motors did. The strong point of difference between the two classes of vehicles was, in witness's opinion, that one had pedals and the other had not.

Cross examined by Mr. Levett: What do you say is your definition of a motor cycle?—First and primarily a machine fitted with a motor, such machine being built of similar materials, and sometimes in a similar way, to that of the ordinary bicycle, tricycle, or quadricycle; but there the similarity ends, because the motor machine is so heavy that where it can be propelled at all it entails too great exertion on the part of the rider or driver. Have you ever seen a three-wheel machine described as a motor-car?—Yes, the Bollée.

Mr. W. Worby Beaumont was also called for the defence, as was also Mr. Charles Cordingley, the defendant, who, having the list of accessories mentioned by the plaintiffs put to him, specified a number of them that were applicable to motor-cars and not to cycles alone. He declared that the rims, for instance, had been used on a Locomobile, and that he had seen them fitted on such a machine at the Stanley Show.

After hearing Dr. Boverton Redwood and Mr. T. W. Staplee Firth, this concluded the evidence for the defence, and

Mr. Terrell summed up for Mr. Cordingley, saying that the intention of the parties was clearly that at one exhibition the articles were to be of one kind, and at the other of another and distinct kind. The evidence, he submitted, clearly showed that there was no dividing line between a motor-car and a motor-cycle. Under these circumstances was it likely the parties would make the agreement for showing and selling motor-cars without saying where the Stanley Show rights were to begin, and where the defendant's rights were to end? The parties intended that there were to be two separate shows. The Stanley Show was one thing; the defendant's show was another, and was the outcome of a new industry and a new trade legitimised by Act of Parliament in 1896. The agreement specified "no cycles of any kind whatever." The question was: What did they mean by "cycles"?

Mr. Clare having followed on the same side, judgment was postponed until Thursday, the 21st ult.

In giving judgment Mr. Justice Byrne said:—The question I have to determine in this case is whether a certain agreement between the plaintiff company and the defendant authorised the exhibition of motor-cycles. Having stated shortly the agreement, and having read Clause 5, his Lordship continued:—For the plaintiff it is contended that motor-cycles are included in the prohibition as to cycles of any kind or description, while the defendant contends that motor-cycles are not cycles within the meaning of the clause. Prior to 1896, owing to the state of legislation, motor-cars and vehicles of that kind for passengers were practically not in use in England, but an Act of Parliament passed in that year having rendered their use feasible they began to come into general use. Prior to the introduction of motor-cars and motor-cycles there is no difficulty in assigning a meaning to the word "cycle"; it meant, in the cycle trade and to all interested and to the public, a vehicle, usually with two, three, or four wheels, called respectively bicycles, tricycles, and quadricycles, and propelled by the exertion of the rider or riders with the aid of

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mechanical contrivances. In about 1895 or 1896, with the introduction of vehicles for passengers and riders having independent motive power, a new nomenclature became necessary, and the expressions "motor-car," "motor-cycle," and "motor-tricycle" soon became and are among the most common. Witnesses have been called to show the ordinary meaning attached in the cycle trade and amongst exhibitors, experts, cycling journalists, engineers, and writers as to the terms "motor-car," "motor-cycle," and the rest. Having given some instances of the definitions given by several of the witnesses as illustrating the rest, his Lordship continued: It is difficult to get a very absolute and distinct line of demarcation, but on the whole, I think that given in a book that has been produced and put in evidence, "Motor Cycles and How to Manage Them," by A. J. Wilson, appears to me to substantially sum up the difference between motor cycles and cycles, the result being there stated that a motor cycle was a machine constructed like the everyday bicycle or tricycle, a pedalling cycle in fact, with auxiliary motor power attached, the motor doing all the work except up a steep hill, perhaps, and the pedals being principally used to start the machine or to ride it home again in the unfortunate event of failure of the motor power. His Lordship then came to the conclusion that, upon the whole evidence, and having regard to the words in the agreement, "of any kind or description" of cycles, the exhibition of cycles, even though intended to be used with motors, was forbidden by the agreement. The defendant having failed must pay the costs of the action, no other relief being now asked.

Mr. Terrell said his clients would like to take the opinion of the Court of Appeal, and he asked for a stay. This the judge granted, except so far as taxation was concerned.

FURIOUS DRIVING CASES.

At the Edinburgh Police Court, last week, Robert Gillevie, motor-car driver, was convicted of driving a motor-car recklessly and carelessly in Atholl Place on the 8th ult., in consequence of which the car collided with a dogcart, and two occupants of the latter were thrown out. Bailie Murray remarked that this careless driving of motor-cars was much too frequent, and he had difficulty in refraining from sending the accused to prison without the option of a fine. Gillevie was fined £3, or thirty days' imprisonment.

At the Leicester Borough Police Court last week, Wm. Birch, motor car driver, was summoned for furiously driving a motor-car, in Humberstone Road, on the 26th January.—Mr. Harding appeared for the defendant.—Mary Grimes stated that on the night mentioned she was crossing Humberstone Road, near St. Luke's Church, having just got out of a wagonette, when she was knocked down by a motor car, and had afterwards to be extricated from between the wheels. Her head was cut, and she was bruised about the body, in addition to sustaining a fracture of the upper arm. Mrs. Eastwood, sister-in-law of the complainant, gave corroborative evidence. She did not hear the motor-car coming until someone shouted. She called out to the last witness, but she had no time to get out of the way, and witness herself only just escaped being run over. She did not hear any horn blow.—Cross-examined: She did not tell the driver when he called the next day that she and her sister were as much to blame as he was.—Another witness, named Miller, also gave an account of the accident, and said he considered that the motor-car was being driven too fast.—Mr. Hardy submitted that there was no evidence of furious driving and pointed out that the accident was due to Miss Grimes losing her presence of mind when crossing the road. These motor-cars had been running for about a year now, and carried on the average 10,000 passengers a week. This was the first accident of any account that had occurred, so that he did not think there was much cause for complaint.—The Bench considered there was no evidence of furious driving, and dismissed the summons.

THE CARBURETTOR PATENT QUESTION.

IN the Chancery Division on Tuesday Mr. Justice Joyce had before him the undefended case of the British Motor Traction Co. Limited v. Friedlander. It was an action by the plaintiffs to restrain infringement by the defendant, who carries on business in Lewisham, of a patent, No. 16,072 of 1893, relating to a carburettor. It now came on as a motion for judgment in default of appearance.—Mr. Bucknill (for the company) asked for an injunction, an inquiry as to damages, and order for delivery up of the infringing articles.—Mr. Justice Joyce entered judgment in the terms asked.

WATERING A MOTOR-CAR.

WILLIAM HERRING, driver of a steam motor-van, was summoned last week to answer a charge of stealing water. The prosecution was instituted by Edgar Tilley on behalf of the Metropolitan Drinking Fountain and Cattle Trough Association. Mr. Tilley said that the association, which erected the troughs and fountains about the metropolis, paid for the water, which was on constant supply to those places, by meter. The water was therefore the property of the association, and there were notices about that the water was only for man and beast. Police-constable 332 H gave evidence that on the afternoon of the 5th

February he saw the defendant, who was driving a traction engine in Spitalfields, stop at the cattle trough in front of the church and take water from it for his engine. Asked how much the defendant took, the constable said he could not say, because the engine pumped for itself, the defendant putting a 2in. hose into the trough and sucking up the water. The witness thought the process took about a minute and a half. The defendant said he took about seven buckets, or twenty-eight gallons. He had to do it because the water had run out of his boiler, owing to unexpected delays on his journey. Replying to the magistrate, the prosecution said that the water supply cost 6d. per 1,000 gallons. He put the value of the water stolen at 1d. The magistrate fined defendant 20s.

MESSRS. A. B. WARDMAN AND SON, Regent Parade, Harrogate, ask us to state that they keep a stock of petrol for motors.

AN electric motor postal van was put in operation by the postal authorities in Paris last week as an experiment.

It is reported that Messrs. Stanley Brothers, Newton, Mass., inventors of the Locomobile, intend to put out a still lighter and cheaper car in the spring.

At a meeting lately held in Washington the National Capitol Automobile Club was formed, with General Nelson A. Miles as first president.

SERVICES of motor-vehicles between Dawson and the various Yukon creeks began on 2nd February, and so far are reported to have proved highly successful.

A COMPANY is being organised for the purpose of running a service of motor-cars between Buffalo and the Pan-American Exposition grounds.

THE Kingston Motor Company, High Street, Kingston-on-Thames, have been appointed official repairers to the Motor Manufacturing Company, and De Dion-Bouton, Ltd.

A SALE by auction is to be held on March 8 of the plant and stock (comprising thirteen Stirling-Daimler cars to carry eight persons and driver) of the Falkirk District Motor Company, Ltd., in liquidation.

THE Progress Motor Company, Ltd., of Coventry inform us that the sole and exclusive sale of frames and component parts for their "Progress" cars has been placed in the hands of Mr. H. Waterson, of Aston, Birmingham.

AN invitation motor-cycle race, open only to amateurs, is to be held on Easter Monday at Putney Velodrome. Mr. Mark Mayhew, a vice-president of the Putney Athletic Club, is offering a five-guinea prize for the race.

DRIVERS of motor-vehicles in Chicago are threatened with loss of their licences unless they check the speed of their vehicles at street crossings. The City Electrician has sent out a warning to all drivers who hold licences, and has enlisted the aid of the Chief of Police.

MR. GEORGE W. RITCHIE, superintendent of the works of the Locomobile Company at Westboro, Mass., has been experimenting with locomobile sleighs by attaching runners five feet in length to the front wheels, first removing the tires. The experiment is said to have been successful.

THE Thornycroft Steam Wagon Company of America, of Paterson, N. J., is at present building ten of the Thornycroft steam trucks of 3½ ton load capacity. A large part of the works of the Cooke Locomotive Works, with which this concern is related, is set aside for the work on these trucks, and they are rapidly nearing completion.

THE Steam Vehicle Company of America has offered a silver challenge cup to be awarded to the owner of the car who shall before April 15, 1901, establish the best record time for a steam-car between the cities of New York and Philadelphia. The competition is open to all owners of steam vehicles of any description, the route between the two cities to be selected by the contestant. The purpose of the offer of this cup for public competition is to demonstrate the practicability and usefulness of steam vehicles in operating for any distance under adverse conditions. In order to do this the competition takes place during the winter months, when the roads are in their worst condition. It is expected that the competition thus begun will call forth some surprising records and show to the public the immense superiority of the steam vehicle over other means of transportation.

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